



Inventory management

Greek Army Medical Supplies Centre standardises warehouse operations for decisive results

The Greek Army Medical Supplies Centre wanted to automate its warehouse processes and significantly minimise (or even eliminate) errors. After learning about GS1 standards, the Centre transitioned from using proprietary codes to GS1 Global Trade Item Numbers (GTINs), batch/lot and expiry dates encoded in GS1 DataMatrix barcodes on its own manufactured products as well as products from its suppliers. As a result, stock accuracy has improved to 96 percent, order fulfilment time has decreased by 25 to 30 percent, and the order error rate has dropped from 10 to 3 percent. With full visibility of products as they travel throughout the warehouse and to Army hospitals, the Centre can now execute faster recalls, if ever needed.

By Sotirios Tsiafos-Tsiaras



Background

The Greek Army Medical Supplies Centre (Centre) is responsible for purchasing, warehousing and distributing pharmaceuticals and medical devices to Greek Army's regional warehouses and hospitals that serve active Greek Army personnel and their families. It also directly supports non-medical Army units and personnel deployed abroad at peacekeeping missions.

The Centre manufactures 35 pharmaceuticals with the remaining and all medical devices sourced from approximately 80 suppliers. During 2015, the Centre distributed more than two million items (approximately 1,500 unique SKUs) to its network of regional warehouses and hospitals.

Standardisation as a top priority

Logistics Manager Sotirios Tsiafos-Tsiaras is responsible for all of the Centre's logistics processes—from the receipt of incoming products and management of stock, to the fulfilment of orders. All product data is recorded in the

Centre's ERP system; yet, its processes were once manual, time- and labour-intensive.

Manual processes—even with great care taken by warehouse personnel—were also prone to errors. This resulted in a host of issues in downstream processes such as incorrect orders, lengthy fulfilment intervals, slow responses to potential recalls and stock obsolescence.

“Our coding system was proprietary, yet we needed a global system that would allow us to better collaborate with our suppliers in case of a recall, as well as improve the efficiencies of our operations,” says Tsiafos-Tsiaras.

After meeting with a community of physicians, pharmacists and logisticians, Tsiafos-Tsiaras discovered the GS1 system of standards.

“Standardisation of our processes and coding was and still is a top priority for us,” explains Tsiafos-Tsiaras. “And the best way to achieve standardisation within our operations—in fact, within our industry—is to use GS1 standards that are open and available to all.”



As products arrive, warehouse personnel scan each carton's GS1-128 barcode to capture product information in the warehouse management system.

A highly efficient operation with GS1 standards

Getting started, the Medical Supplies Centre called on GS1 Greece to learn more about the technical details of implementing standards. The Centre also engaged a software vendor to create a new warehouse management system (WMS) based on standards-driven requirements.

Now with GS1 standards, the Centre has automated its warehouse operations, from product receipt to order fulfilment. Products are uniquely identified with GS1 GTINs, batch/lot and expiry dates encoded in GS1 DataMatrix and GS1-128 barcodes.

For its own manufactured pharmaceuticals, the Centre assigns and uses GS1 GTINs encoded in GS1 DataMatrix barcodes at all packaging levels (e.g., packets, boxes, cartons). Yet Tsiafos-Tsiaras reports that suppliers are using GS1 standards on products in varying degrees. Therefore, for products arriving without barcodes, the Centre assigns and applies labels, mainly on cartons, with GS1 GTINs encoded in GS1-128 barcodes.

"Some, mostly multinational companies, use GS1 barcodes exactly as they should be used while others use national codes," explains Tsiafos-Tsiaras. "Others are not using standards at all, so as those products arrive we assign the GTINs and print the barcoded labels ourselves."

Each shelf in the warehouse has been assigned a unique ID, using a specific scheme. As products arrive in the warehouse reception area, Centre personnel scan their barcodes with handheld terminals to capture the product information in the WMS. As products are placed on shelves, the physical location barcodes are scanned.

"We know exactly which item and which lot is on which shelf," says Tsiafos-Tsiaras. "If stock is moved, we track its movement and new location by scanning both the previous and new locations' barcodes."

Upon completion of product receipt, the invoice is finalised for payment. "Receiving products is a much faster process now that in turn, helps us fulfil orders in less time."

