



Case Study

Veterans Affairs Medical Center

Demonstrating the Benefits of Scanning UDI Barcodes on the Front Lines

Challenge

The Veterans Affairs (VA) Medical Center in Miami, Florida, once spent countless hours each week manually entering product codes into systems for hundreds of medical implants and other products that were received, placed into inventory, and ultimately used in patient procedures and care. To stay on top of correct product names and expiration dates, to prevent inadvertent human error, and to positively impact patient safety—a better system was needed.

Solution

To address these challenges, the hospital introduced GS1 barcode scanning to its inventory management processes. As medical device manufacturers mark their products with unique device identifiers, per the U.S. Food and Drug Administration's (FDA) Unique Device Identification (UDI) Rule¹, these unique device identifiers are available for point-of-care scanning.

For manufacturers that have chosen to use the GS1 System of Standards to implement the rule, the GS1 Global Trade Item Number® (GTIN®) is used as the UDI device identifier (DI) and GS1 Application Identifiers (AIs) are used to represent UDI production identifiers (i.e., batch/lot, serial number, expiration date, and/or production date). This information is encoded in a GS1 barcode, such as a linear GS1-128 barcode or a two-dimensional (2D) GS1 DataMatrix barcode and, as such, is available for scanning.

Although implementation of the U.S. FDA UDI Rule is ongoing, according to the VA hospital, nearly 90 percent of products used by their operating rooms have such barcodes today. As medical devices and implants are received, the Miami VA hospital scans the barcodes, capturing this valuable product information automatically. The information is then stored in the hospital's Medical Device Management System (MDMS) called UDITracker®, provided by Champion Healthcare Technologies, a [GS1 US Solution Partner](#).

Benefits

By using barcode scanning and the UDITracker system, the Miami VA hospital has improved the efficiency of its operations since it can now easily and accurately keep track of implants and other medical devices. Improvements in productivity and inventory management have also been realized.

The hospital estimates a \$5,000 to \$10,000 savings each month by using inventory that might otherwise have expired.

Most important, patient safety has improved since scanning barcodes helps to eliminate human error from manual data entry. Also, capturing uniform device identification information saves tracking time, and could conceivably save lives in the event of a recall.

1 For information about the rule, see the [U.S. FDA Unique Device Identification System](#).

Making Processes Easier

The VA Medical Center in Miami is one of 170 VA hospitals in the United States and is a primary care center for nearly 150,000 veterans in South Florida, offering them 24/7 comprehensive services. Located amid several major healthcare providers in the heart of the city, Miami's VA Medical Center is a mini-trauma center for vets.

"Not all hospitals can do all the cases that we do. If you're a vet and you're injured, most vets will come to us," says Margreth Spruill, a surgical technician with the Miami VA hospital.

"I knew that scanning would make life easier in managing all of the inventory we had to check-in and check-out every day."

Margreth Spruill

Surgical Technician, Miami Veterans Affairs Medical Center

Miami VA's Spruill, a veteran herself with notable computer skills, noticed that implants and other medical devices being delivered to the operating room displayed linear barcodes, leading her to convince the hospital UDI administrator to supply her with scanners.

Spruill reports, "I knew that scanning would make life easier in managing all of the inventory we had to check-in and check-out every day."

In a hospital that does as many as six cataract surgeries and at least three implant surgeries per day, a fair amount of serial numbers need to be recorded in patient records every day. Using manual data entry left substantial room for error in a busy hospital environment.

The hospital works with Champion Healthcare Technologies, a technology company that optimizes tissue and implant management workflows. Champion provides the hospital with UDITracker, an inventory management and tracking platform specially designed for UDI tracking.

Champion is currently working with the VA hospital to integrate implant usage information into the hospital's proprietary electronic health record (EHR) system. Implants and other devices are scanned on the front-end upon receipt of the products and again when products are checked out of inventory for procedures.

Champion's system helps the hospital scan and store implant UDIs (including GTIN and any production identifiers, or PIs) in its systems. This process helps the hospital overcome challenges related to non-availability of dedicated fields to store GTINs in its Enterprise Resource Planning (ERP) system.





An Implant by Any Other Name

Using a manual data entry approach, technicians would type in certain pieces of product information obtained from the label, including product name. This was causing issues because team members varied in how they recorded the product name: One team member might enter product name one way, while another technician might enter it as something else.

Sheer volume also posed a challenge. The hospital performs eye surgeries each day, for instance. Consider that a single manual entry of a device code takes 70 seconds. A scan of the same device takes just 20 seconds. Multiplying the 50-second time savings by approximately 100 procedures in a given week, equates to the hospital saving more than one hour in that week.

Spruill relates a case in point: “The other day I had a case involving 10 dental implants. Because they were not barcoded, I had to type every one of those in by hand, plus transfer them from the dental service into the OR service to keep inventory straight. It took me almost an hour to type all of that into our system, do the transfers, and get the information into the patient record. The very next case was a knee implant, where we had just as many implants and related accessories – but they were barcoded and in UDITracker so I could just scan them in. Scanning took me less than five minutes. That perfectly illustrates the time difference.”

