GS1 eCom Harmonisation in Healthcare

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Sectormananger Healthcare
GS1 Netherlands
Agenda

- eCom standards
- Business cases and Best Practices
- Global eCom Harmonisation
  - Healthcare Interoperability Model (HIM)
    - Fase I
    - Fase II
- Your help is needed!
  - Consignment
  - Peppol
The GS1 System

IDENTIFY: GS1 Standards for Identification

<table>
<thead>
<tr>
<th>GLN</th>
<th>GTIN</th>
<th>GTIN</th>
<th>SSCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifier for a location</td>
<td>Global Trade Item Number</td>
<td>Global Trade Item Number</td>
<td>Serial Shipping Container Code</td>
</tr>
</tbody>
</table>

CAPTURE: GS1 Standards for Automatic Identification & Data Capture

<table>
<thead>
<tr>
<th>GS1 BARCODES</th>
<th>GS1 EPC/RFID</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAN/UPC</td>
<td>GS1-128</td>
</tr>
<tr>
<td>GTIN</td>
<td>ITF-14</td>
</tr>
<tr>
<td>GS1 DataBar</td>
<td>GS1 DataMatrix</td>
</tr>
<tr>
<td>GS1 EPC HF Passive</td>
<td>GS1 EPC UHF Passive</td>
</tr>
</tbody>
</table>

SHARE: GS1 Standards for Automated Data Exchange

<table>
<thead>
<tr>
<th>MASTER DATA</th>
<th>TRANSACTIONAL DATA</th>
<th>EVENT DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS1 GLN Registry for Healthcare®</td>
<td>eCom (EDI)</td>
<td>GS1 EPC Information Services (EPCIS)</td>
</tr>
</tbody>
</table>

INTEROPERABILITY

<table>
<thead>
<tr>
<th>ITEM MASTER DATA</th>
<th>LOCATION DATA</th>
<th>ITEM TRACKING</th>
<th>ORDER TO CASH (Purchase Order, Dispatch Advice, Invoice)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRACEABILITY (Track &amp; Trace, Pedigree, Authentication)</td>
<td>PRODUCT RECALL / WITHDRAWAL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Supply chain visibility according to GS1
Supply chain visibility according to GS1

Manufacturer

Enterprise Applications

- CRM
- PIM
- TM
- WMS
- FIN
- ERP

Careprovider

Enterprise Applications

- Cat Mgt
- Space Mgt
- PIM
- MM
- TM
- SCM
- WMS
- EPOS
- B2C

EDI / INT

Master Data Synchronisation

EDI Gateway

Order
ASN
Delivery
GRN
Invoice
Invoice Errors
Query Resolution
Payment

EPC Object & Event Data Transmission

Object Data
Event Data

RFID/Barcodes Tagged Pallets & Cases
IT Standards of eCommerce

Supply

PATIENT

Invoice

Purchase

ICD/OPS
ClamL
DICOM
UMDNS/GMDN
SSCC
PZN/PPN
HL7 V2/V2/CDA
EANCOM / GS1 XML
ATC
CPV
cladimed
HIBC
DUNS-No.
ecl@ss
GTIN
GLN
UBL-xml (Peppol 2,0)
ANSIX12
xCBL (xml)
ebXML
un/cefact
HIBC
DUNS-No.
ecl@ss
GTIN
GLN
EANCOM / GS1 XML

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GS1 XML implementation trend

GS1 XML adoption 2005-2013

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Web EDI implementation trend

Web EDI adoption 2005-2013

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Businesscases on standards
New McKinsey & Company report on benefits of a single global standard

New McKinsey report “Strength in unity: The promise of global standards in healthcare”

Highlights the cost savings and patient safety benefits of adopting a single global supply chain standard in healthcare

Available at: http://www.gs1.org/healthcare/mckinsey
Huge cost savings and patient safety benefits when adopting a single global standard in healthcare

