Improving Patient Safety and Supply Chain Efficiency with GS1 Standards in Healthcare
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

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
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.
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

### Company
- **Global GS1 Company Prefix**
- **GLN** Global Location Number

### Location
- **GLN** Global Location Number

### Product
- **GTIN** Global Trade Item Number
- **EPC®** Serialised Global Trade Item Number

### Logistics
- **SSCC** Serial Shipping Container Code

### Assets
- **GIAI** Global Individual Asset Identifier
- **GRAI** Global Returnable Asset Identifier

### Services
- **GSRN** Global Service Relation Number
- **GDTI** Global Document Type Identifier

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**Diagram:**
- Pallet
- Distribution Center
- Transport
- Case
- Item
- Healthcare Provider
- Patient
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.
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

![ITF-14 barcode]

**OR**

**GS1-128**
Carries a GTIN or an SSCC

![GS1-128 barcode]

**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

INTEROPERABILITY

ITEM DATA
LOCATION DATA
PURCHASE ORDER
SHIPPING NOTICE
# GS1 Standards in Healthcare

## Transactional Data

<table>
<thead>
<tr>
<th>EDI</th>
<th>GTIN  GLN  SSCC  Purchase Order  Advance Ship Notice  Invoice  Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electronic Data Interchange</strong></td>
<td>EDI enables the computer-to-computer exchange of business documents between companies using a standardised format.</td>
</tr>
</tbody>
</table>

## Physical Event Data

<table>
<thead>
<tr>
<th>EPCIS</th>
<th>EPC  Time  Date  Location  Business Step  Item Disposition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electronic Product Code Information Services</strong></td>
<td>EPCIS is the standard for sharing information about the movement and status of goods in the physical world.</td>
</tr>
</tbody>
</table>

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**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
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
LOCATION IDENTIFICATION
GLN  Global Location Number
5398888510045
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
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

Maintains chain of custody through automated processes

Provides accurate contract pricing and rebate processing

Reduces accounting costs
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
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

CONTACT US

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