

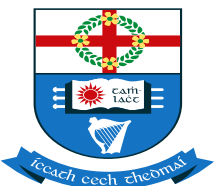
# Scan4Safety Digital Supply Chain Implementation in Tallaght University Hospital (TUH)

Giving time back to patient care

GS1 Healthcare Webinar  
26<sup>TH</sup> October 2023

**Name:** David Addie  
**Title:** Deputy Director of Finance (TUH)

**Name:** John Donovan  
**Title:** Head of Supply Chain & Logistics (TUH)



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An Academic Partner of Trinity College Dublin

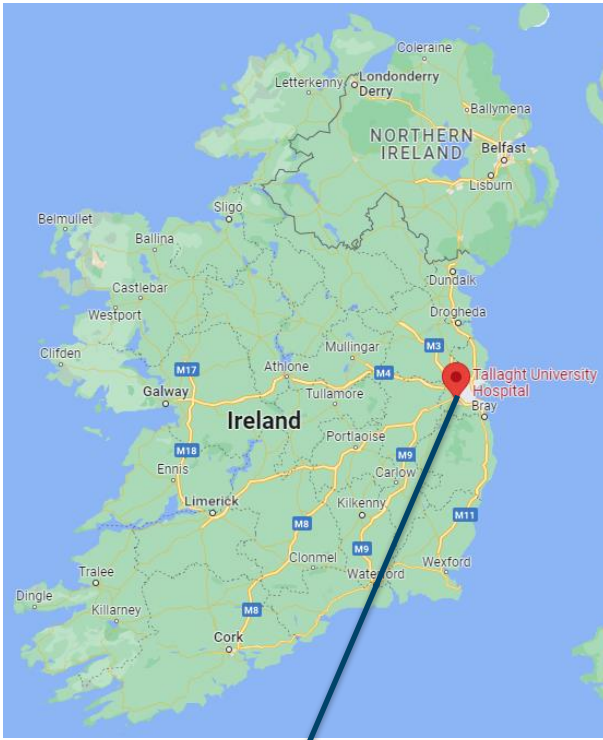
Ospidéal  
Ollscoile  
Thamhlachta

# Agenda

- Overview & Background
- Where we were
- Rationale for implementation
- The Scan4Safety Solution
- Progress to date
- Outcomes
- Sample Reports
- Critical Success Factors
- Questions



# Overview



- TUH provides access for patients to over 20 medical and surgical specialities, with comprehensive on-site Laboratory and Radiology support services.
- Currently, there are 495 adult beds and 67 paediatric beds, 16 theatres and 21 ICU beds in operation.
- The hospital has in excess of 420,000 patient attendances a year and has one of the busiest Emergency Departments nationally with a catchment population of approximately 640,000 people
- The campus is 31 acres in size, with significant future development capacity.
- Tallaght University Hospital employs over 3,000 people from over 40 different countries across the world.





# Background

## Hospital Strategic Priority Areas

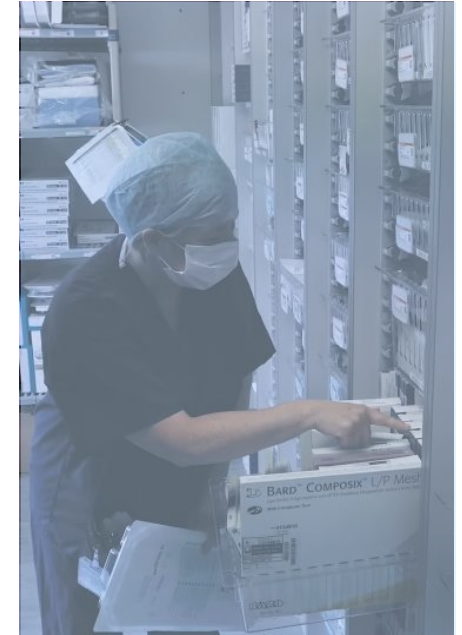
- Digital Enablement: We will transform the way we deliver care through programmes of digital enablement.

## National 'Patient Safety' Strategy

- Systems : We have resilient and safe systems where staff are supported to do their jobs safely and to work together effectively. There is coproduction of safe healthcare with patients and a culture of meaningful measurement and improvement for safety



- Right Patient, Right Product, Right Place, Right Process
- Proven to Improve Patient Safety, Operational Productivity
- Supply Chain Efficiency.
- Implementation of GS1 standards



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# Tallaght University Hospital & GS1 Ireland

- TUH has been a member of GS1 Ireland since 2010
- The hospital started with the track and trace of Surgical Trays (Reusable Invasive Medical devices (RIMD)) and endoscopes in the Central Decontamination Unit. This was part of a national rollout to track and trace all surgical trays and endoscopes across hospitals in Ireland
- TUH Implemented a ward inventory management system to manage stock at ward level including GLN labelling of locations
- GS1 Ireland provided barcode training in 2018
- Scan4Safety programme kicked off in September 2019
- Ongoing collaboration to support the National Traceability discussions



