Background to Work Team this afternoon:
GTIN ALLOCATION RULES

David Buckley
Fifteen minutes on:

1. [Brief] Introduction on GS1 Bar Code
2. GTIN Allocation Rules for Pharmaceuticals & Medical Devices
3. Bar Code Decision Tree – an idea?
4. Radical Thought for the Day
GS1’s Brand Architecture

The global language of business

OVERALL BENEFIT: Improving efficiency & visibility in supply and demand chains

GS1 SOLUTIONS & SERVICES USING GS1 STANDARDS
Solutions: POS / Inventory Management / Asset Management / Collaborative Planning / Traceability
Services: Global (GSMP, GEPIR, Global Registry, Training and Accreditation) & Local (e.g. Certification, Implementation, Training)

GS1 System - Integrated system of standards

GS1 BarCodes
Global standards for automatic identification
Rapid and accurate, item, asset or location identification

GS1 eCom
Global standards for electronic business messaging
Rapid, efficient & accurate business data exchange

GS1 GDSN
The environment for global data synchronisation
Standardised, reliable data for effective business transactions

EPCglobal
Global standards for RFID-based identification
More accurate, immediate and cost-effective visibility of information

GS1 Identification Keys (e.g. GTIN, GLN, SSCC, GRAI, GIAI, GSRN, EPC) & Attribute Data (e.g. Best Before Date)
GS1: A Broad Portfolio

Global standards for automatic identification
Rapid and accurate item, asset or location identification

Global standards for electronic business messaging
Rapid, efficient & accurate business data exchange

The environment for global data synchronisation
Standardised, reliable data for effective business transactions

Global standards for RFID-based identification
More accurate, immediate and cost efficient visibility of information
Global standards for automatic identification
Rapid and accurate item, asset or location identification

• Global data and application standards for bar codes that use the globally recognised GS1 Identification Keys to automatically identify things such as trade items, locations, logistic units, and assets.

• Enables rapid and accurate electronic reading at any point in the supply chain process.

• Improved efficiency and visibility in the supply and demand chains.
Global standards for automatic identification
Rapid and accurate item, asset or location identification

- A unique item identifying number
- The system logic guarantees that captured data produces unambiguous messages whose processing can be fully pre-programmed
- All symbologies and application identifiers are ISO-endorsed
Global standards for automatic identification
Rapid and accurate item, asset or location identification

• The most widely used physical identification standard in the world
• Supported by all open trade retailers globally
• Implemented by over 1,000,000 user companies in more than 140 countries
• The same code can be recognised and scanned anywhere in the world
GTIN provides access computer files
Benefits of GTIN:

- **Uniqueness**: A GTIN identifies an item uniquely. The rules for assigning GTINs ensure that every variant of an item is allocated unique reference number.
- **Non-significance**: The GTIN does not contain any meaningful information in itself.
- **Multi-sectoral**: GTINs are unique across all business sectors. This means that a healthcare product, a PC sound card or grocery item are all identified in a compatible way.
- **International**: GTINs are unique worldwide. This means that a GTIN assigned anywhere in the world can be used anywhere in the world.
- **Security**: Security of GTINs is provided through a combination of database look-up and the fixed length, numeric format that includes a standard check digit.
• **Data Integrity**: The check digit ensures the integrity of data passing into the system

• **Source Numbering**: The GTIN is assigned by the brand owner of the product. Once assigned, all trading partners can use the GTIN.

• **Automatic capture**: A GTIN can be encoded in bar code (and/or RFID tags). Scanning allows the information flow to be linked to the physical flow of items through the supply chain and attribute data (Batch, Expiry Date, etc.) to included

• **Access to Other Applications**: The GTIN is the foundation stone for EDI, Global Data Sync, EPC, etc.
What do GTINs identify?

