



Improving Patient Safety and Supply  
Chain Efficiency with GS1 Standards in

# HEALTHCARE



Ireland

THE GLOBAL LANGUAGE  
OF BUSINESS



**Together**, we're making it possible to follow drugs and medical devices from the manufacturer to the patient, improving efficiency, safety, and patient care.

## **GS1 STANDARDS IN HEALTHCARE**

### **Challenges Facing Healthcare Today**

#### **IMPROVING QUALITY AND PERFORMANCE**

In today's changing landscape, healthcare providers across the globe must transform their processes to provide value, quality and safe care. They must also work to eliminate waste and inefficiencies; achieve financial sustainability; and leverage information technologies to improve performance. Hospitals are using GS1 Standards to ensure the reliability of data and optimise processes to reduce preventable errors, enhance Electronic Health Record management, support outcome-based medicine and comparative effectiveness, and provide transparency for better clinical and supply chain management.

#### **ENSURING REGULATORY COMPLIANCE**

Product serialisation, compliance with the EU Falsified Medicines Directive, FDA and other international drug pedigree requirements and establishing anti-counterfeiting solutions are top of mind for the pharmaceutical industry. The proposed European and US FDA Unique Device Identification (UDI) regulation are at the forefront in the medical device arena as companies need to transform disparate medical identification methods into a standardised UDI system. In both cases, the industry is leveraging GS1 Standards and the support of GS1 experts to prepare for these new requirements and ensure regulatory compliance.



***“St James’s Hospital see GS1 Standards as the foundation of cost effective solutions for patient safety and supply chain traceability in healthcare and SJH has set the adoption of GS1 Standards as a strategic priority”.***

Vincent Callan  
Facilities Manager  
St. James’s Hospital

## **GS1 STANDARDS IN HEALTHCARE**

# **Moving Forward Together**

**Get involved! Go to [www.gs1ie.org/healthcare](http://www.gs1ie.org/healthcare)**

### **GS1 Healthcare Committee**

Since 2004, GS1 Ireland in conjunction with representatives from across the Irish Healthcare sector has been promoting and driving the implementation of GS1 Standards as the foundation for improved business and care delivery processes. The Healthcare Committee was set up to co-ordinate activities in the sector at a strategic level. GS1 Ireland's primary aim in Irish Healthcare is to "drive the adoption of supply chain solutions in the Healthcare sector based on GS1 standards in order to reduce both risk and costs for all stakeholders".

### **GS1 Healthcare User Group (HUG IRL)**

GS1 Ireland established the GS1 HUG (Healthcare User Group) Ireland in April 2013 and it is the 31st HUG in the world. The local GS1 healthcare user groups have been established in countries around the world to work closely with the Global Healthcare User Group and the GS1 Member Organisations. These groups are facilitated by GS1 Member Organisations and ensure that specific local requirements are taken into account in global standards development and promote and support local adoption and implementation of such standards.

### **KEY FOCUS AREAS**

- **Location identification using GS1 Global Location Numbers (GLNs)**
- **Product identification using GS1 Global Trade Item Numbers (GTINs)**
- **Product data sharing with the National Product Catalogue**
- **Product serialisation, track and trace, and compliance with regulation (pharmaceutical and medical devices) using GS1 Standards.**

## KEY BENEFITS

- Improving patient safety
- Lowering costs through increased efficiency
- Reducing medication errors
- Enabling supply chain visibility
- Facilitating effective product recalls
- Tracking of pharmaceutical products/medical devices
- Reducing the introduction of counterfeit products
- Enhancing inventory management
- Linking critical product data to the patient record
- Supporting regulatory compliance
- Optimising order, invoice, sales reporting, and chargeback/rebate processes



### Patient Safety

#### Healthcare Supply Chain Efficiency

**AUTOMATIC  
DATA CAPTURE**  
Barcodes  
Data Matrix  
RFID

**E-COMMERCE**  
EDI/XML  
Transactions

**ELECTRONIC RECORD  
MANAGEMENT**  
e-Records  
e-Prescriptions

**ASSETS &  
EQUIPMENT  
TRACKING**

**TRACEABILITY**  
e-Pedigree  
Recalls

STANDARDISED PRODUCT DEFINITION (GDSN')