GS1 Healthcare Reference Book 2013-2014

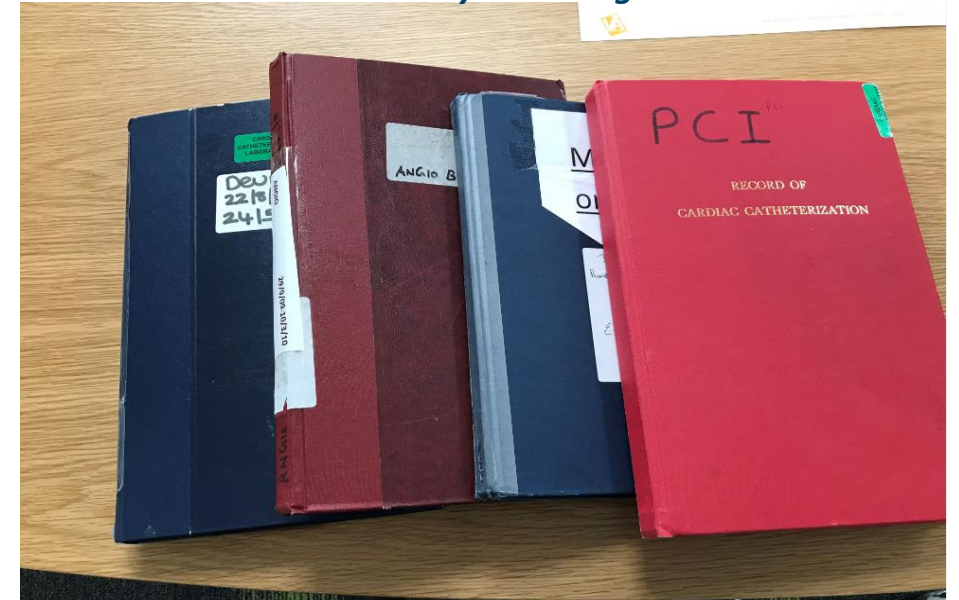
**Call out to Suppliers/Manufacturers:  
TUH requires all products supplied to the hospital  
to have a GTIN/UDI barcode**



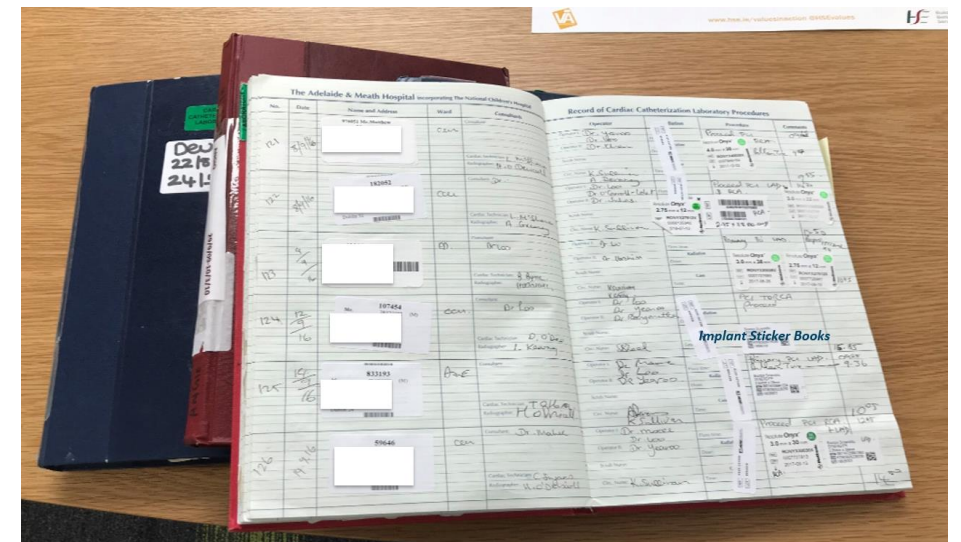
# Where we were

- Clinical staff at the Hospital were spending a large proportion of their time per week managing inventory
- Clinical staff found that they had difficulty accessing what item was used and with what patient. Ledgers and Books
- No system managing expiry dates created challenges. This posed a significant risk to patient safety
- Stock levels unknown or not accurate. Too much Stock /Too little stock
- Before Scan4safety was implemented the processes were very manual in nature and prone to human error
  - Clinical staff inputting requisitions on SAP
  - Records of implants used were kept manually in books
  - No lot and expiry tracking system

*Manual System Ledgers*



*Implant Sticker Books*



# Options appraisal.. Continue as is

Advantages	Disadvantages
<ul style="list-style-type: none"><li>• Short-term avoidance of investment cost</li></ul>	<ul style="list-style-type: none"><li>• High % clinical staff time spent in SCM</li></ul>
<ul style="list-style-type: none"><li>• Maintain the status quo</li></ul>	<ul style="list-style-type: none"><li>• Inadequate control consignment stock</li></ul>
	<ul style="list-style-type: none"><li>• Lack of management information-PLC</li></ul>
	<ul style="list-style-type: none"><li>• No visibility of stock across the hospital</li></ul>
	<ul style="list-style-type: none"><li>• Non compliance with EU legislation</li></ul>
	<ul style="list-style-type: none"><li>• Loss of cash savings</li></ul>
	<ul style="list-style-type: none"><li>• No point of care traceability</li></ul>
	<ul style="list-style-type: none"><li>• No optimised stock levels / working capital</li></ul>
	<ul style="list-style-type: none"><li>• Higher clinical risk associated with expired/obsolete products</li></ul>





# Rationale for implementation



- Patient Safety
- Inventory Management Efficiencies
- Digital Enablement-Hospital Strategy
- Purchase to Pay (P2P) System
- Medical Device Regulations
- Nursing retention and recruitment



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# Patient Safety

## Safety/Medical Device Regulation



Health institutions are legally bound to maintain a record (preferably electronically) of the UDI for each class 111 devices. The key change was the introduction of a mandatory unique device identifier (UDI) as per (MDR Article 27).