• **Trade items:** Any item (product or service) upon which there is a need to retrieve pre-defined information and that may be **priced** or **ordered** or **invoiced** at any point in the supply chain.
Global Trade Item Numbers (GTIN)

- **GTIN-14 data structure**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>GTIN of the items contained (without check digit)</th>
<th>Check Digit</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₁</td>
<td>N₂ N₃ N₄ N₅ N₆ N₇ N₈ N₉ N₁₀ N₁₁ N₁₂ N₁₃</td>
<td>N₁₄</td>
</tr>
</tbody>
</table>

- **GTIN-13 data structure**

<table>
<thead>
<tr>
<th>GS1 Company Prefix</th>
<th>Item reference</th>
<th>Check Digit</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₁ N₂ N₃ N₄ N₅ N₆ N₇ N₈ N₉ N₁₀ N₁₁ N₁₂</td>
<td></td>
<td>N₁₃</td>
</tr>
</tbody>
</table>
Global Trade Item Numbers (GTIN)

- **GTIN-12 data structure**

<table>
<thead>
<tr>
<th>GS1 Company Prefix</th>
<th>Item reference</th>
<th>Check Digit</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₁ N₂ N₃ N₄ N₅ N₆ N₇ N₈ N₉ N₁₀ N₁₁</td>
<td>N₁₂</td>
<td></td>
</tr>
</tbody>
</table>

- **GTIN-8 data structure**

<table>
<thead>
<tr>
<th>GTIN-8 Prefix</th>
<th>Item reference</th>
<th>Check Digit</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₁ N₂ N₃ N₄ N₅ N₆ N₇</td>
<td>N₈</td>
<td></td>
</tr>
</tbody>
</table>
# Global Trade Item Numbers (GTIN)

<table>
<thead>
<tr>
<th>Data Structures</th>
<th>GTIN Format</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T₁</td>
</tr>
<tr>
<td>GTIN-14</td>
<td>N₁</td>
</tr>
<tr>
<td>GTIN-13</td>
<td>0</td>
</tr>
<tr>
<td>GTIN-12</td>
<td>0</td>
</tr>
<tr>
<td>GTIN-8</td>
<td>0</td>
</tr>
</tbody>
</table>
It is the responsibility of GS1 Member Organisations to administer number allocation and set the rules in their territory.

THESE RULES MUST COMPLY WITH THE GLOBAL GS1 GENERAL SPECIFICATIONS
2) GTIN Allocating Rules
Allocating GTINs

Same or different?
• Each different series of identical trade items must be identified by a different GTIN.

This general rule needs interpretation!

Objective of this afternoon - What does ‘different’ mean for pharmaceuticals and medical devices
1 product = 1 GTIN

1 Clean
1 GTIN = 1 product
Examples

Company Prefix + Item Ref. CD

Vaccine X (5ml child)  
3083680026307

Vaccine X (10ml adult)  
3083680026321

Vaccine X (child box of 15)  
3083680000710
The GTIN identifies to the lowest level

- **PHARAM**
  - **Pills**
    - **STRENGTH**
      - **hospital**
      - **adult**
      - **child**
    - **PACK**
      - 6 pack: 22377 000430
      - 12 pack: 22377 000431
      - 6 pack: 22377 000432
      - 12 pack: 22377 000433
      - 10 pack: 22377 000434
      - 24 pack: 22377 000435
Re-use of a GTIN

3453120236458

End of commercialisation

4 year minimum

3453120236458

Re-use of the number
Uniform groupings

Lowest level

Box of 20 products

Box of 40 products
Mixed grouping

- Black "oriental" 3 21566 500005 1
- Yellow "canaille" 3 21566 500011 2
- Metallic "ambrée" 3 21566 500004 4
- Number of the mixed grouping 3 21566 901099 5
- Blue "diablesse" 3 21566 500012 9
- Pink "étreinte" 3 21566 500010 5
- Green "jardin tropical" 3 21566 500009 9

- 12 black "oriental"
- 8 blue "diablesse"
- 6 yellow "canaille"
- 6 metallic "ambrée"
- 6 pink "étreinte"
- 10 green "jardin tropical"
Made even easier thanks too:

GTIN Allocation

The global language of business

www.gs1.org
GTIN Allocation Rules

- Endorsed by the GCI Board
- Frequently visited area on GS1web-site
- Excellent user feedback
- Approved under GSMP

*A picture tells a thousand words*
• Don Weston [Pfizer] *It is just the type of practical tool that we all so badly need in the daily operations of the business.*

• Paul Nutter [Tesco] *endorsing this new global tool Tesco aims to help its suppliers worldwide reduce costs by meeting Tesco product numbering requirement with truly global solutions*

• Patrice Ronsin [L'Oréal] *We would like to take this opportunity to thank [PTRGL Chair] and all the members ... For the incredible task they have accomplished on this critical topic.*

• Brian Smith [GS1] *The GTIN Allocation Rule pages of our website will be a very useful tool for all users throughout the world.*

• John Wolfson [Kraft Foods] *I found the site to be very easy to understand and migrate*
3.6

Type of Change to Trade item

New / additional pallet layout to co-exist permanently with the original layout

Note: The pallet pattern/layout does not impact the quantity of retail consumer trade items or cases contained. If the pallet is an ordering unit a different GTIN is required for each pallet configuration.