• “Implementing **global standards** across the entire healthcare supply chain **could save 22,000-43,000 lives** and avert 0.7 million to 1.4 million patient disabilities”

• “Rolling out such standards-based systems globally **could prevent tens of millions of dollars’ worth of counterfeit drugs** from entering the legitimate supply chain”

• [We] “estimate that **healthcare cost could be reduced by $40 billion-$100 billion globally**” from the implementation of global standards

• “Adopting **a single set of global standards** will cost significantly less than two” (between 10-25% less cost to stakeholders)

GHX 2009

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Estimate</th>
<th>Approx. Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication error cost</td>
<td>-9-58</td>
<td>~50%</td>
</tr>
<tr>
<td>Recall handling cost</td>
<td>~1</td>
<td>30-40%</td>
</tr>
<tr>
<td>Inventory financing cost</td>
<td>-4-6</td>
<td>10-20%</td>
</tr>
<tr>
<td>Inventory mgmt cost</td>
<td>-6-8</td>
<td>~15%</td>
</tr>
<tr>
<td>Obsolescence cost</td>
<td>-19-27</td>
<td>35-55%</td>
</tr>
<tr>
<td>Data management cost</td>
<td>-1.2</td>
<td>40-45%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>~-40-100</td>
<td>25-35%</td>
</tr>
</tbody>
</table>
B&D and Mercy/ROi

The Perfect Order
Perfect Order Definition

Perfect Order and Beyond

What is a Perfect Order?

**Perfect Order:** A purchase order processed electronically (from order to payment) without human intervention, which is delivered to the correct location, on time, undamaged, at the right price, with the desired quantity, on the first attempt.

- **Phase I** – Establish the technology infrastructure and processes to achieve Perfect Order
- **Phase II** – Implement GS1 data standards to make the process more efficient and sustainable. Include clinical processes.
# Data Challenges are a Barrier

*Perfect Order and Beyond*

## Many Proprietary Numbers for Each Customer

<table>
<thead>
<tr>
<th>Hospital Name</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Michaels</td>
<td>50003000431, 1000014082, 1000014769, 1000042141, 1000116699, 50003000306</td>
</tr>
<tr>
<td>St Michaels</td>
<td>50003000308, 50003000309, 50003000312, 50003000313, 50003000314, 50003000315</td>
</tr>
<tr>
<td>St. Michael’s</td>
<td>50003000316, 50003000330, 50003000366, 50003000406, 50003000422, 50003000426</td>
</tr>
<tr>
<td>Saint Michaels</td>
<td>50003000431, 50003000432, 50003000433, 50003000440, 50003000442, 50003000453</td>
</tr>
<tr>
<td>Just 1 Hospital</td>
<td>50003000456, 50003000468, 50003000472, 50003000473, 50003000476, 50003000477</td>
</tr>
<tr>
<td>CA2053</td>
<td>2104372, 2104379, 2108919, JGGG</td>
</tr>
</tbody>
</table>

## Many Product Numbers for Each Product

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD VACUTAINER DIV.</td>
<td>329461</td>
</tr>
<tr>
<td>B-D SUP CHAIN SVCS</td>
<td>00382903294619</td>
</tr>
<tr>
<td>BD BLOOD COLLECTION</td>
<td>BF329461</td>
</tr>
<tr>
<td>B-D LABWARE</td>
<td>0722329461</td>
</tr>
<tr>
<td>BD ACUTECARE</td>
<td>0723329461</td>
</tr>
<tr>
<td>BD CRITICAL CARE</td>
<td>777127217</td>
</tr>
<tr>
<td>B-D MICROBIOLOGY</td>
<td>777127218</td>
</tr>
<tr>
<td>GOVERNMENT SCI SOURCE</td>
<td>FSC1482679CS</td>
</tr>
<tr>
<td>B-D MICROBIOLOGY</td>
<td>FSC1482679PK</td>
</tr>
<tr>
<td>AMERICAN MEDICAL DEPOT</td>
<td>888021932</td>
</tr>
<tr>
<td>ALLIANCE JOINT VENTURE</td>
<td>THOMAS SCIENTIFIC</td>
</tr>
<tr>
<td>THOMAS SCIENTIFIC</td>
<td>8838M25</td>
</tr>
<tr>
<td>VWR INTERNATIONAL</td>
<td>8838M28</td>
</tr>
</tbody>
</table>