Hospitals are legally required to have an internal process for reporting adverse incidents to The National Incident Management system and The Health Products Regulatory Authority (HPRA). **Scan4Safety technology helps achieve compliance to the directives discussed by virtue of the digital records of implants and patient procedures.**



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# Nursing retention/recruitment



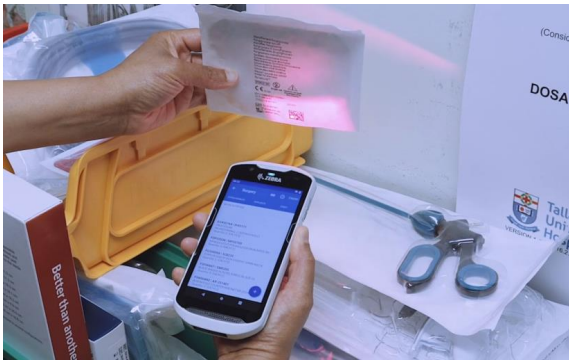
- The world needs to heed the lessons learnt from Covid-19 by investing in nursing and provide innovative solutions to support the profession (State of the World's Nursing Report, 2020).
- This evidence supports **urgent requirement to implement digital solutions to free up nursing time to concentrate on patient care.**

# How did we get started?

- Business Case
- Board & CEO support
- Standards Partner:
  - ✓ GS1 Ireland - Traceability Standard across healthcare and other industries. Experts on identification, barcoding and traceability
- Technology Partner:
  - ✓ Genesis Automation— Brings complete clinical traceability to healthcare. Delivers financial and clinical value for our Hospital
- Resources
  - ✓ Establishment of a Scan4Safety project team and a Scan4Safety steering group (including CIO, Medical Director and Finance Director)
  - ✓ Redeployment of existing resources
  - ✓ Project Team 5 wte (this has now grown to 8 wte) to deliver the project. This is the most important element of the project. Prioritise the type of team
  - ✓ The team must be able to collaborate / engage with clinical staff
  - ✓ Hosted regular Scan4Safety briefings for staff in theatres



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# Incremental progress to date

Sep 2022 – Orthopedics x 4

Nov 2021 – Urology x 2

Mar 2021 – Endoscopy x 5

Jan 2021 – New offsite Day  
Surgery x 4

October 2023 –  
Paeds/Gynae/ENT x 2

Nov 2020 – Vascular x 2

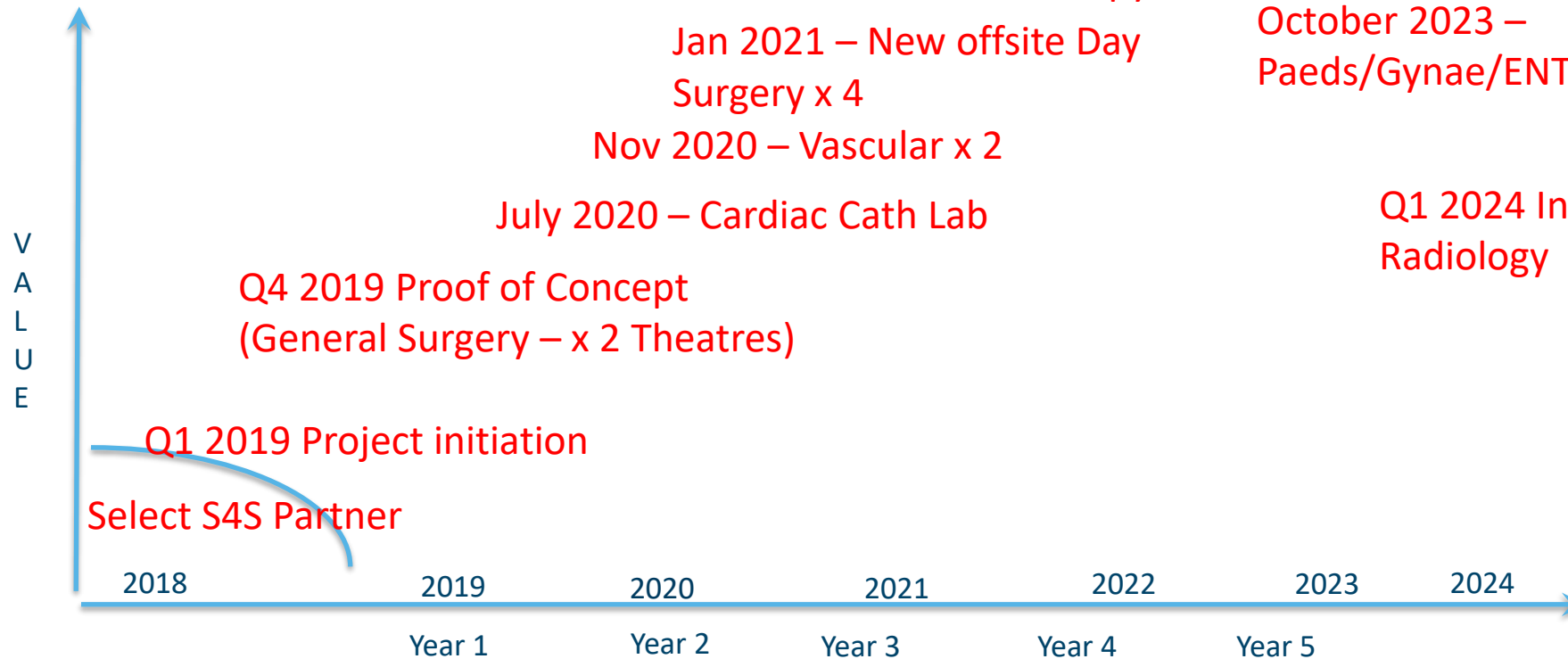
July 2020 – Cardiac Cath Lab

Q1 2024 Interventional  
Radiology

Q4 2019 Proof of Concept  
(General Surgery – x 2 Theatres)