STANDARDISED LOCATION IDENTIFICATION (GLN)

STANDARDISED PRODUCT IDENTIFICATION (GTIN')

STANDARDISATION ..... INTEROPERABILITY



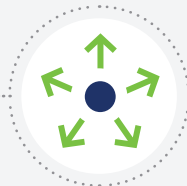
THE GLOBAL LANGUAGE  
OF BUSINESS



IDENTIFY



CAPTURE



SHARE



**GS1 Standards for  
identifying, capturing,  
and sharing information —**

*about products, business  
locations, and more —*

make it possible for  
companies to speak the  
same language, connect  
with each other, and move  
their business forward.

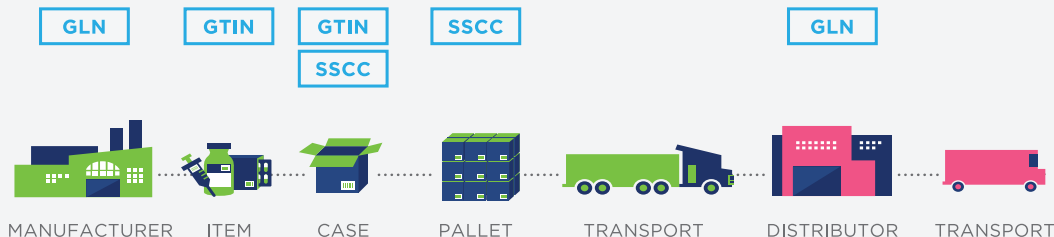


# IDENTIFY

## GS1 IDENTIFICATION NUMBERS

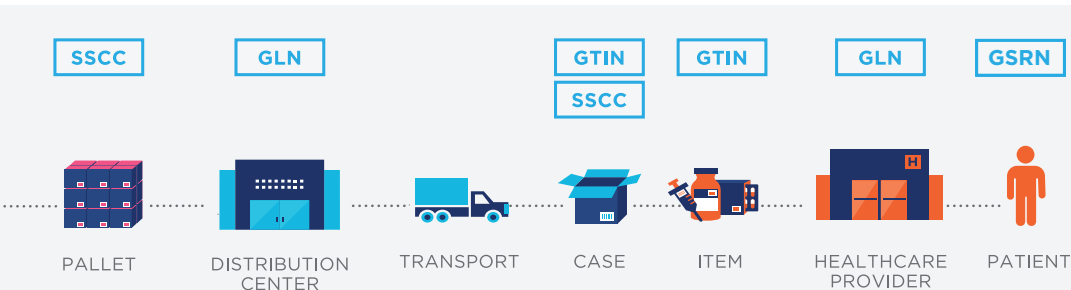
GS1 Standards begin with GS1 Identification Numbers used to uniquely identify all products (trade items), logistic units, locations, assets, and relationships across the supply chain from manufacturer to patient.

These numbers provide the link between the item and the information pertaining to it.



## GS1 STANDARDS IN HEALTHCARE

<b>COMPANY</b> <b>Global GS1 Company Prefix</b> <b>GLN</b> Global Location Number	<b>LOCATION</b> <b>GLN</b> Global Location Number
<b>PRODUCT</b> <b>GTIN</b> Global Trade Item Number <b>EPC®</b> Serialised Global Trade Item Number	<b>LOGISTICS</b> <b>SSCC</b> Serial Shipping Container Code
<b>ASSETS</b> <b>GIAI</b> Global Individual Asset Identifier <b>GRAI</b> Global Returnable Asset Identifier	<b>SERVICES</b> <b>GSRN</b> Global Service Relation Number <b>GDTI</b> Global Document Type Identifier





# CAPTURE

## GS1 SYSTEM DATA CARRIERS

GS1 System Data Carriers are designed to hold various data elements about products, services, assets, locations and more, in line with industry requirements.

The data encoded in the GS1 System Data Carriers provides unique identification as well as access to additional information, creating visibility throughout the supply chain.