Scanning as Seen Through an Implant Lens

As shipments of implants and other medical devices are received in the hospital's warehouse, information such as the transaction number, purchase order (PO) number, and date of receipt is recorded in the UDITracker system. The products are then handed off to the appropriate clerk.

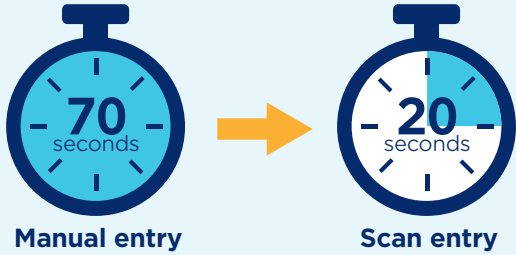
The clerk scans each product's barcode to capture the product's GTIN and any other encoded information (like the batch/lot number and expiration date), and enters it into the inventory system. The product is then physically placed on the shelf of the operating room's (OR's) inventory.

When a surgeon orders a lens for implantation, the clerk removes it from the shelf and scans its barcode once more in a pre-op setting.

With that, the UDITracker system is updated to show that the implant was used, and forever links it to the patient receiving the implant— making it possible to track the implantable device from point-of-receipt to point-of-care, and for the patient's lifetime if there is ever a recall. This improves efficiency, safety, and patient care.

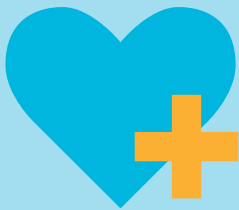
The Benefits of GS1 Standards

Improving Hospital Supply Chain Efficiency



Saving 50 seconds per entry saves the hospital more than 1 hour per week*

 Estimated savings of **\$5,000 - \$10,000** each month*



Improved Patient Safety

Scanning eliminates human error from data entry, capturing product identification information, saving tracking time, and could save lives in the event of a recall.

*Source: Miami VA Hospital

“We can locate and use items that are due to expire first. To check expirations manually on packages, lens by lens, is extremely time consuming – especially when you have hundreds of lenses. The expiration date information [contained in the barcode and captured by UDITracker when scanned] saves us money as well as time.”

Margreth Spruill

Surgical Technician, Miami Veterans Affairs Medical Center

Accuracy is also greatly enhanced. When someone manually inputs a product, they might leave off a number, or they’ll think the number “8” is the letter “B” or they’ll misread it. When someone gets it later on in the process, it is compared with what’s in the EHR, the implant sheet and the actual implant sticker. The barcode can actually help catch errors.

Had a barcode been available for scanning at the outset, however, the need for this corrective procedure would be eliminated.

Miami’s Spruill gives Champion high marks for its assistance and expertise in the healthcare arena. “We do training maybe once every six months or as needed as we get new users. It’s very informative and helps us keep our operations efficiently moving. Champion plays a major role for us,” Spruill says.

Champion helped the hospital “cleanse” its database of imprecise product names and non-unique manufacturer catalog numbers, and move to standardized, unique device identifiers (GTINs) instead so all product information is aligned and can be readily found.





Time is of the Essence

With inventory tightly and accurately controlled, product expirations can be reduced, saving waste and money. The program enables a search by expiration date, quickly displaying the products with the closest expiration.

“We can locate and use items that are due to expire first. To check expirations manually on packages, lens by lens, is extremely time consuming – especially when you have hundreds of lenses,” Spruill says. “The expiration date information [contained in the barcode and captured by UDITracker when scanned] saves us money as well as time.”

In the event of a recall, scanned product data residing in UDITracker can prove to be invaluable for speed and accuracy. UDITracker includes a recall feature that enables users to click on the item being recalled, and the technology shows every patient in which the device was used and where the remaining devices are stored. Aside from the time savings this represents, the patient safety aspects are profound.

“When we had a tissue implant that was recalled, I went into the system, typed in the product code number and the system pulled it right up, supplying every name within a matter of minutes—everybody that used it and in what department,” Spruill says.

“Managing inventory to ensure implants are there when our veterans need them is what we always aim to do.”

Margreth Spruill
Surgical Technician, Miami Veterans Affairs Medical Center

The Value of Barcode Scanning

- **Increased efficiency:** The Miami VA hospital can now easily and accurately keep track of implants and other medical devices in a highly efficient and precise way.
- **Greater productivity:** In the hospital, scanning linear barcodes (e.g. GS1-128 barcodes), instead of using manual data entry, results in a time savings of at least one day per month.
- **Better inventory management:** The ability to readily identify and then use products nearing their expiration dates eliminates waste and saves money. The hospital estimates a \$5,000 to \$10,000 monthly savings when using inventory that might otherwise have expired.
- **Improved patient safety:** Scanning eliminates human error from manual data entry, and capturing uniform product identification information throughout distribution and use saves tracking time and conceivably could save lives in the event of a recall.

The Voice of Experience

Spruill admits that busy people resist change, but that implementing barcode scanning quickly proves its worth—ease-of-use, time savings and accuracy—to even the most doubtful professionals.