Q1 2019 Project initiation

Select S4S Partner





# Progress to date



- ✓ Scan4Safety (S4S) live in about 90% of the Hospital (16 Theatres, Cath Lab etc.)
- ✓ S4S managed supply chain (No nursing involvement, Hrs. back to patient care)
- ✓ Automatic replenishing of stock (Financial), PO's sent automatically to vendors
- ✓ Full visibility of Supply Chain (Financial)
- ✓ Electronic Recall Management in place (Patient Safety)
- ✓ Electronic scanning of consumables/implants to patients (Patient Safety)
- ✓ External vendor software replaced by hospital owned system (can now track all stock & transactions)

# Progress / Challenges

## Orthopedics

### Primary Total Hip Implant Set

Femoral Head



Femoral Stem



Cup



Liner  
(optional)



### Primary Total Knee Implant Set

- Femoral Component



- Tibial Insert



- Tibial Baseplate



- Patella (optional)



### Trauma Orthopaedics



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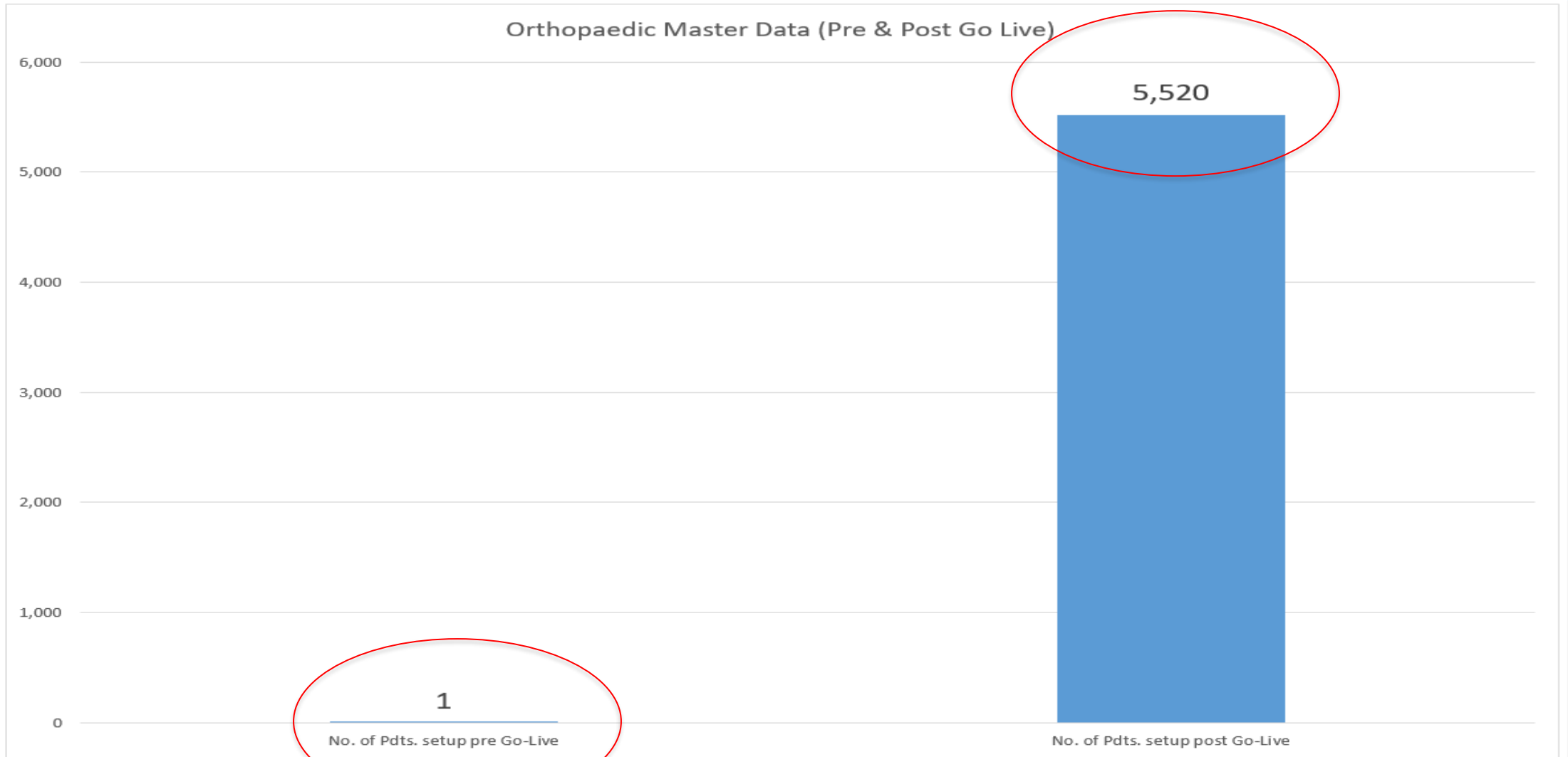
# Challenges - Sterile V Non Sterile