## GS1 STANDARDS IN HEALTHCARE



### ITEM

#### BARCODES

Carries a Global Trade Item Number (GTIN)

EAN/UPC



GS1-128



GS1 DataMatrix



GS1 DataBar™



### OR

#### EPC-ENABLED RFID

Carries a Serialised GTIN (SGTIN)

UHF RFID



HF RFID



*Radio Frequency Identification (RFID) tags are read quickly and easily without requiring a line of sight.*

*The EPC (Electronic Product Code) encodes GS1 Identification Numbers like GTINs, GLNs, and SSCCs and allows them to be carried on RFID tags.*



## CASE

### ITF-14

Carries a GTIN



*Used to uniquely identify bulk units such as cartons, cases, or pallets and help manage fast and accurate tracking of inventory. This barcode only encodes a GTIN and is not intended to pass through retail point of sale.*

OR

### GS1-128

Carries a GTIN with extended data or a Serial Shipping Container Code (SSCC)



*This barcode enables the encoding of data in addition to a GTIN including Expiration Date, Batch/Lot and Serial Number, Weight, etc.*

AND

### EPC-ENABLED RFID

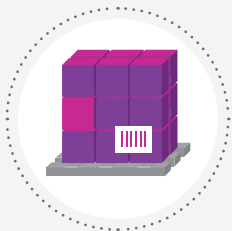
Carries an SGTIN or an SSCC

UHF RFID



HF RFID





## PALLET

### ITF-14

Carries a GTIN



## OR

### GS1-128

Carries a GTIN or an SSCC



## AND

### EPC-ENABLED RFID

Carries an SGTIN or an SSCC

UHF RFID



HF RFID





# SHARE

## GS1 INTERFACE STANDARDS FOR ELECTRONIC COMMERCE

### MASTER DATA

#### GDSN

##### Global Data Synchronisation Network

The GDSN is a way for suppliers to provide standardised and accurate, up to date product and price data electronically to healthcare providers.

#### GS1 IRELAND GLN REGISTRY

The GLN Registry for Healthcare is the single source of truth for accurate and up-to-date location information for healthcare and healthcare-related facilities in Ireland with corresponding GLNs.

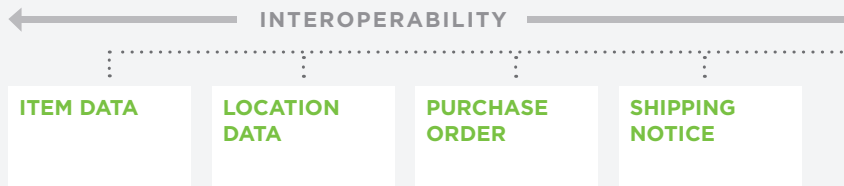
### WHAT GOES INTO IT

#### GTINs

Product Descriptions  
Product Classification  
GLN of Brand Owner

#### GLNs for:

- Ship-to/from
- Bill-to
- Deliver-to





## GS1 STANDARDS IN HEALTHCARE

### TRANSACTIONAL DATA

#### EDI

##### Electronic Data Interchange

EDI enables the computer-to-computer exchange of business documents between companies using a standardised format.

### WHAT GOES INTO IT

GTIN

GLN

SSCC

Purchase Order

Advance Ship Notice

Invoice

Payment

### PHYSICAL EVENT DATA

#### EPCIS

##### Electronic Product Code Information Services

EPCIS is the standard for sharing information about the movement and status of goods in the physical world.

### WHAT GOES INTO IT

EPC

Time

Date

Location

Business Step

Item Disposition

INVOICE

PRODUCT  
RECALL/  
WITHDRAWAL

PEDIGREE

TRACK &  
TRACE



**Across the supply chain,**  
trading partners are  
connecting with each  
other and leveraging the  
power of information by  
using GS1 Standards as  
the foundation of their  
business processes.

## LOCATION IDENTIFICATION

**GLN** Global Location Number

5398888510045

MANUFACTURER  
HEADQUARTERS

ENTER YOUR  
PRODUCT DATA

5391234000009

SEND



# Manufacturer Headquarters

## IDENTIFY

- GTINs are created for each product  
(Each level, Shelf-pack level, and Case level)
- Product master data is defined, created, and managed
- Company GLNs are assigned and managed
- Validated customer GLNs are collected and stored

## SHARE

- Product data is shared through the GDSN
- Data is stored in Enterprise Resource Planning (ERP) system
- Entity/Location data is shared through the GLN Registry for Healthcare
- Electronic Business Document e.g. shipping notices, orders and invoices, containing GLNs, GTINs and SSCCs are exchanged
- GTINs are used for recall process at every level of packaging