Spruill recommends that those considering the changeover to scanning barcodes arrange for a demonstration at facilities already using it. And when it comes time to introduce scanning into a facility, proper training should be coupled with the appropriate scanning equipment. For example, some products are marked with linear barcodes and some products are marked with 2D barcodes, so hospitals should invest in image-based scanners which are capable of reading both.

The hospital is also poised to expand the use of scanning as it updates its proprietary Computerized Patient Record System (CPRS) with a commercial EHR system.

Spruill advises that in the end, it's all about taking care of those who have taken care of us—our veterans. “Managing inventory to ensure implants are there when our veterans need them is what we always aim to do,” says Spruill.

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All information contained in this paper, unless otherwise noted, has been provided by the VA Medical Center in Miami, Florida, and Champion Healthcare Technologies.

GS1 Barcodes: Carriers of Valuable Data for Hospitals

GS1 data carriers provide machine-readable representations of GS1 Identification Numbers that facilitate automatic identification and data capture. In order to accommodate a variety of environments and applications, the GS1 System supports eight data carriers: six barcode symbologies (i.e., GS1 barcodes) and two RFID tags [i.e., GS1 Electronic Product Code (EPC®)-enabled radio frequency identification tags (EPC/RFID tags)].

The GS1-128 barcode and GS1 DataMatrix barcode are widely used in healthcare. Both barcodes can be used to communicate a product's Global Trade Item Number® (GTIN®), as well as other valuable product information through the use of GS1 Application Identifiers (AIs). There are over 100 GS1 AIs available to communicate a wide variety of product data, including expiration date, batch/lot, and serial number .

GS1-128 barcode

The GS1-128 barcode is a linear barcode that can encode 48 characters of data. The size of the physical barcode is dependent on the number of characters encoded. The GS1-128 barcode shown below provides an example of how a UDI comprising a device identifier (i.e. the GTIN) and three production identifiers (PIs) through the use of GS1 AIs (i.e., expiration date, batch/lot, and serial number) would appear.



(01) 2 0887511 00734 6 (17) 150331 (10) A1B2C3D4E5 (21) 123456789

This barcode is for illustration purposes only and does not reflect the actual size.

GS1 DataMatrix barcode

The GS1 DataMatrix is a 2D barcode that can hold large amounts of data—up to 2,335 characters—in a very small footprint. It is often used in healthcare environments where vital information needs to be captured for products that are very small in size—like prescription drug blisters, bottles, vials, and syringes. The GS1 DataMatrix barcode includes built-in error correction to promote scanability, even if the barcode is damaged or less than optimal, and is the GS1-recommended symbol for direct marking. The GS1 DataMatrix barcode shown below provides an example of how a UDI comprising a device identifier (i.e. the GTIN) and through the use of GS1 AIs (i.e., expiration date, batch/lot, and serial number) would appear.



(01) 2 0887511 00734 6

This barcode is for illustration purposes only and does not reflect the actual size.

Learn more about GS1 barcodes in healthcare, see [Know Your GS1 Barcodes and What's in Them!](#)

About the Organizations

About Miami Veterans Affairs Medical Center

The Miami VA Healthcare System serves veterans in three South Florida counties: Miami-Dade, Broward and Monroe. The Miami VA Healthcare System is an accredited comprehensive medical provider, providing general medical, surgical, inpatient and outpatient mental health services. The Miami VA Healthcare System operates 372 hospital beds, including a four-story community living center attached to the main facility. www.miami.va.gov



About Champion Healthcare Technologies

Champion Healthcare Technologies is a technology company that is dedicated to preserving the integrity of healthcare. Champion solutions, like UDITracker, are specifically designed to provide oversight and insight into workflows and systems utilized by hospitals. www.championht.com



About GS1 Healthcare US

GS1 Healthcare US[®] is an industry group that focuses on driving the adoption and implementation of GS1 Standards in the healthcare industry in the United States to improve patient safety and supply chain efficiency. GS1 Healthcare US brings together members from all segments of the healthcare industry to address the supply chain issues that most impact healthcare in the United States. Facilitated by GS1 US, GS1 Healthcare US is one of over 30 local GS1 Healthcare user groups around the world that supports the adoption and implementation of global standards developed by GS1. www.gs1us.org/healthcare



About GS1 US

GS1 US[®], a member of GS1[®] global, is a not-for-profit information standards organization that facilitates industry collaboration to help improve supply chain visibility and efficiency through the use of GS1 Standards, the most widely-used supply chain standards system in the world. Nearly 300,000 businesses in 25 industries rely on GS1 US for trading-partner collaboration that optimizes their supply chains, drives cost performance and revenue growth while also enabling regulatory compliance. They achieve these benefits through solutions based on GS1 global unique numbering and identification systems, barcodes, Electronic Product Code-based RFID, data synchronization, and electronic information exchange. GS1 US also manages the United Nations Standard Products and Services Code[®] (UNSPSC[®]). www.gs1us.org

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