Healthcare provider implementation

St. James's Hospital – leading global innovation in Healthcare - a hospital wide approach to adopting GS1 standards

St. James's Hospital continues to lead the way by establishing the *Scan for Surgery* Programme and the introduction of the automatic tracking of precious tissue samples. Both projects make use of GS1 standards-based technology to deliver improved patient safety and efficiency. These programmes follow on from other globally recognised exemplar projects carried out at the Dublin hospital.

By Vincent Callan and John Cotter

Proven traceability based on standards

St. James's Hospital has a proven record in the implementation of national programmes that use track and trace technology to support patient safety in areas such as haemophilia treatment and in sterilisation services for surgical instruments and endoscopes. These solutions have proven that the use of global GS1 standards significantly enhances patient safety, traceability and certainty of product identification for effective and efficient product recall across the healthcare supply chain.

In recent years, St. James's has used modern barcode technology to automate the procurement of medical supplies. The award-winning e-Procurement project went live in 2014, enabling the electronic communication of four Purchase to Pay messages between the hospital and its suppliers. The messages use the GS1 Global Trade Item Number® (GTIN®) and Global Location Number (GLN) as common product and location identifiers, enabling the seamless sharing of messages and replacing paper-based systems.

Building a digital hospital on GS1 standards

In 2015, the hospital introduced the automatic tracking of laboratory samples from theatre to laboratory using RFID (Radio Frequency Identification). All samples are tagged in theatre, and both the sample and porter are automatically tracked through the hospital to the laboratory. If the sample doesn't arrive within a specified time, an alert is sent and, if necessary, timely and corrective action is taken.

Prior to this, the tracking of samples was completely paper-based and prone to error with no visibility or assurances that the samples were delivered on time. This represented a significant risk to the hospital and to patients, which has now been addressed through this initiative.

This is a worldwide first, proving the use of passive RFID for the automatic tracking of precious samples. The GS1 identifier that uniquely identifies a member of St. James's staff—the Global Service Relation Number (GSRN)—and the identifier for a logistics unit—the

SJH Scan for Surgery Steering Group from L to R: Vincent Callan, Director of Facilities; Niall Hogan, Orthopaedic Consultant; Jeanne Moriarty, Clinical Director; John Cotter, Programme Director ABF (Activity Based Funding); Una Geary, Director of Quality and Safety Improvement; Neil O'Hare, Director of Informatics; Greg Magrane, Project Manager
Not pictured: Simon Moores, Director of Finance; Fiona Murphy, ADON DSC/Theatre Services.

Serial Shipping Container Code (SSCC)—are the keys used in this project.

The project has since been expanded to track valuable art received by the hospital through donations. This was used to prove the application for asset tracking. The project has since been expanded for the automatic tracking of vulnerable patients within the hospital which further proves the patient safety benefits. Further applications are currently being planned to scale the appropriate use of automatic tracking across the hospital. The recent installation of two robotic dispensing systems in pharmacy is further testament to the hospital's innovative approach.

Scan for Surgery – a new era for patient level data

St. James's Hospital established a *Scan for Surgery* steering group in 2016 to work on achieving better visibility of activities at the point-of-care, for both patient safety and efficiency improvements.

The hospital specifically looked at scanning in the theatre, introducing technology to scan products and patients, which would:

- Improve patient safety through traceability
- Improve procedure cost analytics
- Automate re-ordering, thus freeing up time for clinical staff who had traditionally been involved in the manual procurement process
- Improve inventory management

89%

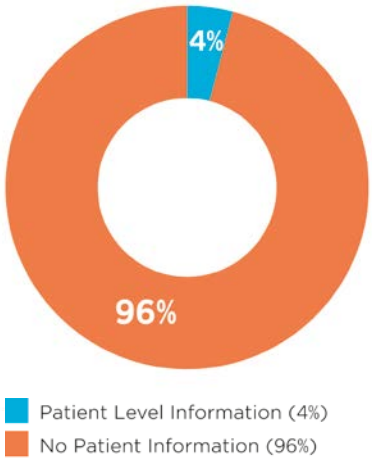
The hospital can now track over 89 percent of costs direct to the patient in theatre and estimates a significant reduction in the time spent to order products.

"Until now we had very little visibility on patient costs behind the red line in theatre. In most cases, there was no electronic record of what products were used on which patients. That has all changed now. Combining the data from *Scan for Surgery* with existing business intelligence tools, we can now see very detailed cost analytics at a procedure level, and we can easily trace products to patients in the event of a recall."