Example of a sterile product



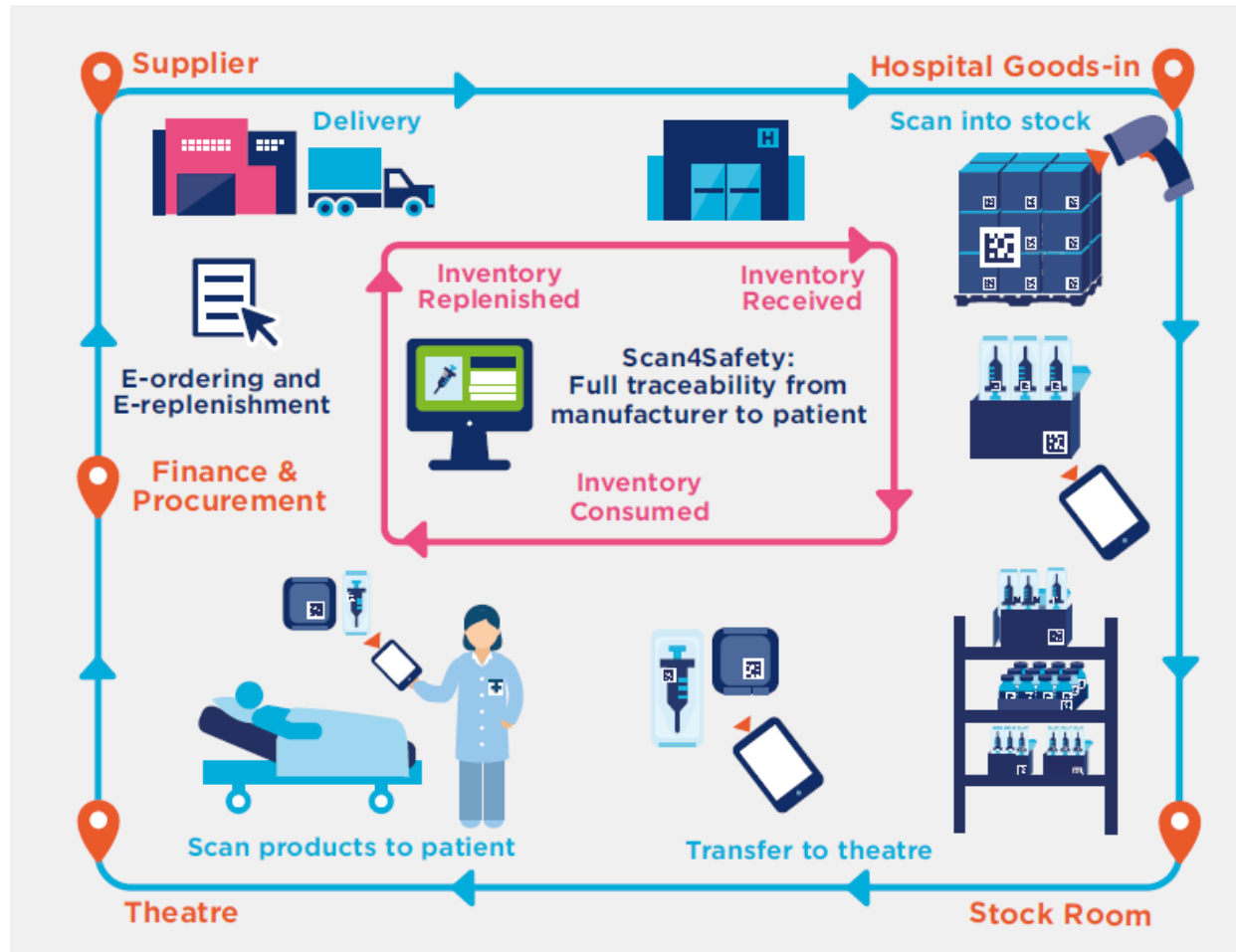
Example of non sterile product





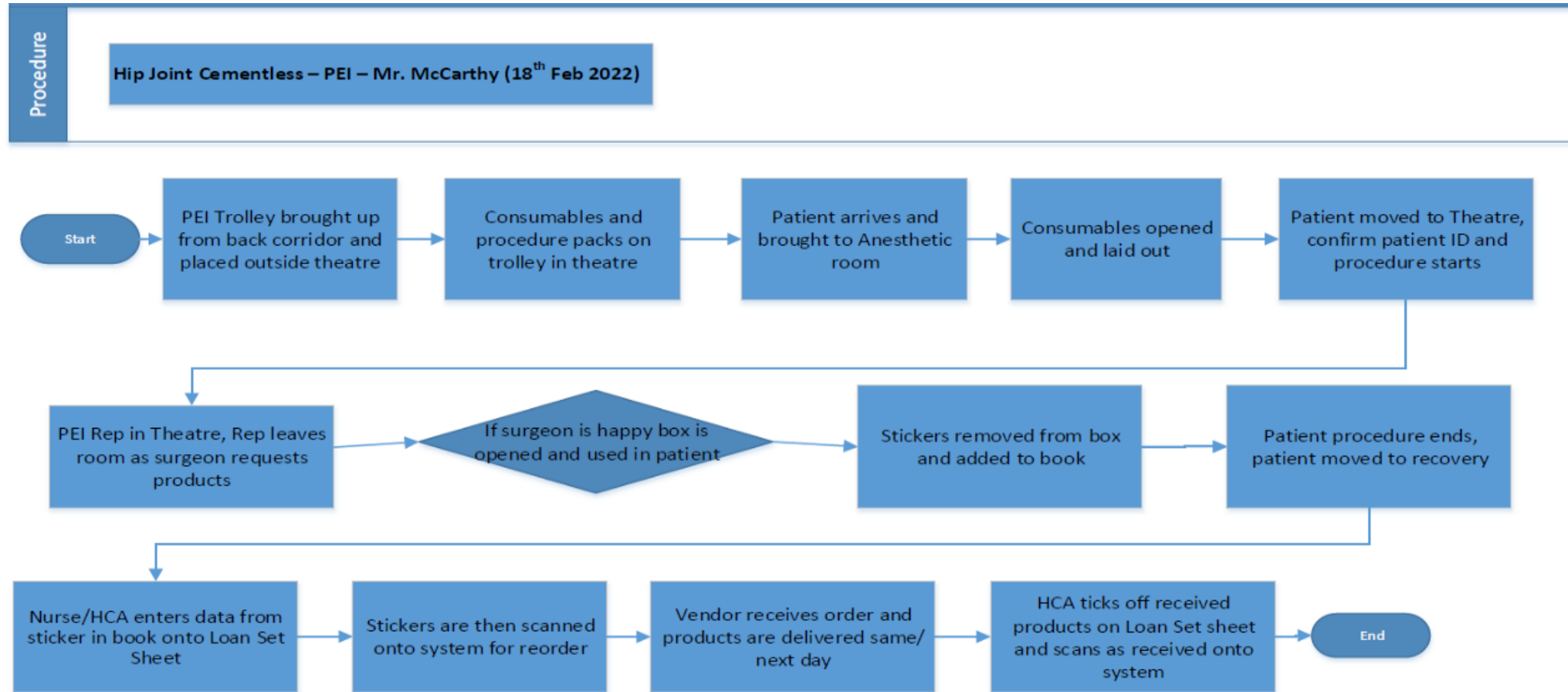


# The Scan4Safety Solution



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# Implementation - Business Process Re-Engineering



# Outcomes

Clinical benefits	Clinical Hours given back to patient care	185 hours per week
Clinical benefits	Reduction in clinical risk / safety / Quality	✓
Clinical benefits	Expiry management (out of date stock removed)	✓
Clinical benefits	Recall management (full visibility / traceability)	✓
Working Capital	Stock Usage (saving recurring)	€250,000
Working Capital	Reduced Stockholding – once off	€300,000
Working Capital	Usage - Reduced expiry / obsolescence	✓
Working Capital	Usage - Identification slow moving stock	✓
Efficiency benefits	Costs - Improved pricing through purchasing	✓
Efficiency benefits	Costs - Reduced variation in procedure cost	✓

Case study & Video available here (or scan QR Code):

<https://www.gs1ie.org/healthcare/resources/case-studies/scan4safety-at-tuh.html>



GS1 Healthcare Reference Book 2020-2021



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# Tallaght University Hospital

## Scan4Safety Video & Case Study



*“The Key Success Factors for the rollout of Scan4Safety was having over **95% compliance with GS1 barcodes**. The hospital has an annual spend of €20m per annum on spend in relation to consumables and implants. **We needed far greater control in terms of visibility and traceability**”*

**David Addie, Deputy Director of Finance**



*“Here at Tallaght University Hospital, one of our strategic aims is Digital Enabled Care and by that I mean; changing how we do things, using technology. **Scan4safety has been a key delivery of that**. It has reduced the inefficiency of paper. It has given time back to patient care, which is a key priority, as well as actually being good value for money”*

**Lucy Nugent, CEO**



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# Feedback from Staff!!

*“The benefits of having traceability in place is patient safety. The system will notify us if anything's expired or recalled before we use it.”*

*“This is such a dream. I don't need to worry again. We have the products ready for when the consultant arrives. It is safer for patients, and it gives me more time for patient care.”*

