BARCODE EGUIDE, VOL 2

The Right Solution for Healthcare

accusoft®

Vol. 2:
The Right Solution for Healthcare

Barcode technology is having a decisive impact on the healthcare industry. Check out the first volume in this series — **Barcode eGuide: The Impact on Healthcare** — to learn more about the variety of ways healthcare organizations are benefiting from the technology.

As we discussed in volume one, barcodes are already being used by the healthcare industry in a variety of ways. Whether it's viewing a patient's medical record, reading through previous doctor's notes, or accessing medication information, barcodes enable healthcare providers to identify records and help care for patients. They also streamline processes by helping healthcare organizations manage patient records and medical equipment, while reducing the time providers spend with manual data entry.

While 1D barcodes are ubiquitous in retail, 2D and QR codes have the capability to store more information in a smaller area, and are therefore better suited for the healthcare environment. With a quick scan, pharmacy codes can provide a nurse with a drug's manufacturer, expiration, and dosage information, which can help avoid costly mistakes.

In this volume, we'll dive deeper into barcode technology itself and explore how barcode systems can be optimized to help healthcare organizations gather data more effectively.

5 4 4 3 7 8 9

> **Not only do barcodes keep patients safe and track their medication records, they also help healthcare staff manage inventory.**

Why Is Barcode Technology So Important

Barcodes offer significant advantages for healthcare providers by helping to reduce complexity across patient treatments, pharmaceutical tracking, and document management. As noted by recent research, however, challenges remain.

Medication errors have been linked to an estimated 7,000 deaths each year. These errors can occur at any stage of the process – from ordering and dispensing to administering the medication to a patient.

One method of reducing these types of errors is using barcoded medication administration (BCMA) with an information technology solution known as Electronic Medication Administration Record (eMAR). This can help healthcare organizations maintain compliance with the

five rights of medication administration: right patient, right medication, right dose, right route, and right time.

Not only do barcodes keep patients safe and track their medication records, they also help healthcare staff manage inventory. Barcodes can track a piece of equipment back to the source if it is damaged. The organization can then request a refund or replacement from the distributor if it was damaged during shipping.

Finally, barcodes can save healthcare providers time in having to manually enter data, which gives them more time to spend with patients. Reducing manual data entry also reduces the incidence of human error, which is highly important in a healthcare environment.

Bypassing the Pitfalls of Full-Service Barcode Solutions

While barcode technology can dramatically improve medication tracking and patient safety, the systems that healthcare organizations employ are often conceived and implemented without an overall strategy. This can result in different types of code being used across the clinical environment – and even on the same product – which leads to obvious problems for clinicians.

Damaged, misaligned, or incorrect codes can also be a serious problem in healthcare. If a pharmaceutical or patient code is damaged or hard to read, and the wrong medication is given to the wrong patient, the results can be life threatening.

The solution? Building custom software is one option. However, this usually requires a bigger investment of time and resources than many healthcare organizations have available. Fortunately, there are alternatives that can improve the reliability and accuracy of existing barcode systems with the need to build custom software from scratch.

Perhaps the fastest and most affordable option for healthcare organizations is the implementation of **software development kits (SDKs)**. These SDKs are capable of existing-app integration and accurate scanning regardless of barcode condition, which can significantly improve the reliability of barcode technology in healthcare.

Qualities of a Great Barcode Solution

When it comes to barcode technology in a healthcare setting, accuracy and reliability is the name of the game. And while you can't always control the quality of the barcodes you're trying to decipher, you can choose a barcode SDK that consistently produces reliable output regardless of the quality of input it receives.

When seeking a high-performance barcode solution, these are some of the most important characteristics to look out for:

ACCURACY
Barcodes can be blurred, torn, upside down, even printed in reverse. The right SDKs can be added to a barcode system to help improve accuracy by:

> Reporting confidence values for detected barcodes.

> Receiving more accurate decoding of barcodes.

> Eliminating false positives when reading patch codes to minimize size.

SPEED
For applications where barcodes must be read in large batches, speed is essential. A high performance barcode SDK will be optimized for processing speed and will support multi-threading so you can read barcodes as fast as your hardware allows. Look for a solution that is able to identify and recognize barcodes anywhere on the page, in any orientation, in milliseconds.

VERSATILITY
For the best results in a healthcare setting, barcode solutions must be capable of handling damaged and poorly printed or scanned barcode images automatically. Make sure the solutions you're considering are capable of reading barcodes with:

> Black noise (extra pixels)

> White noise (missing pixels)

> Erasures

> Incorrect checksums

> Low resolution

> White line streaks

> Ease of Integration

SDKs should be flexible enough to integrate seamlessly with an existing application. Questions to ask include: Can the app easily and quickly access the functionality the SDK offers? Can the developer be confident that each call will return the requested data smoothly and quickly?

SUPPORT
As noted earlier, barcode processing doesn't happen in a vacuum. There will always be problems with source data (scanned images), and code types are constantly evolving. Make sure the vendor you choose can help you customize barcode SDK algorithms to optimize accuracy for the specific codes you're reading. In many cases, this fine-tuning is essential to achieve high accuracy in real-world situations where barcodes and images are far from perfect.

The Future of Barcodes in Healthcare

Each day, hospitals are responsible for tracking millions of dollars of equipment and pharmaceuticals – not to mention the hundreds of patients whose care they are coordinating from admission through discharge. This is where the real value of barcode technology lies – in providing another level of verification that supports the healthcare provider in offering the right treatment to the right patient at the right time.

Of course, like any technology, barcodes are not infallible. But with the right SDK integrations, healthcare organizations can more easily and affordably implement modifications that will improve the accuracy and reliability of barcode systems.

For more about barcode solutions for healthcare, stay tuned for the final installment in this series. In **Volume 3**, we'll introduce specific solutions and explore how SDKs can help maximize the power of barcodes within your healthcare organization.

accusoft®

www.accusoft.com