The importance of data quality

Tania Snioch, Director Healthcare GS1
October 2018
Topics

• Data Quality
• Managing master data
• Global Location Numbers
• Trusted Data
The Master Data problem

Every company has a database filled with master data about the products they make, sell, or buy.

But when one company changes any bit of information in their database or adds a new item, another database becomes outdated!
What happened to “Master Data”

• Systems have evolved in “silos” over the last 40 years
• The link between “process” and data was broken (remains so in many cases)
• Numerous efforts to “unify” data and process, or views of data – one use at a time
• So what? Business success still happened anyway... (and hospitals operated)
• Only when costs increase, profits fall, (or a patient is negatively affected) does the real impact of bad data become known!

Original source: Gartner
The reality today!
The challenge – for hospitals

Product catalogues - current situation:

- Varying methods of communicating new items
  - Supplier A – printed catalog
  - Supplier B – price quote
  - Supplier C – PDF data
  - Supplier D – Excel tables
  - Supplier E – text data
  - Supplier F – link to website

- Varying methods of communicating updates/changes (or not communicating)
- Varying descriptions and levels of detail (product attributes)
- Varying levels of data accuracy and data quality

Hospitals need single and integrated system of exchange of information on devices and adequately identified medical devices distribution and use
The challenge – for regulators

- U.S. Department of Defence* discovered that:
  - product catalogues had problems matching the correct manufacturer name for 30% of the medical devices and 20-25% lack the product brand name
  - the part number ‘8630’ in the product catalogue of a leading GPO was linked to 9 different numbers from different distributors

- “Different manufacturers use different standards in different ways if they use anything at all. Distributors apply their own. Hospitals apply their own. And we just sort of cascade into this series of events which means that we can’t find devices.”


- In the US from 2005 through 2009, firms initiated 3,510 medical device recalls, an average of just over 700 per year.

Regulators need to be able to ensure highest levels of market surveillance, to efficiently manage adverse event reports and to quickly recall devices ... not only in their country but also across borders

* Source: US DoD Study
Where do we start??

How do we define success??

What data do I have and what do I need to start collecting??

What are customers looking for??

Are we in compliance??

**Foundational Ingredients for Success**

- Data Governance
- Roles and Responsibility
- Enterprise-wide Data Management
- Data Quality
The most important impact:
Patient safety and care providers
The primary objective is for the hospitals, and other data recipients, to transact with GS1 Keys and integrate data into internal systems

- In order for the hospitals to do so, the following conditions must exist:
  - Must trust the quality of the data
    - Verification & integrity of data chain of custody
  - Must use the data as provided by the Source without altering it
  - Have the ability to store identifiers and supporting data
  - Internal systems must be capable of supporting GS1 standards
  - Procedures and pathways must be updated to include the relevance of GS1 standards,
  - Hospital processes such as procurement, logistics, warehousing, clinical, pharmacy and operating theatres need to be updated
  - Establish MDM & Governance processes within the hospital system, including executive sponsorship, roles and responsibilities
We need to understand the provider’s **data pain points**...

...in order for them to **trust** & **use** the data
When trusted data is used

- Greater efficiencies
- Lower costs
- Improved patient outcomes
Data fit for the intended purpose: *Utopia*

- Data fit for the intended purpose
- Country Specific (i.e. UDI-Ds)
  - Procurement
  - Logistics
  - Hospital Processes
  - Pharmacy
  - UDI databases
  - Traceability
  - Use Cases and Applications

- Data Sharing Services (SPs)
- Master Data Services Certification
- Brand Owner Certification
- Data Quality Validation & Verification

© GS1 2018
Data Quality in Healthcare

**Mission:** Improve the quality and availability of master data throughout the entire supply chain and data chain of custody to improve and increase its consumption throughout the entire value chain, including regulation.

Inconsistent, incomplete and incorrect data increases the risk of patient safety errors and the cost of healthcare across the entire supply chain.

Quality data means:

- Reduced rework caused by data correction and need for internal audits
- Improved care by ensuring data accuracy at the point of care
- Consistent use of data attributes across all stakeholders

All actors in the information supply chain have a critical role in maintaining a high level of data quality throughout the information lifecycle. The ultimate goal is for the data recipient to trust the data and thereby integrate it into their processes.

Note: Leverage as much as possible existing GS1 data quality programmes and guidelines.
## Parties in the master data sharing in healthcare

<table>
<thead>
<tr>
<th>Manufacturer / Brand Owner</th>
<th>Distributor / Wholesaler</th>
<th>Solution &amp; Service Providers</th>
<th>GS1 Data Sharing Infrastructure</th>
<th>Data Recipients (Hospital, Regulator &amp; Patient)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data Quality at the Source</strong></td>
<td><strong>Data Quality Control</strong></td>
<td><strong>Verification Services</strong></td>
<td><strong>Data Sharing</strong></td>
<td><strong>Access to Trusted Data</strong></td>
</tr>
<tr>
<td>Proper Master Data Management &amp; Governance, Roles &amp; Responsibilities, Policies and procedures are assured</td>
<td>An enterprise-wide information lifecycle management process ensures the data is fit for the intended purpose</td>
<td>Certified Master Data Services offer additional data verification, images and other value added services</td>
<td>Master data is securely shared via Brand Owner authorised data sharing services such as the GDSN and other mechanisms</td>
<td>Data must be trusted in order for it to be consumed</td>
</tr>
</tbody>
</table>