## BENEFITS

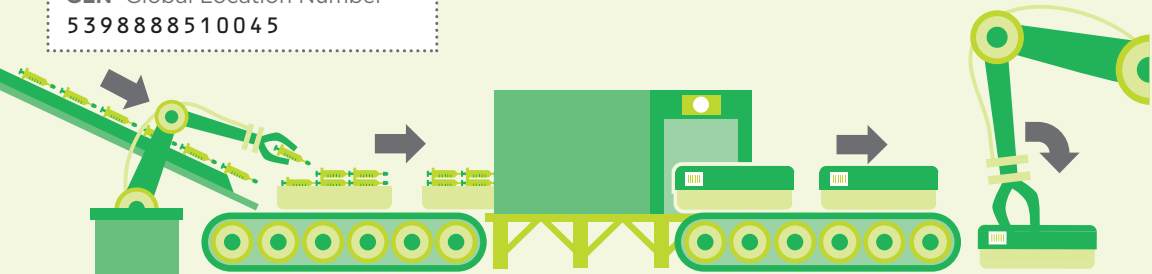
*Improves order,  
inventory, and  
invoice accuracy*

*Enables compliance  
with contractual  
requirements of  
customers*

### LOCATION IDENTIFICATION

**GLN** Global Location Number

**5398888510045**



### CASE LEVEL IDENTIFICATION

**GTIN**



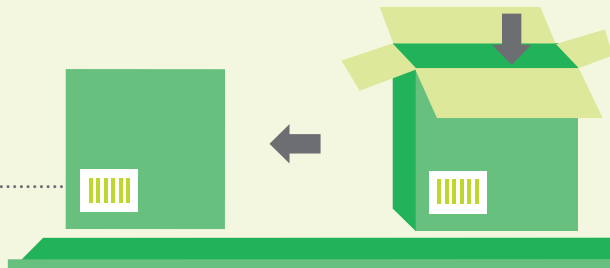
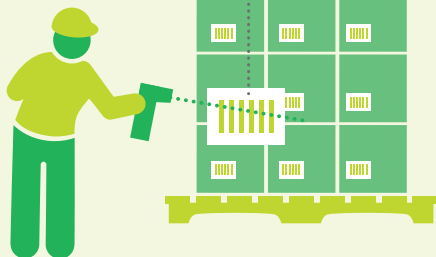
(01) 0 5391234 56789 2

### PALLET LEVEL IDENTIFICATION

**SSCC**



(00) 0 5391234 560000001 5



**MANUFACTURER**



# Manufacturer Factory

## IDENTIFY

- GTINs with extended data (e.g., lot number, expiration date, serial number) are printed on products (barcode and human readable) or tagged for Each level, Shelf-pack level, and Case level
- Pallet make up is defined, created, and managed
- SSCCs are created for each pallet and printed on labels

## CAPTURE

- GTINs are used to track products during manufacturing for internal processes
- GTINs and SSCCs are used to track contents of shipments