**Olivia Leigh, Clinical Nursing Manager (CNM 2)  
General and Vascular Theatres**



*“What I really like about it is that it's user friendly. We don't have to wait as long for stock to come in, as we're scanning, it's highlighting that we're using something, so it's always on the shelf”*

**Claire Ralph, Staff Nurse, General and Vascular Theatres**

*“We are beside ourselves with joy!  
Before we had to do everything manually!”*

**Carmel O'Callaghan, Clinical Nursing Manager (CNM 2) Cath Lab**

*Scan4Safety has taken massive pressure off us. I used to have to spend hours doing stock levels, writing out stock lists, inputting it on the computer and liaising with purchasing and stores. Now I can concentrate on doing what I do, which is looking after patients and looking after my staff. So it means that there's more of a flow of patient care, patient lists and staff welfare.*

**Leanne D'Arcy CNM 1, General and Vascular Theatres**

*“The GI lab was involved in the rollout of the scan4safety and we saw it develop and grow to its current state which is an efficient and user-friendly package to assist the employees on their daily stock management.*

**Emmanuel Omallao, GI Lab**

*“Scan 4 Safety will change how the Hospital manages its stocks. End to End automation of the supply chain will deliver efficiencies, and real time data. This will help TUH to reduce waste, improve our working capital, and make optimal use of our clinical resource.”*

**Dermot Carter, Director of Finance**



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# SAMPLE REPORTS

# Reports-Expiry Dates

Home

Inventory

Lot No & Expiry

Point of Care

Master Data

Transaction Data

Orders

Reporting

Notifications

Settings

New Item Wizard

Items

Account Code

Item Group

Sites

Areas / Departments

Locations

Sublocations

Delivery-To Locations

Suppliers

DRX (Import)

Cost Centres

Contracts

Discard Reasons

Inventory

Locations

Suppliers

Organisation

Settings

Tasks

Locations

Stock Transactions

Stock Level

Items

Surgery

Expiry Date Notification

Expiry Date

Today

Next 3 Months

Next Month

Next 6 Months

From: December 2022

Additional Filters

Location: THEATRES 1-4 ORTHOPAEDICS

Supplier: [Select Supplier...]

