



## Healthcare providers

# Leeds Teaching Hospitals takes huge savings in time and spends it on patient care

Leeds Teaching Hospitals NHS Trust (LTHT) is one of the largest in England with more than 2,000 beds across eight hospitals. The two main hospitals are the Leeds General Infirmary and St James' University Hospital with over 17,000 staff, 1.1 million out-patient appointments annually and delivering regional specialist care for up to 5.4 million people. Based on the need for greater efficiencies, improved patient safety and lower costs, LTHT decided to focus on standardising the way it captured data. As a result, LTHT implemented Scan4Safety, a programme designed to leverage GS1 standards and barcodes to track patients, products and locations. The benefits for both LTHT and its patients have been immense. From improvements in inventory to more time with patients, Leeds hospitals are taking an incredible journey as they scan for safety.

*By Stuart MacMillan*



## The Leeds Way

The future of healthcare is about building seamless integrated services, supported by specialist providers that are there when people need them. In order to deliver this, LTHT healthcare professionals have developed and committed to a common set of values. Called "The Leeds Way," it encompasses five goals: to always be patient-centred, fair, collaborative, accountable and empowered.

By delivering on these goals, Leeds Teaching Hospitals are creating a platform to build a strong portfolio of specialist care services at a national and regional level and provide seamless integrated care to local patients.

## GS1 standards and Scan4Safety

Leeds Teaching Hospitals joined England's National Health Service Scan4Safety programme as the largest of six demonstrator sites, all charged with introducing GS1 standards to initially increase supply chain efficiency, improve patient safety and significantly reduce costs.

The trusts were tasked with implementing Global Location Numbers (GLNs) to identify each of their locations, Global Trade Item Numbers (GTINs) to identify each of the hospital's products and Global Service Relation Numbers (GSRNs) to identify patients. Encoded in GS1 barcodes, these GS1 identifiers enabled the hospitals to streamline inventory management, purchase-to-pay and product recall processes.

“GS1 identifiers helped to lay the initial, needed foundation, yet, we immediately recognised additional opportunities for using GS1 standards,” says Stuart MacMillan, lead of the Scan4Safety Programme at Leeds Teaching Hospitals NHS Trust. “We took the initial requirements and expanded upon them. Our vision was to completely disrupt the healthcare industry through the utilisation of standards and interoperability.”

The trust’s recent successful audit based on the Department of Health and Social Care (DHSC) criteria is testament to the journey under way.

## Taking on the task

How would LTHT bring about one of the largest business change programmes in one of the largest trusts in England? And how would it do this while improving patient care, cutting costs and having no negative impact on the service provided?

This was certainly a formidable task.

“Our initial focus and motivation centred on the benefits that could be realised through improved supply chain efficiencies,” explains MacMillan. “We also needed to include the broader vision of the trust.”

Additional questions and goals addressed include:

- How could LTHT ensure it was using the most accurate product data throughout its processes?
- How could the hospitals systematically track products from the supplier through to the patient?
- What about reducing clinical time spent on procurement practices?
- What other patient safety initiatives could be improved through data captured via GS1 barcodes?

## Increased supply chain efficiencies

LTHT had been working with GHX, a GS1 UK Industry Partner, to implement an inventory management solution that could capture not only product data, but also patient identification data that could be used to link each product administered or used to the patient.

The trust decided to leverage this existing solution, rolling out mobile barcode scanners that worked with the inventory management solution in their operating theatres. Clinical staff could now scan the patient’s GSRN encoded in the barcode on their wristband, the theatre’s GLN that identified its location, and the barcodes on products issued at the point of care.



Patient wristband scan

Throughout 2017, the trust was able to track all Class III implantable medical devices by batch-level information, using the GTINs encoded in GS1 DataMatrix barcodes. “Using GS1 standards, we not only reduced inventory on hand by more than £1.5 million,” says MacMillan. “Our clinical staff had more time to care for patients. We also realised improved efficiencies in our theatres since products were now readily available when needed.”

Using GS1 standards in the supply chain has allowed Leeds hospitals to automate their order and receipt processes and helped reduce online requisitions to 11 percent of total orders. In turn, this has released valuable staff time and reduced the cost of ordering, while also saving approximately £75,000 per year based on increased productivity through the use of automated quoting systems.

## Real-time patient tracking

To achieve full traceability throughout its hospitals, the trust needed to deploy GLNs encoded in barcode labels to 22,303 locations. The initial rollout prioritised clinical areas with the intent to tackle clinical areas first—the most logistically complex—and, at the same time, encourage clinical staff to engage with the programme and consider different ways of working.



Room / door GLN

“Implementing Scan4Safety with GS1 standards has paid dividends for our hospitals,” says MacMillan. “Combining GLNs with the development of a mobile application that links directly to the patient’s electronic health record, we were able to explore real-time patient tracking.”

In fact, the trust has delivered a successful prototype that allows nursing staff to scan a patient’s barcode on the wristband and either open the record or scan the location, down to the bed level.

The electronic whiteboard on each ward is then updated with this information, showing the exact location of the patient.