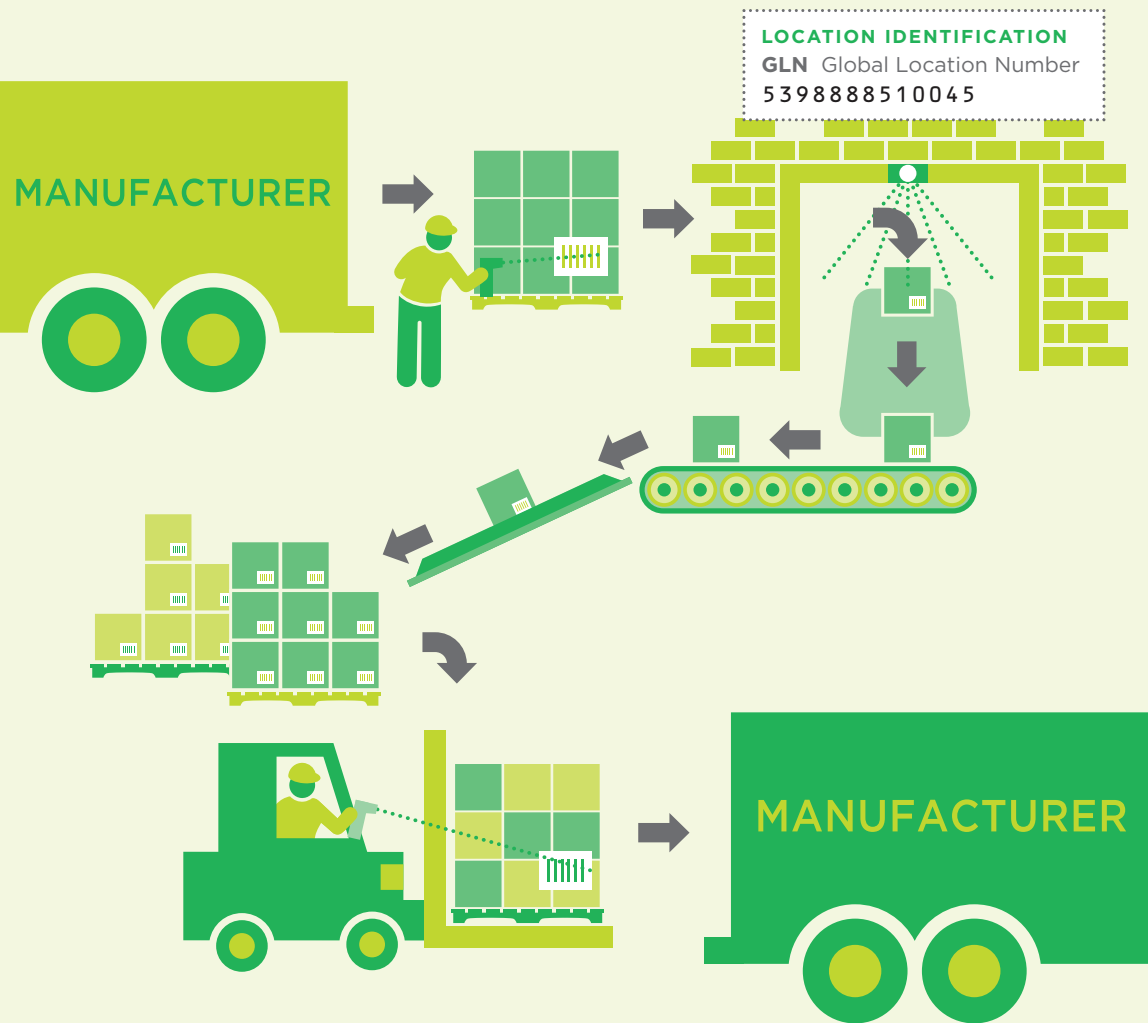
## SHARE

- Manufacturing data (GTIN and extended data) is stored in ERP system
- Order and product information is shared with trading partners using ASNs

## BENEFITS

*Provides the foundation for patient safety, product traceability, and recalls*

*Facilitates accurate tracking of inventory*





# Manufacturer Distribution Center

## IDENTIFY

- Shipping unit content is barcoded and tracked with SSCC (pallet license plate)

## CAPTURE

### INBOUND

- GTINs/SSCCs and Advance Ship Notices (ASNs) are used for receipt verification

### OUTBOUND

- GTINs are used to assure accuracy of picked products
- GTINs with extended data or SSCCs are used to track shipping unit

## SHARE

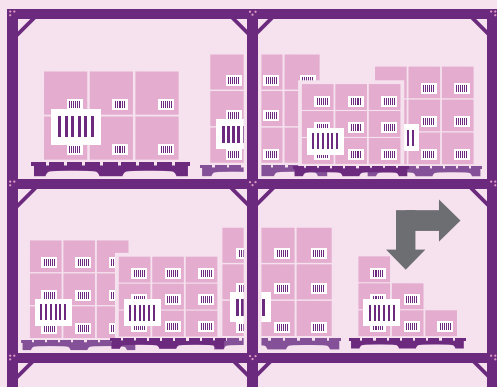
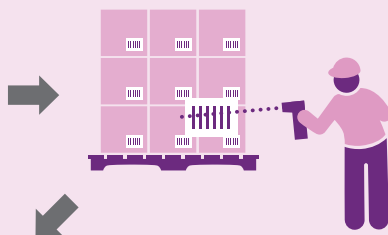
- ASNs containing GTINs, SSCCs, and GLNs are sent to customers
- Inventory and delivery information is stored in ERP system
- GTINs and batch/lot numbers are used for recall process at every level of packaging