Actions

Refresh

Export to Excel

Expiry Dates

Months Remaining	Expiry Date	Lot Number	Serial Number	Item Code	Supplier Item Code	Item Description	Stock Location	Sublocation Code	Sublocation Description	Preferred Supplier	Expiring Quantity	Unit Price	Total Price
-2	Friday 30 Sept...	L38551		FQC05732	6272445	PROX LAT HUM PL AXSOS R HUM 14H...	THEATRES 1-4 ORTHOPAE...		Default Sub ...	TEKNO SURGICAL LTD T/A ...	1		
-6	Tuesday 31 Ma...	L18138		FQC05731	6272425	PROX LAT HUM PL AXSOS R HUM 12H...	THEATRES 1-4 ORTHOPAE...		Default Sub ...	TEKNO SURGICAL LTD T/A ...	1		
-1	Monday 31 Oct...	L39074		FQC05689	6272105	PROX LAT HUM PL AXSOS 3 L 10 HOL...	THEATRES 1-4 ORTHOPAE...		Default Sub ...	TEKNO SURGICAL LTD T/A ...	1		
-1	Monday 31 Oct...	L42311		FQC05162	6272355	PROX LAT HUM PL AXSOS 3 R 5 HOLE...	THEATRES 1-4 ORTHOPAE...		Default Sub ...	TEKNO SURGICAL LTD T/A ...	1		
-2	Sunday 4 Sept...	1000270076		FQC04607	54-254365	5 HOLE XXL VOLAR DR PLATE NARRO...	THEATRES 1-4 ORTHOPAE...		Default Sub ...	TEKNO SURGICAL LTD T/A ...	1		
-3	Wednesday 31...	K110596RA		FQL03129	182208405	T2 TIBIAL NAIL 8MM X 405MM	THEATRES 1-4 ORTHOPAE...		Default Sub ...	TEKNO SURGICAL LTD T/A ...	1		
-1	Tuesday 11 Oc...	1000275716		FQC02660	54-254065	VARIAX DISTAL RADIUS LATERAL PLA...	THEATRES 1-4 ORTHOPAE...		Default Sub ...	TEKNO SURGICAL LTD T/A ...	1		
0	Wednesday 30...	K08170A		FQL01563	182209285	T2 STANDARD TIBIAL NAIL 9X285MM	THEATRES 1-4 ORTHOPAE...		Default Sub ...	TEKNO SURGICAL LTD T/A ...	1		

## Reports-Stock Levels

The screenshot displays the 'Stock Level - Genesis Automation' application. The top navigation bar includes tabs like Home, Inventory, Let No & Expiry, Point of Care, Master Data, Transaction Date, Orders, Reporting, Notifications, and Settings. Below this are icons for various functions such as New Item Wizard, Items, Account Code, Item Group, Sites, Areas / Departments, Locations, Sublocations, Delivery-To Locations, Suppliers, GHK Import, Cost Centres, Contracts, and Discard Reasons.

The main section features several filter panels:

- Select Organization Site:** Tailgait - Main Site
- Select Stock Location:** THEATRES 1-4 ORTHOPAEDICS
- Item Category:** [All Item Categories]
- Stock Level:** All

A **Summary Information** panel shows:

Total Stock: 4,758	Total NOT Consignment: 1,983	Total Consignment: 2,775
Total Value: €2,187,857.02	Total Value NOT Consignment: €877,903.39	Total Value Consignment: €1,309,953.63

Below the filters are buttons for Refresh, Update Statistics, and Export To Excel. A status bar at the bottom indicates High (blue), Normal (green), Low (yellow), and Very Low (red) levels.

The **Stock Levels** table is displayed below the filters. It has a search bar and a 'Find' button. The table columns include Stock Level, Location Code, Location Description, Sublocation Code, Sublocation Description, Item Code, Qty Avail..., Awaiting Release, Qty Ord..., On Back Order, Qty Allocated, Qty Returning, Min Level, Max Level, Emergen..., Reorder ..., and Details.

Stock Level	Location Code	Location Description	Subloc... Code	Sublocation Description	Item Code	Qty Avail...	Awaiting Release	Qty Ord...	On Back Order	Qty Allocated	Qty Returning	Min Level	Max Level	Emergen...	Reorder ...	Reorder ...	Unit	Details
High	2029	THEATRES 1-4 ORTHOPAEDICS		Default S...	FQK08238	0 0		0	0	0	0 0	50	1	0	1			
High	2029	THEATRES 1-4 ORTHOPAEDICS		Default S...	FQK08242	0 0		0	0	0	0 0	50	1	0	1			
High	2029	THEATRES 1-4 ORTHOPAEDICS		Default S...	FQK08250	0 0		0	0	0	0 0	50	1	0	1			
High	2029	THEATRES 1-4 ORTHOPAEDICS		Default S...	FQK08252	0 0		0	0	0	0 0	50	1	0	1			
High	2029	THEATRES 1-4 ORTHOPAEDICS		Default S...	FQK08235	0 0		0	0	0	0 0	50	1	0	1			



# Reports-Procedures

Home

Inventory

Lot No & Expiry

Point of Care

Master Data

Transaction Data

Orders

Reporting

Notifications

Settings

Surgery Reports

Bedside Transactions

Bedside Reports

Surgeons

Procedures

Specialties

Procedure Pack

Procedure Codes

Procedure Code Types

Preference Cards

Theatres

Theatre Staff

Band Rate

Band

Body Side

Surgery

Bedside

Master Data

genesis  
Automation in Healthcare

TasksSurgery x

Time Period

☒ This Week

☐ This Year

☐ This Month

☐ All Time

Data Range

From:

23/11/2022

To:

23/11/2022

Filter Data

Procedure:

[Select Procedure...]

Patient:

[Select Patient...]

Item:

[Select Item...]

Surgeon:

[Select Surgeon...]

Theatre:

[Select Theatre...]

Lot Number:

Item Category:

[Select Item Category ...]