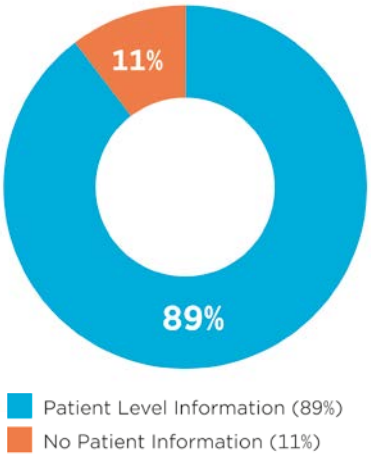
John Cotter, Programme Director, Activity Based Funding, St. James's Hospital.

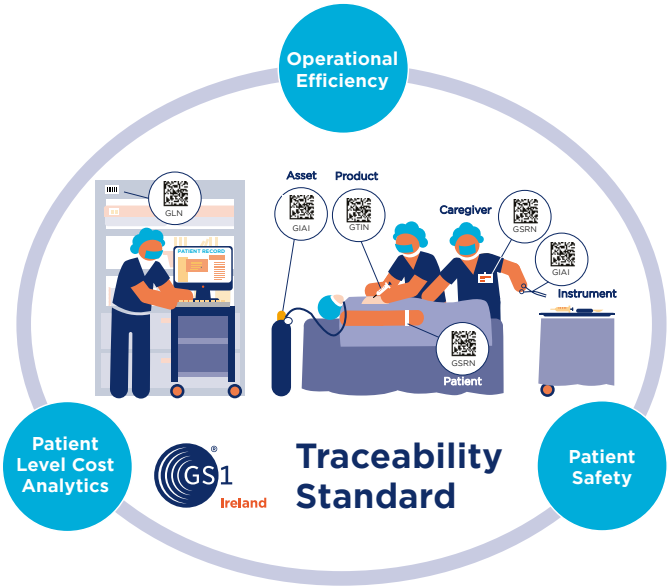
A significant level of stakeholder engagement was undertaken across various disciplines to ensure scanning that the point-of-care was adopted by users. The project started with using the GS1 Scanning App to link the barcode on the

Patient information 2015



Patient information 2017 Scan for Surgery





packaging to the SAP master data, proving that nearly 80 percent of the medical devices used in theatre had a GS1 barcode.

The *Scan for Surgery* Programme was introduced initially in two theatres. The GHX PowerGate point-of-care scanning system was used by the nursing staff to scan all products used during each procedure. Adoption was supported by the fact that nurses were already scanning instrument trays and blood products and they were automatically tracking lab samples in theatre using RFID technology. Therefore, the nursing staff was behind the project from the beginning and the team worked collaboratively to achieve the outstanding results. Over the next few months, St. James's plans to introduce *Scan for Surgery* in all theatres and critical care areas of the hospital.

Better Data, Better Decisions

Pharmaceutical and medical device suppliers are being required by regulation to barcode products by 2019 and 2020, respectively, which will support traceability at the patient level. The UK Department of Health is mandating that all Trusts and Suppliers implement GS1 standards, which is having a positive effect on the Irish market. Also, the importance of GS1 standards adoption is recognised at a national level by the Health Service Executive (HSE). Since 2016, the HSE has been requesting GS1 information on national tenders.

> "This holistic approach for a hospital-wide implementation of GS1 standards with a view to increasing patient safety and operational efficiency, is a key strategic objective for St. James's Hospital. The imminent legislation for suppliers provides significant opportunity for wide scale change and benefits for Irish healthcare."

Vincent Callan, Director of Facilities Management

St. James's Hospital is the first Irish hospital to achieve this level of patient data capture at the point-of-care, which supports patient level costing. The hospital has an ambitious timeline for the remainder of 2017 and 2018 to roll out a variety of GS1 standards-based projects. The benefits in terms of clinical and administrative time saved are proven.

This new way of working is giving the hospital extremely valuable data. The hospital is using this data along with business intelligence software to deliver real benefits for decision-making in relation to costs and procurement and to underpin the hospitals commitment to patient safety.

Scan for Surgery: the process

Step 1: Business case

A joint business case was developed to illustrate the benefits, both clinical and non-clinical, that scanning at the point-of-care could yield for St. James's Hospital. The case was approved by the CEO of the hospital and the name *Scan for Surgery* was given to the project.

Step 2: Establish steering group and working group

A key success factor for the project was taking a multi-disciplinary approach that recognised the benefits to be achieved with buy-in from all departments from the start. Two groups were created for the project: a steering group and working group that focused on strategic and tactical issues and activities. Clinicians were also active members of each team.