## BENEFITS

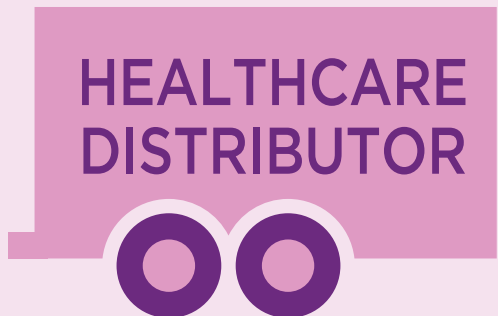
*Facilitates accurate tracking of sales*

*Ensures delivery of the right products to the right locations*

*Initiates pedigree*



**LOCATION IDENTIFICATION**  
**GLN** Global Location Number  
**5398888506482**



# Healthcare Distributor

## IDENTIFY

- Company GLNs are assigned and managed
- Validated customer GLNs are collected and stored

## OUTBOUND

- Distributor's SSCCs are created for each pallet shipped

## CAPTURE

### INBOUND

- GTINs/SSCCs and ASNs are used for receipt verification
- GTINs are used to put products into inventory

### OUTBOUND

- Manufacturer assigned GTINs with extended data are used to rotate inventory for quality control processes
- GTINs are used to ensure accuracy of picked products
- SSCCs are used to track shipping unit

## SHARE

- Entity/Location data is shared through the GLN Registry for Healthcare
- Product data is shared through the GDSN
- Electronic business documents e.g. shipping notices, orders and invoices, containing GLNs, GTINs and SSCCs are exchanged
- ASNs containing GTINs, SSCCs, and GLNs are sent to customers
- Inventory and delivery information is stored in ERP system
- GTINs and batch/lot numbers are used for recall processes

## BENEFITS

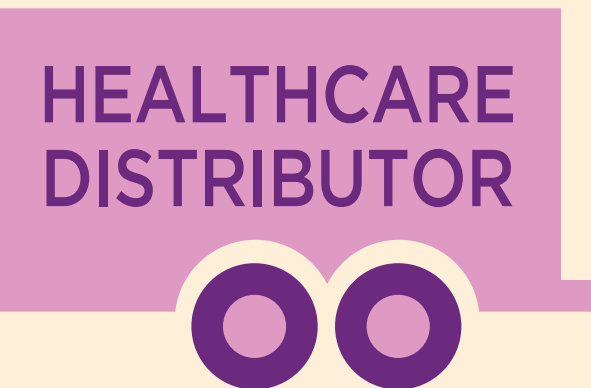
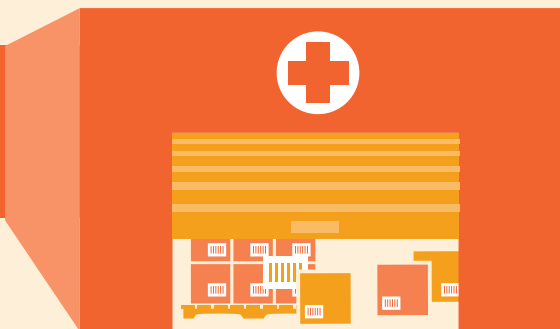
*Ensures delivery of the right products to the right locations*

*Improves throughput efficiencies*

*Facilitates accurate tracking of sales*



**LOCATION IDENTIFICATION**  
**GLN** Global Location Number  
**5398888506390**



# Hospital Receiving

## IDENTIFY

- GLNs are assigned and managed centrally
- Validated supplier and internal hospital GLNs are collected and stored

## CAPTURE

- GTINs/SSCCs are used at the point of receipt to validate delivery accuracy
- GTINs and internal hospital GLNs are used to put products into inventory

## SHARE

- ASN is received from supplier
- Inventory and delivery information is stored in ERP system
- GTINs and batch/lot numbers are used for recall processes

