Why are barcode verification and barcode scanners critical for patient care?

And what's the deal with patient ID wristbands?
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Off the cuff: patient wristbands & barcodes
Patient care is top-of-mind for medical practitioners, and so is technology, like barcode readers, that ensure treatment and recovery are smooth and error-free. Born on a pack of gum in the 1970s, the humble barcode printed on patient wristbands supports several aspects of healthcare—from verifying identity to medication administration. Given the barcode's contribution to healthcare quality and public health, it'll likely soldier on, as will barcodes scanners, to simplify nursing workflows and fortify quality of care.

Initially introduced as a 1D (or linear) code, the information in barcodes was limited to just a single piece of data, such as an expiry date. Increasing the amount of encoded data necessitated longer linear barcodes. However, longer barcodes were typically hard to read for early barcode scanner designs. Beyond size, this limitation also restricted the use of multiple barcodes on a single item, which was another issue. What if there were no human-readable characters to help identify which barcode related to which piece of information that needed scanning? With this growing need, barcodes quickly evolved, and along with them came purpose-built barcode readers for healthcare.

More recently, 2D (or two-dimensional) barcodes have become the prominent way of replicating required data. These codes are far more flexible, meaning the barcode can be smaller and more data can be encoded in one barcode. A single scan can then extract and allocate all the required data into the relevant database fields.

What info is contained in the barcodes on a hospital wristband?

The barcodes on patient wristbands contain data such as allergies, any previous injuries/illness, and current medicine(s) taken. With a quick scan, nurses can track care, assess progress, and catalog treatment.

Barcodes & EHRs

Advanced barcode readers can sync treatment data with the hospital's electronic health records (EHRs) upon scanning a patient ID wristband. Among their chief functions, EHRs share information with healthcare organizations like pharmacies and labs. Data sharing ensures continuity of care if a patient needs follow-up treatment or an

Figure 1: Barcodes on patient wristbands enhance care.

additional hospital stay due to complications. As smartphones, barcodes, and mobile EHR apps gain ground for use in bedside care, barcode scanning software has also advanced for data accuracy. For instance, the Dryrain Enhanced Browser for Expanse, a mobile web-based EHR, prevents data from being scanned to the wrong fields. This functionality is crucial as Expanse EHR is used in thousands of hospitals globally.

Barcodes Ensure Dandy Care for Andy

To understand where and how barcodes are helping healthcare practitioners ensure a smooth hospital stay, let's look at Andrew's recent ER visit:

Andrew's wife called an ambulance as he had fallen over, cut his arm, and was dazed and confused. The first responders decided he needed

to go to the hospital for observation and got some basic details about Andrew from his wife. On arrival, Bill got a patient wristband which gives access to Andrew's EHR containing key identifiers such as name, date of birth, NHS number, and vital health history (e.g., allergies).

Andrew was taken to a waiting room until a doctor became available. When the doctor walked in, she scanned the wristband to confirm this was the correct Andrew. She was also able to see what other information is encoded on the wristband that may not be in human-readable form.

She quickly decided Andrew needed to go to the theatre for stitches as he lost a significant amount of blood. She requested two bags of the O blood type with the information she got from Andrew's wristband and asked a nurse to prepare Andrew in theatre and ready the blood bags. The nurse took Andrew to theatre, scanned his wristband and then the blood bags.

The doctor needed some medical instruments to perform the surgery, so she went to the stores—here she took the relevant articles, scanned them, and took them to the theatre, where she scanned Andrew's wristband and then the instruments again. Hospitals are increasingly relying on barcodes for sterilization traceability and documentation.

After surgery, Andrew was taken to the recovery ward. The nurses periodically checked on him—each time, they scanned his wristband, taking notes as necessary. It was decided to give Andrew some anti-tetanus drugs to prevent infection. The nurse went to the stores, scanned the correct drugs out, returned to Andrew, scanned his wristband and the drugs, and then administered them.

After two days, Andrew fully recovered, and the doctor marked him down as ready for discharge. She scanned his wristband again, made the relevant notes, and then informed the support staff to ready Andrew for his return home. At the appropriate time, the nurse and support staff collected him, scanned his wristband, and wheeled him to the ambulance.

Throughout Andrew's stay, barcodes helped with all processes and verified the correct information was reported back into the

Figure 2: Barcodes match a patient to their medications.

hospital records system from the minute he was admitted. They identified him at all stages, made sure the right instruments were used for the surgery, identified the correct blood type was used, and the correct anti-tetanus drugs and dosages were administered. Appropriate care during subsequent follow-up appointments with specialists or Andrew's primary care physician will also be made possible by barcodes.

It's no wonder why the hospital makes sure you have a wristband. That unfashionable ring of polyester is key to ensuring you recover, thanks in part to barcodes.

Questions about the power of data capture? Feel free to contact your Connection rep.