The exact products

As regional centres and hospitals issue orders, the WMS provides personnel with the exact location of each product in the warehouse, as well as its lot. Personnel are guided to follow a certain route for picking the ordered products, scanning the barcodes of each item and shelf that is then recorded in the WMS. "We scan the barcode of the shelf since we must be absolutely sure we are picking the right item, the right lot, from the right stock bin," says Tsiafos-Tsiaras.

By using different barcodes at each packaging level on its own pharmaceutical products, the Centre gains significant flexibility and productivity. "For example, we can scan a carton's barcode only once instead of scanning each individual item's barcode contained in the carton," explains Tsiafos-Tsiaras. "This not only saves our people a great deal of time, it also helps prevent errors."

Product obsolescence can now be easily managed, using the expiry data contained in the product's barcode along with the data in both the ERP system and WMS.

Improvements in warehouse operations

Stock accuracy for fast-moving items improved

to **96%**,
a 10 percent increase

Improved productivity

based on hours saved on order fulfilment and no need for reworks

Order error rate dropped from

10 to 3%

Faster recall

response rate based on traceability by product's lot/batch within the warehouse (and soon to regional warehouses)

Order fulfilment time reduced between

25 to 30%



“It is now much easier and quicker to locate products that are about to expire and move them to quarantine,” says Tsiafos-Tsiaras. “Furthermore, if a product is picked that has expired, our WMS flags the product as an error when scanned.”

“Standards help us function in a precise way that has made a significant impact on our operations, our hospitals and our patients.”

Benefits were swift and positive

The new standards-based solution was implemented in phases, starting as a pilot for fast-moving medical devices and pharmaceuticals. Today, approximately 95 percent of all pharmaceuticals in the Centre are uniquely identified with GS1 standards and in the WMS, with plans to fully implement medical devices no later than June 2016.

Tsiafos-Tsiaras advises results have been swift and positive. After a year in operation, stock accuracy for fast-moving items has improved to 96 percent, a 10 percent increase. “At specific intervals each year, we conduct a stock counting,” explains Tsiafos-Tsiaras. “We calculate our stock accuracy by comparing our physical stock levels with the product and lot data in our WMS.”

Order fulfilment is now much faster, taking an estimated 25 to 30 percent less time, especially for larger orders. “It’s hard to calculate the exact impact that faster order fulfilment has on patient care, yet we can now respond much more quickly in case there is an urgent need by our hospitals to care for patients.”

And now with automated processes enabled by GS1 standards, order-related error rates have dropped from 10 to 3 percent within the first year.

“It’s reassuring to have full traceability of products within the warehouse at the lot/batch level,” adds Tsiafos-Tsiaras. “And in case of a recall, we can easily find the specific lot/batch of a product and remove it from our shelves. We also know which of our regional warehouses or hospitals received the recalled product lot. This can be done very easily and faster than ever before.”

Full traceability in sight as next step

Tsiafos-Tsiaras is moving quickly to implement the same standards-based solution in the Army’s two major regional warehouses, enabling full traceability of pharmaceuticals and medical devices.

The next phase will include implementing GS1 EDI-based communication and transactions between centres for master data synchronisation, automated order processing, despatch advices and invoicing.

“Standards helps us operate in a precise way that has made a significant impact on our operations, our hospitals and our patients,” says Tsiafos-Tsiaras. “Everyone, especially our suppliers, should make using standards a priority.”

Tsiafos-Tsiaras also stresses the value of participating in the development of standards. “As healthcare providers and suppliers, we can together make our processes and industry much more efficient and safe for patients. It’s time to take the first steps.”

About the Author



Sotirios Tsiafos-Tsiaras is a Military Pharmacist with 20 years of experience in the healthcare supply chain. Currently the Logistics Manager at the Greek Army Medical Supplies Centre, he is leading the implementation of GS1 standards in the Army’s healthcare sector.

Tsiafos-Tsiaras holds a Bachelor of Science in Pharmacy and a Master of Science in Logistics and Supply Chain Management.

About the Greek Army Medical Supplies Centre

The Greek Army Medical Supplies Centre purchases, warehouses and distributes pharmaceuticals and medical devices to the regional warehouses and hospitals serving active Greek Army personnel and their families. The Centre manufactures 35 pharmaceuticals with the remaining and all medical devices sourced by suppliers. During 2015, the Centre distributed more than two million items (approximately 1,500 unique SKUs).