



Healthcare providers

# Derby Teaching Hospitals save £2.8 million by using GS1 standards in operating theatres

University Hospitals of Derby and Burton NHS Foundation Trust (DTH) provides both acute hospital and community-based health services, serving a population of over 600,000 people in and around Southern Derbyshire. The trust runs two hospitals: the Royal Derby Hospital, which is a busy acute teaching hospital and London Road is the trust's community hospital. DTH has implemented GS1 standards throughout their operating theatres by scanning GS1 barcodes for full traceability of caregivers, equipment, products and patients as procedures and overall care are performed. Theatre processes are now much more efficient, saving time and costs as well as improving patient safety. The product recall process is also much more precise and efficient; a recall once took up to 50 hours on average per patient and now only takes 30 minutes per patient.

*By James Mayne*



## Optimising without compromise

Derby Teaching Hospitals realised they needed to make a change in their operating theatres. The acute hospital, Royal Derby, had been built more than 10 years ago with 35 theatres that were now operating at maximum capacity. Rather than build more, the hospitals needed a solution that would optimise their existing theatres' efficiency and use—without compromising patient safety.

As with many trusts, DTH was also challenged with efficiently and effectively managing product safety recalls. They used a manual, paper-based process that was time-consuming for clinicians and inadequate for patient safety. The hospitals also wanted a solution that would not only work in their theatres but could eventually work in their wards and clinics.



By scanning barcodes each step of the way, Derby hospitals are confident that these new processes are safer for our patients. In addition, our inventory management, product catalogue and financial systems have all been integrated so that data captured from scanning barcodes can be used across all hospitals—such as automating the creation of orders to suppliers triggered by the actual usage of products and supplies.”

**James Mayne**, eProcurement and Inventory Manager and Scan4Safety Programme Manager, University Hospitals of Derby and Burton NHS Foundation Trust

## Scanning barcodes at each step

In response, Derby Teaching Hospitals implemented and are now using GS1 identifiers encoded in barcodes to track and trace every person, product, piece of equipment and location that is part of an operating procedure. They have implemented scanning barcodes across all of their theatres as well as in endoscopy and cardiac catheter labs.

Basically, everything and everyone involved in a procedure is now identified with a GS1 identifier encoded in a barcode that is scanned and can be traced back to the related patient. Clinicians scan barcodes that identify the patient and the times during which the procedure starts and progresses—from administering the anaesthetic through to recovery, and then at the time when the patient is out of recovery. Location barcodes are scanned as well as barcodes that identify who is present and what job they are performing, the type of anaesthesia used and any procedure that is performed on the patient, especially when a medical device is implanted.

“By scanning barcodes each step of the way, Derby hospitals are confident that these new processes are safer for our patients,” says James Mayne, eProcurement and Inventory Manager at DTH and Scan4Safety Programme Manager. “In addition, our inventory management, product catalogue and financial systems have all been integrated so that data captured from scanning barcodes can be used across all hospitals—such as automating the creation of orders to suppliers triggered by the actual usage of products and supplies.”

As a result, Derby Teaching Hospitals are saving valuable clinical time that was once spent ordering stock and, at the same time, has reduced inventory waste and costs.

The hospitals have also achieved complete and accurate procedure cost calculations since equipment and implants are recorded based on each patient and procedure, and linked to the associated costs, staff and time information.

## Analysing patient outcomes

By scanning GS1 barcodes, Derby Teaching Hospitals now have access to large amounts of data. Since information about all of their theatre procedures is recorded, this major database can be used to identify and analyse patient outcomes and differences in clinical treatments.

The hospitals also use barcodes to record co-morbidities. In particular, there has been a major improvement in endoscopy practices based on the ability to track patient outcomes.

Increased access to data has had huge implications for performance management in Derby hospitals. Having accurate costs and times linked with each procedure highlights any variations between a group of clinicians performing the same procedure. And because scanning barcodes improves the accuracy of data captured, the data is undisputed, enabling clinician-to-clinician discussions about where procedural efficiencies can be made.

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**James Mayne**, eProcurement and Inventory Manager and Scan4Safety Programme Manager, University Hospitals of Derby and Burton NHS Foundation Trust

150,000+



theatre episodes have been recorded by scanning GS1 barcodes, giving DTH an expansive database to identify patient outcomes and variances in clinical treatments and outcomes.

## Realising benefits at multiple levels

By using GS1 identifiers and barcodes, the hospitals have experienced improvements in their clinical processes with associated financial implications, to include:

- ✓ DTH now have full traceability in their theatres. When a recall is needed, they can identify all patients that may have been impacted and if any of the recalled products are still in inventory. “Before GS1 standards, our recall process took on average 50 hours per patient to trace the affected products and/or medical devices used,” says Mayne. “Now, it takes 30 minutes at most—a dramatic savings in time and improvement in patient safety.”
- ✓ The hospitals have increased the recording accuracy of their OPCS codes—codes used to classify procedures that are encoded in GS1 barcodes—and are now capturing all data and costs at the point of care. This improvement has enabled DTH to earn more than £1 million in additional revenue per year from commissioners.
- ✓ Complete and accurate procedure costs are now captured by patient due to the recording of scanned data from barcodes on all implants, equipment and products.
- ✓ DTH have recorded more than 150,000 theatre episodes, giving them an expansive database to identify patient outcomes and variances in clinical treatments and outcomes.
- ✓ Efficiencies in the hospitals’ processes are expected to reach £2.8 million in savings during the hospitals’ 2017 - 2018 fiscal year—and that’s just from the implementation of standards in theatres, endoscopy and cardio catheterisation labs.

## Enhancing the patient experience

Based on the positive impact of GS1 standards in theatres, DTH are expanding their use into other areas. Every location in the hospitals, even stairwells, is now uniquely coded with a GS1 identifier called the Global Location Number (GLN).

The standards-based approach in theatres is now being implemented in wards, bringing the same level of detail and efficiency to the total care experience for patients. In wards, they use Apple iPads, combined with their existing system to track the staff and tasks they are performing, their locations and the devices being used. At the touch of a button, a clinician can track the patient pathway from the point of entering the hospital for an elective procedure and through the course of the treatment, all with back-up detail.

The hospitals’ vision: GS1 standards integrated in everything they do as an organisation since the impact so far has been significant for patient safety, outcomes and the total patient experience.

### About the Author



**James Mayne** is the eProcurement and Inventory Manager at University Hospitals of Derby and Burton NHS Foundation Trust and the Scan4Safety Programme Manager. He is responsible for leading the DTHFT Scan4Safety programme that enables the capture of patient-level data at point of care along with the opportunity to positively impact never events and hospital adverse events, while delivering significant financial benefits. James’s responsibilities include eProcurement, GS1 standards adoptions, UDI, GDSN and Scan4Safety.

### About DTH

**University Hospitals of Derby and Burton NHS Foundation Trust** provide both acute hospital and community-based health services, serving a population of over 600,000 people in and around Southern Derbyshire. The trust runs two hospitals: Royal Derby Hospital, which incorporates the Derbyshire Children’s Hospital and is a busy acute teaching hospital, and London Road, which is the trust’s community hospital. Community services are based in health centres and GP practices across Southern Derbyshire provide care to patients in their own homes.

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