- Identify
- Mark / Barcode
- Manage the Data

---

The Global Language of Business

© GS1 2018
Managing master data
Information lifecycle management

Key Concepts – Information Lifecycle Processes

1. **Create, Import or Receive**
   - Collect, Create, Receive & Capture

2. **Enrich/Validate**
   - Data Quality

3. **Sync/Activate**
   - Push to users

4. **Audit/Evaluate**
   - Routine Monitoring

5. **Update/Maintain**
   - Maintain, Protect & Preserve

6. **Inactivate/Archive**
   - Remove from active use

7. **Purge**
   - Delete from system
Use Cases: Understanding the intended end use of the data

1. Data submission to regulatory databases (i.e. UDI and IDMP)
2. Information needed for clinical decision making and patient treatment pathways
3. Product data for patient usage
4. Procurement
5. Logistics
6. Drug identification and traceability
7. Outcomes and pharmacovigilance

Data quality is the result of deliberate actions taken which ensure the data is fit for the intended purpose.
Managing Master Data

**How to improve?**

**Supplier = data source**

- **Needs single point-of-entry**
  - One database to load new item data and update data on existing items

- **Needs security**
  - Authorisation access by supply chain partners

- **Standards-based**
  - Standard identification keys
  - Predefined (set of) product attributes

**Hospital = data recipient**

- **Needs single point-of-truth**
  - One source for up-to-date, accurate data
  - Continuous synchronisation

- **Standards-based**
  - Standard identification keys
  - Consistently formatted information
  - Complete information
1. Find a **standards based** solution which can scale as the demand for data increases (i.e. GDSN and certified Data Pools)
2. Find a technology partner that can **connect you globally**
3. Define ALL regulatory and commercial attributes (**Super Spec**)
High data quality through all information channels
Master Data Management (MDM)

Data Governance

Roles and Responsibilities

Enterprise wide Data Management

Data Quality

The quality of the data is reflection on the quality of the product
The Global Locations Number (GLN)
The problem with location identification

- SAINT JOHN'S QUEENS HOSPITAL
  - 1100004570208
- ST JOHN'S QUEENS HOSPITAL
  - 100084547
- SAINT JOHNS QUEENS HOSPITAL
  - JAOE
- SAINT JOHN'S QUEEN HOSPITAL
  - 50003000431
- SAINT JOHN'S QUEEN'S HOSPITAL
  - CA2053
- ST. JOHN'S QUEENS HOSPITAL
  - OM 12345

Many different names
different location
terms for 1 hospital

Source: GS1 US
The problem with location identification in healthcare

300 different names for the same supplier

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOUTHLAND TECHNOLOGY 3M</td>
<td>3M 606-327-5360</td>
</tr>
<tr>
<td>3M COP PHOTO PRODUCTS DIV</td>
<td>3M CO</td>
</tr>
<tr>
<td>3M DENTAL PRODUCTS DIV</td>
<td>3M DENTAL</td>
</tr>
<tr>
<td>3M ELECTRICAL IMPRESSIONS DIV</td>
<td>3M ELECTRICAL IMPRESSIONS DIV 3M 384-3577</td>
</tr>
<tr>
<td>3M HEALTH</td>
<td>3M ESPE UNITED STATES</td>
</tr>
<tr>
<td>3M HEALTHCARE DIV</td>
<td>3M ESPE</td>
</tr>
<tr>
<td>3M HEARING COMPONENTS</td>
<td>3M HEALTHCARE DIV</td>
</tr>
<tr>
<td>3M INDUSTRIAL ESPE LTD</td>
<td>3M HEALTHCARE DIV</td>
</tr>
<tr>
<td>3M MEDICAL DEVICE DIV</td>
<td>3M HEALTHCARE DIV</td>
</tr>
<tr>
<td>3M MEDICAL IMAGING SYSTEMS DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M MEDICAL PRODUCTS DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M MEDICAL SURGICAL DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M MEDICAL SUPPLY DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M PHARMACEUTICALS AND MEDICAL SUP</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M MEDICAL SUPPLY DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC ENDOdentistry</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
<tr>
<td>3M OCC HEALTH &amp; ENVIRONMENT DIV</td>
<td>3M MEDISORB</td>
</tr>
</tbody>
</table>
| 3M OCC HEALTH & ENVIRONMENT DIV    | 3M MEDISBOR
Why use Global Location Numbers (GLN)

• A global standard for identification of legal entities and physical locations
• A GLN is an identification Key

Different locations in a hospital

• Vital for GS1 eCom messaging so that all parties and locations may be uniquely identified
• A pre-requisite for Global Data Synchronisation
Trusted data
Trusted data leads to better patient care

- **Standardising product data**, enables physicians to more easily analyse and compare results from products used.

- **Applying unique GS1 identifiers** or UDIs enables more efficient recalls and verification of legitimacy of products.

- **eHealth → combining the best product information with the best patient information**
Trusted data improves processes

- Global Location Numbers (GLNs), GS1 EDI, and the unique Global Trade Item Number (GTIN) to identify products supports a **fully automated** order-to-cash process

- **Accurate product data** (weight, dimensions and packaging) exchanged through GS1 Global Data Synchronisation Network saves valuable space
Trusted data means better collaboration and lowers costs

- Publishing product catalogues only once in the **GS1 Global Data Synchronisation Network (GDSN)** instead of using multiple formats, improves **accuracy of data and collaboration**

  With clinical time back to patient care!

  Reduction of human intervention ($52,000/year)
Safer, more efficient care starts with a simple scan

And accurate, complete, trusted data is needed through the whole chain so that every barcode scanned looks up an accurate database.
Contact Details

Tania Snioch
GS1 Global Office, Brussels
E  tania.snioch@gs1.org
W  www.gs1.org/healthcare