## BENEFITS

*Improves internal distribution processes*

*Reduces accounting costs*

*Maintains chain of custody through automated processes*

*Provides accurate contract pricing and rebate processing*



# Hospital Store Room

## CAPTURE

### INBOUND

- GTINs are used at the point of receipt to validate delivery accuracy
- GTINs are used to put products into inventory

### OUTBOUND

- Manufacturer assigned GTINs with extended data are used to rotate inventory, for quality control processes, and to help search for products in hospital's ERP system
- GTINs are used to pick products for various departments throughout the hospital system

## SHARE

- GDSN product data is used to populate the item master file
- GTINs are used to order and track medical devices for use in labs, pharmacies, storage locations, and in-patient care
- GTINs are used to drive inventory replenishment via EDI or paper transactions
- GTINs and batch/lot numbers are used for recall processes

### BENEFITS

*Reduces  
unnecessary  
inventory levels*

*Enhances  
equipment and  
instrument tracking*

*Improves service  
levels/fill rates*

**LOCATION IDENTIFICATION**

**GLN** Global Location Number

**5398888507984**



**LOCATION IDENTIFICATION**

**GLN** Global Location Number

**5398888512520**





# Hospital Patient Room/Operating Room

## CAPTURE

- Patient/Operating Room GLN is captured
- GTINs with extended data on product packaging are scanned at point of care capturing critical information to enable patient safety, clinical, financial, and supply chain processes
- Products (GTINs with extended data) used in the operating room during the procedure are documented on the patient chart

## SHARE

- Using GTINs, GLNs and GSRNs data is shared across hospital information systems:

Inventory Management and Replenishment

Patient Charge Records

Electronic Health Record

Accounting

- GTIN data is tracked from the point of order to the patient
- Allows for final check of recalls, expiration, etc.

## BENEFITS

*Improves  
management of  
the Electronic  
Health Record*

*Increases accuracy  
of charge capturing*

*Supports patient  
rights*

## **GS1 STANDARDS IN HEALTHCARE**

### **GS1 Healthcare in Ireland**

The mission of GS1 Healthcare is to lead the Healthcare sector to the successful development and implementation of global standards, by bringing together experts in Healthcare to enhance patient safety and supply chain efficiencies.

### **Now is the time to get involved!**

#### **Enquire about the GS1 Ireland Healthcare Workgroups**

Become part of one of our workgroups, made up of industry stakeholders working to develop a common approach to GS1 Standards adoption through implementation guidelines, business cases, best practices, and education e.g. Traceability and Hospital Implementations.

#### **Get Involved with Industry Readiness Efforts**

GS1 Ireland helps members of the pharmaceutical industry prepare for compliance with the EU Falsified Medicines Directive and the US drug pedigree laws. We are also working with Members and Healthcare Providers to address the requirements of the proposed EU and FDA medical device identification (UDI) regulations. GS1 Ireland does this by providing education, tools and resources, as well as industry forums to enable efficient product serialisation and supply chain visibility.

- **Join the GS1 Healthcare User Group Community**
- **Participate in the National HSE Surgical Instrument Tray Identification Programme**
- **Attend our serialisation workshops and breakfast briefings**
- **Complete a GS1 Standards implementation training course.**



## START IMPLEMENTING

### Visit GS1 Ireland website for:

- Information about relevant GS1 Standards
- Tools and Resources: Guides, Case Studies and Reports
- Education: Training Courses and Workshops
- Members, Champions and Partners
- News and Industry Announcements
- Events and Seminars

**[www.gs1ie.org/healthcare](http://www.gs1ie.org/healthcare)**

## CONTACT US

**Call: 353 1 208 0660**

**Email: [info@gs1ie.org](mailto:info@gs1ie.org)**



**CONTACT US TO FIND OUT HOW GS1 IRELAND  
CAN HELP MOVE YOUR BUSINESS FORWARD.**



**THE GLOBAL LANGUAGE  
OF BUSINESS**

2nd Floor The Merrion Centre,  
Nutley Lane, Donnybrook,  
Dublin 4, Ireland

**T** +353 1 208 0660 **F** +353 1 208 0670

**E** [info@gs1ie.org](mailto:info@gs1ie.org) **W** [www.gs1ie.org](http://www.gs1ie.org)

**twitter**

**Linkedin**

**You Tube**