Serial Number:

Actions

Search

Reset Filters

Export to Excel

Grouping:: Off

Summary Information

Monthly Avg. Cost: €39,055.24

Quarterly Avg. Cost: €39,055.24

Reference	Procedure Code	Procedure Name	Body Side	Surgeon	Theatre	Duration	Patient ID	Nº Items	Cost	Created By	Surgery Date	Surgery Start Time	Details
PLC0291...	4931800	TOTAL ARTHROPLASTY OF HIP,...		000014 - M	THEATRE 03	01:37:00	257963	38		THEATRE 1234	23 November...	23/11/2022 12:32:00	
PLC0291...	4738403	OPEN REDUCTION OF FRACTURE OF...		021205 - M	THEATRE 01	04:00:00	1202081	31		THEATRE 1234	23 November...	23/11/2022 11:26:00	
PLC0291...	4953900	ARTHROSCOPIC RECONSTRUCTION...		021205 - M	THEATRE 02	01:49:00	1201855	31		THEATRE 1234	23 November...	23/11/2022 11:11:00	
PLC0291...	4955700	ARTHROSCOPY OF KNEE		021205 - M	THEATRE 02	01:00:00	969863	15		THEATRE 1234	23 November...	23/11/2022 09:27:00	
PLC0291...	4931800	TOTAL ARTHROPLASTY OF HIP,...		000014 - M	THEATRE 03	02:00:00	94759	32		THEATRE 1234	23 November...	23/11/2022 09:09:00	
PLC0291...	4736600	OPEN REDUCTION OF FRACTURE OF...		021205 - M	THEATRE 01	01:27:00	827252	25		THEATRE 1234	23 November...	23/11/2022 09:03:00	
PLC0291...	9619903	INTRAVENOUS ADMINISTRATION O...		021205 - M	THEATRE 02	02:00:00	196995	5		THEATRE 1234	23 November...	23/11/2022 07:18:00	

7 rows

177

€11,398.58

# Critical Success Factors



- Leadership, this is about Patient Safety and Time back to Patient Care!
- The project had strong executive support from the very start
- Collaboration across Stakeholders: Nursing, Supply Chain and Finance had a shared vision of what the project was about
- Staff were kept engaged through ongoing communication, training and workshops
- Preparation: Getting the Master Data right was a big exercise, GTINs and good data are key!! We worked with our suppliers to check the product data and GTINs. GS1 Ireland supported us
- Dedicated and dynamic Scan4Safey team in place to support the operation
- Standards Partner (GS1 Ireland) and Technology Partner (Genesis AHC)

# Success Story



- 185 hours per week back to patient care
- Data emerging from the NHS suggests that moving to a S4S solution reduces stock holding by 24% and provides cash releasing savings of 15% (NHS, 2020)
- Regular site visits requested to view system
- GS1 Case Study/ Video published 2022. GS1 noted the project as best implementation in an Irish Hospital that they have seen
- Presented at GS1 Global Healthcare conference in Paris November 2022
- CEO Award for delivering a truly impactful quality improvement initiative with inclusive approach and continued engagement with stakeholders



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# Cumulative Statistics

	2019 - 2023
• Patients Scanned	• 48,872
• Products Scanned	• 474,123
• Value of items scanned	• €24.4M
• Value of Stock as of today	• €5.3M
• Value of Stock (Consignment)	• €2.2M
• Value of Stock (Non Consignment)	• €3.1M
• Quantity of Material Codes managed by S4S	• 10,016



# Scan4Safety Team – Awards and Thankyou!

**Thank you to the Tallaght University Hospital Scan4Safety Project Team**



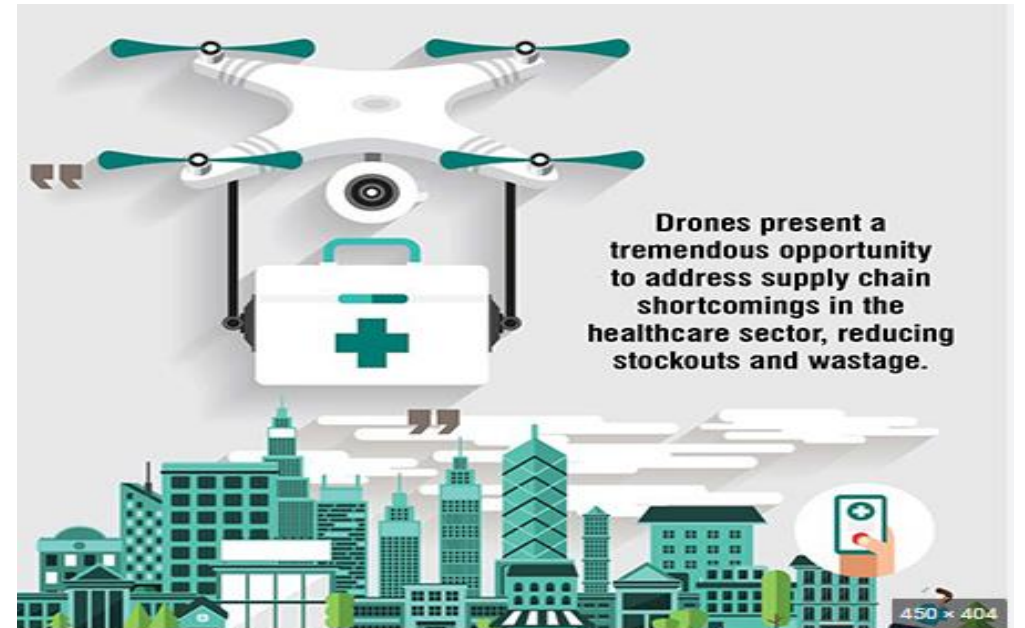
**CEO Innovation Award presented to Scan4Safety Team by  
Director General, HSE and CEO of Tallaght University Hospital**



# What's Next?



## (New Doors!) – Innovation : Use Case Pilot of Drones in Healthcare - TUH



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# Questions?