## 350+ Ways to Spell BD (1 Customer)

<table>
<thead>
<tr>
<th>Spelling</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD VACUTAINER DIV</td>
<td>B-D DIAGNOSTICS</td>
</tr>
<tr>
<td>BD / ELASTIC HEALTH SUPPORT</td>
<td>B-D DIAGNOSTICS</td>
</tr>
<tr>
<td>B-D ACUTECARE</td>
<td>B-D ACUTECARE DIV</td>
</tr>
<tr>
<td>B-D DIAGNOSTIC</td>
<td>B-D DIAGNOSTIC</td>
</tr>
<tr>
<td>B-D MICROBIOLOGY</td>
<td>B-D MICROBIOLOGY SYSTEMS</td>
</tr>
<tr>
<td>BD ACUCARE DIV</td>
<td>BD ACUCARE DIV</td>
</tr>
<tr>
<td>B-D PRIMARY CARE</td>
<td>B-D PRIMARY CARE DIAG</td>
</tr>
<tr>
<td>B-D / VISITEC</td>
<td>B-D / VISITEC</td>
</tr>
<tr>
<td>B-D PRIMARY CARE DIAG</td>
<td>B-D PRIMARY CARE DIAG</td>
</tr>
</tbody>
</table>
Sunrise Dates Achieved - February 2011

**Perfect Order and Beyond**

- End-to-End Integration of GLN/GTIN Achieved February, 2011
- Additional Implementation Steps Continue
BD

Perfect Order and Beyond

- GTINs created for each product and package level
- Product data defined, created and managed
- BD GLNs assigned and managed
- Validated customer GLNs collected and stored
  - Synchronization of EDI Processes
  - Order Management
- Data stored in ERP system
Use of GTINs
Perfect Order and Beyond

Challenges Included:
- Reconciling Data
- Using BD’s GTIN Data in Mercy/ROi IT Systems
- Mutually Learning to Transact w/GTINs
Mercy/ROIi Data

Perfect Order and Beyond

- Inventory Management & Replenishment
- Patient Charge
- Electronic Health Record (EHR)
Reduced Error Rate
Perfect Order and Beyond

Part # & UOM Discrepancy Rate

Discrepancy Rate

Months

Pre Perfect Order Discrepancy Rate

Post Perfect Order Discrepancy Rate

Post GTIN Discrepancy Rate
Many Benefits Achieved

Perfect Order and Beyond

- Achievement of Perfect Order
- More accurate purchase orders, invoicing and payment
- Clean data on delivery locations and account information
- Up-to-date item master and vendor master
- Real-time product usage and consumption
- Better product and lot number tracking
- Improved infrastructure and data accuracy for future patient care initiatives and the recall process

The full case study can be found at: www.gs1us.org/BDMercystudy
Customer: We only accept format XXX, it is decided in our local GS1 group to use it!

Solution Provider: You can get each format you want to your customer, costs are xxx!

IT Manufact: Why do we use a standard if the same process is used different in different countries!

IT Manufact: Costs for developing and testing of each format are xxx

Board of Manufact: How far away are we in using standards even the GS1 standards are not harmonized globally. Do we use the only the GTIN as an result

Board of Manufact: It is responsibility of department Global eCommerce & Auto ID to harmonize standards

Board of Manufact: GS1 is a Global Organization. Our expectations to them were global harmonization of standards!

Board of Manufact: If we are able to harmonize processes in SAP why isn’t the healthcare market in different countries able to harmonize?