“Scan4Safety has made a big difference to us as a team, by knowing at a glance where the patient is in our system,” explains Gillian East, Senior Sister with Leeds Teaching Hospitals. “When patients arrive on the ward for their surgery they are ‘scanned’ from then on. One look at the electronic board enables us to see if the patient has gone to another department (for pre-theatre procedures), and at what time, as well as what time they actually went to theatre, or how long they have been out of theatre and in the recovery area. Previously we would not have known which department the patient had gone to and how long they would be and would have had to go into the theatres to get other information.

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The times and locations provided are very useful for the staff to know and are really helpful when speaking to waiting relatives. It is time-saving to have it all in one place.”

“I believe we are the first trust in the NHS to implement this solution,” adds MacMillan. “This has led to a host of benefits: reduced calls from the patient’s family; improved information that can be shared with them (which leads to their increase satisfaction); clinical time saved when locating patients, and improved management and efficiency of our theatres and beds.”



Mobile application

## Much faster product recalls

Once the trust had implemented the GLNs, labelling all of its locations, and the theatre staff were scanning barcodes on products and patients, the focus moved to improvements in product recalls.

Previously, any information about used implants was captured, handwritten in a book. Now, with standards, the trust can electronically store this information with a simple barcode scan. A product recall that once could take days, now only takes minutes, with an estimated savings of over £80,000 annually based on saving nurses’ time. Patients are safer, too. With implantable products recorded electronically, if a recall is needed, the patient can be more quickly identified and brought back into the trust with urgency.

## Improved data management

To support these use cases, product management has been key. The trust has worked directly with suppliers and other trusts to lead the largest work of its kind in the NHS, producing a singular, transparent source of product information for all products purchased by the trust. The catalogue

now holds over 130,000 GTINs and has integrated this data through all points in the demand systems.

Now, the trust can scan products efficiently at the point of care and automate the process of re-ordering products, all because of GTINs on suppliers' packages.

### Significant benefits for LTHT and its patients include:

- ✓ Reduced inventory across the trust to 21 days.
- ✓ Reduced inventory across theatres, wards and pharmacy by more than £1.5 million.
- ✓ Saved more than £80,000 annually based on saving nurses' time through more efficient product recalls.
- ✓ Saved approximately £75,000 annually on implementing automated quoting systems.
- ✓ Several rooms were cleared of stock for re-utilisation.
- ✓ Improved reliability and increased visibility of the trust's supply chain.
- ✓ Minimised stock wastage.
- ✓ Improved accuracy in patient-level costing.
- ✓ Freed up clinical staff's time to spend caring for patients.

## Taking the journey

"It's been an interesting journey so far, which has brought us some huge patient and financial benefits," reflects MacMillan. "Yet, there is so much more that can be achieved."

As a pioneer in the use of GS1 standards across the NHS, LTHT is keen to take these fundamental building blocks of identifying each patient (GSRN), place (GLN) and product (GTIN) to expand the use of real-time, point-of-care data capture.

MacMillan envisions a world where GS1 barcodes can be used to accurately capture the "who, what, where, when and why" of every patient interaction.

Why couldn't a trust use barcodes to map the patient to not just the products used, but the procedure of care delivered, the co-morbidities they suffer from, the medical and surgical

equipment used, and the staff who delivered the care," says MacMillan. "All while knowing exactly where the patient is on their journey. That level of data capture would allow clinical variance to be fully addressed, improving the patient journey and reducing the cost of the NHS."

Leeds Teaching Hospitals is taking an exciting journey indeed.

Read more about Leeds Teaching Hospitals on [page 50](#).

### About the Author



**Stuart MacMillan** is the Lead for the Scan4Safety Programme at Leeds Teaching Hospitals NHS Trust and a huge advocate of standards in healthcare. He has 10 years of experience in the NHS and has recently led the trust through a successful implementation of GS1

standards, bringing about improved patient safety and substantial financial savings.

### About Leeds Teaching Hospitals NHS Trust

**Leeds Teaching Hospitals NHS Trust** is one of the largest teaching hospitals in Europe, a regional and national centre for specialist treatment, a world renowned biomedical research facility, a leading clinical trials research unit, and the local hospital for the Leeds community. With a £1 billion budget, the trust provides local and specialist services for a population of 770,000 and regional specialist care for up to 5.4 million people, maintaining an international reputation for excellence in specialist care, research and medical training.

[www.leedsth.nhs.uk](http://www.leedsth.nhs.uk)

### About GHX

**Global Healthcare Exchange, LLC (GHX)** is a healthcare business and data automation company, empowering healthcare organisations to enable better patient care and maximise industry savings using its world-class cloud-based supply chain technology platform. GHX brings together healthcare providers, manufacturers and distributors in North America, and Europe, who rely on smart, secure healthcare-focused technology and comprehensive data to automate business processes and make more informed, timely and fact-based decisions. Solutions span procurement and accounts payable automation, contract and inventory management, vendor credentialing and management, business intelligence, payment management and other supply chain-related tools and services.

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