Step 3: Getting started – Data alignment (Find the GTINs)

Industry standard for uniquely identifying healthcare items at all pack levels		
Individual Package	Multiple Unit Package	Outer Case
		
GTIN A	GTIN B	GTIN C
5391234560008	5391234560015	5391234560022

GTINS shown for illustration purposes only

The starting point focused on building a registry of GTINs for the products' barcodes to be scanned in theatre. Two knowledgeable materials staff were assigned to scan all the barcodes in theatre, using the GS1 Scanning App that was designed to capture the barcode on the product's package (at each package level) and link it to the existing master data in SAP.

While this exercise was labour intensive, it was part of the data alignment needed in preparation for scanning. As product data accumulates, the hospital recognised that the only sustainable way to standardise the receipt of data from suppliers was through a centralised catalogue. St. James's is now requesting GTINs in tender documents and suppliers are being asked to use the National Product Catalogue (NPC) to support a widescale rollout of GTIN information.

Step 4: Implementing the solution

Clinical engagement was vital at this point. The decision was made to implement *Scan for Surgery* in two cardio thoracic theatres as they had a well-structured storage area for products and they also had procedure packs with one barcode for smaller items, thus avoiding complexity.

The hospital worked with GHX to optimise its point-of-care scanning software for use in theatre. The decision was made to use an existing desktop with flow cart and scanner, which worked well within the existing workflow of the theatre.

Step 5: Scanning and clinical workflow

Regarding "who should scan and when," the team decided that the products would be scanned by theatre staff in theatre. Steps in the workflow include:

- The scrub nurse opens the packaging, puts it in a temporary bin and sets out the instruments on a sterile tray.
- The surgery staff scans the patient ID label from the patient chart. There are checks carried out prior to this to make sure the chart matches with the patient's wristband.
- During the surgery, the nurse scans in all the packaging. Each time a product is scanned, the nurse can see key information relating to the product on the screen.
- At the end of the case, the scrub nurse reviews the items scanned to confirm the case. The case is closed and saved to the patient's record. The SAP system is also updated to manage stock levels for reordering purposes.

Step 6: Business Intelligence and Data analytics

The data coming from the scanning in theatre is being analysed in a central repository in combination with other information relating to the patient's care. For the first time the data from theatre is real-time, complete, consistent and accurate. This information can be used to support clinical and non-clinical decisions about the patient journey in the hospital.

Proven benefits

Based on experience in the two theatres, St. James's estimates that the time of 5.5 nurses could be reallocated to patient care if *Scan for Surgery* was implemented across all 11 theatres in the hospital. This would prove invaluable due to the current shortage in nursing staff and pressures on clinical time.

Increased visibility at the point-of-care will also allow stock levels to be more efficiently managed, thus also freeing up valuable space in theatre areas.

Scan for Surgery is also providing visibility of costs associated with each patient.

St. James's can now assign over 89 percent of the costs incurred in theatre to the individual patient, enabling patient-level costing, which is a key national programme for Irish healthcare.

Real-time data from the point-of-care is also enabling detailed procedure costing. The hospital can now measure variability across consultants and is reviewing clinical variations, an important measure for enhanced patient safety.

One of the key objectives going into the project was to enable recall management by utilising the information in the barcode to record it easily and consistently without manual re-keying to the patient record. This is now possible and will benefit patients and clinicians alike who traditionally spent time searching through paper records.

Soon after the implementation of *Scan for Surgery* in the cardio-thoracic theatre, a surgeon asked Materials Management for the cost of two different products used for the same procedure. Since the information was readily available, the surgeon was able to make the case for the more expensive item, resulting in a win for patient safety, staff time, usage capacity of the theatre and cost efficiency.

> "*Scan for Surgery* is the most exciting hospital project to date; it is transformational in nature. The opportunity to have visibility of what is happening at the point-of-care means we can make better decisions, which ultimately benefits patients."
>
> **Simon Moores**, Director of Finance at St. James's Hospital

About the Authors

Vincent Callan *has 20 years healthcare experience and is currently the Director of Facilities Management at St James's Hospital. He has held previous management positions in Materials Management. The Facilities Management directorate provides a full range of non-clinical services in an integrated manner that supports the treatment of patients. Vincent has been the key sponsor for the eProcurement Project.*

John Cotter *is a Chartered Accountant and MBA with a background in Big 4 professional services and finance transformation projects. John moved to the healthcare industry in 2011 and has worked as Finance Director in Ireland's largest Paediatric Hospital. His current role in St. James hospital involves the implementation of systems and processes which support Patient Level Costing and decision support in an acute hospital setting.*

About St. James's Hospital

St. James's Hospital *is the largest acute academic teaching hospital in the Republic of Ireland with 1,000 beds and provides a comprehensive range of diagnostic and treatment hospital services to a population in excess of 300,000 at local, regional and national level. There is a strong academic commitment with Trinity College Dublin and the Trinity Health Sciences. Centre is located on site.*

www.stjames.ie