IT Manufact: Why can’t we use what we already have realized

IT Manufact: Currently we have no resources to do that!
1 Format in EANCOM and GS1-XML?

80 – 90 % Global harmonized data and use

10 – 20 %
Country specific add-ons

Key factor is harmonization of business processes!!
Healthcare Interoperability Model (HIM)

**GOAL:**

Develop a framework to align GS1 eCom standards so they can be used throughout the Global Healthcare supply chain from supplier to logistic end-user

**HOW:**

Define a common Global Healthcare Process Model
Process Model Order to Cash
Fase I: processmodel Order to Cash
## Business Document Specification for implementing Ordermessages

<table>
<thead>
<tr>
<th>Order</th>
<th>This business document is used when a buyer sends an order to a supplier.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORDER HEADER</td>
<td>1..1</td>
</tr>
<tr>
<td>Order type, code</td>
<td>1..1</td>
</tr>
<tr>
<td>Comment</td>
<td></td>
</tr>
<tr>
<td>Definition</td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>String</td>
</tr>
<tr>
<td>Constraint</td>
<td>1..30</td>
</tr>
</tbody>
</table>

### Applicable types

- **Order**
  - Document/message by means of which a buyer initiates a transaction with a seller involving the supply of goods or services as specified, according to conditions set out in an offer, or otherwise known to the buyer.
- **Blanket order**
  - Usage of document/message for general order purposes with later split into quantities and delivery dates and maybe delivery locations.
- **Rush order**
  - Document/message for urgent ordering.
- **Call off order**
  - Document/message to provide split quantities and delivery dates referring to a previous blanket order.

<table>
<thead>
<tr>
<th>Document identification</th>
<th>The unique identification of the business document.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment</td>
<td>In order to guarantee a globally unique identity, a GDIT (Global Document Type Identifier) is an alphanumeric string including from 14 up to 30 digits.</td>
</tr>
<tr>
<td>Definition</td>
<td>Each new order must be assigned an unique identity.</td>
</tr>
<tr>
<td>Data type</td>
<td>String</td>
</tr>
<tr>
<td>Constraint</td>
<td>1..30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Document function, code</th>
<th>Code indicating the status of the document.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment</td>
<td>Allowed code value for GS1 XML Order is specified in GS1 Code documentStatusCode. Allowed code value for EANCOM ORDERS is specified in EANCOM Code List 1225 Message function code. The document status of the order is always “Original”.</td>
</tr>
<tr>
<td>Definition</td>
<td>Code indicating the status of the document.</td>
</tr>
<tr>
<td>Applicable types</td>
<td>Original</td>
</tr>
<tr>
<td>Initial transmission related to a given transaction.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Creation date time</th>
<th>Date and time of creation of the document.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment</td>
<td>Date when the order was issued.</td>
</tr>
<tr>
<td>Data type</td>
<td>Date and time</td>
</tr>
</tbody>
</table>
Fase I: Order to Cash
Fase II:

- Consignment
- Masterdata
- Invoice
Consignment - Vendor Managed Inventory (VMI)

• The consignment process is controlled by the supplier (VMI)
Consignment - Buyer Managed Inventory (BMI)

- The consignment process is controlled by the hospital (BMI)
We need your help!!!

The basic “consignment stock” process can be described as two stages:

(1) **An establishment and a replenishment stage:**
   - List new items and to store them in the hospital warehouse
   - Reconciliation of the stock to maintain stock accuracy
   - Replace stock that has been consumed
   - Plan the demand for stock to cover future clinical procedures.

(2) **A consumption (usage) and payment:**
   - As the stock is used this stage triggers the manufacturer to raise an invoice.
We need your help!!!

- Do you use consignment stock?
- Which processes do you use?
We need your help!!!

Please fill in the questionnaire at:

https://gs1.wufoo.eu/forms/consignment-stock-questionnaire/
We need your help!!!

- Peppol:
  - What information do you have about Peppol?
Questions?
Contact Details

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T  +31 615449644