GTIN for Standard Trade Item Grouping
GTIN Allocation Rules

The [GS1 GTIN Allocation Rules](http://www.gs1.org/gtinrules) are endorsed by the Global Commerce Initiative and have been developed to ensure unique and consistent identification of products world-wide.

The GTIN (Global Trade Item Number) provides a supply chain solution for the identification of any item that is traded (priced or invoiced or ordered). Overall supply chain costs are minimised by all partners in the supply chain adhering to [identical allocation rules](http://www.gs1.org/gtinrules). GTINs form the foundation for [global data synchronisation](http://www.gs1.org/gtinrules).

From the starting point of [correctly assigned GTIN](http://www.gs1.org/gtinrules), this tool gives examples of product changes which may (or may not) result in a new GTIN being assigned to the product. **NOTE:** These rules are focused on whether a new GTIN be assigned. However, the Brand Owner must communicate any change to a product, ideally using GDSN, even if the change does not trigger a new GTIN.

For an informative illustrated booklet download the PDF [GTIN Allocation Made Even Easier](http://www.gs1.org/gtinrules).
GTIN Allocation Rules available in:

- Spanish, German, Chinese, **Slovakian**, Norwegian, Slovenian, Polish, French, ...
- *Improving Implementation at [non-English language] User Companies*
3) [Maybe]  Bar Code Decision Tree?
### MEDICAL DEVICES - For the PALLET package level, which bar code symbol(s) are used?

- [ ] GS1 Datamatrix
- [ ] RSS (Reduce Space Symbology)
- [ ] RSS with Composite
- [ ] EAN/UPC (covers EAN-8, EAN-13, UPC-A & UPC-E)
- [ ] GS1-128 (previously known as UCC/EAN-128)
- [ ] ITF-14
- [ ] Datamatrix
- [ ] Code 39
- [ ] Code 128
- [ ] Other

### MEDICAL DEVICES - For the PALLET package level, what DATA do you encode in the bar code?

- [ ] GTIN (e.g., AI 01)
- [ ] Expiration Date (e.g., AI 17)
- [ ] Lot or Batch Number (e.g., AI 10)
- [ ] Serial Number (e.g., AI 21)
- [ ] SSCC (e.g., AI 00)
- [ ] HIBCC primary UPN
- [ ] HIBCC secondary
- [ ] National Registration Number (e.g., PZN in Germany)
- [ ] Other
Medical Device Data: GTIN and Serial Number (and date??)

1. **Medical Device?**
   - yes: **Limited Space?**
     - yes: Tall thin item with diameter less than 30mm (1.15in.)?
       - yes: Truncated GS1-128 (X >0.264 mm (0.0067 in.))
       - no: RSS or Data Matrix (X >0.170 mm (0.0067 in.))
     - no: **GS1-128** (X >0.264 mm (0.0067 in.))
   - no: **Other GS1 Standards**
     - yes: **No change elsewhere**
     - no: Largest Printable Area less than 30mm² (4.40in²)
Animal Health: GTIN, Expiry Data and Batch Number

Animal Health Product?

- YES
  - Retail Item?
    - YES
      - EAN/UPC* (Prod Id)
        - Plus
          - Data Matrix (Prod Id, Expiry & Batch)
    - no
      - Individual Item?
        - YES
          - UCCEAN-128 or Data Matrix (Prod Id, Expiry & Batch & SSCC)
        - no
          - Bundle (not traded)?
            - YES
              - UCCEAN-128 or Data Matrix (Prod Id, Expiry & Batch & SSCC)
            - no
              - Bundle (traded)?
                - YES
                  - UCCEAN-128 or Data Matrix (Prod Id, Expiry & Batch & SSCC)
                - no
                  - Pallet

- no
  - See appropriate GS1 Guideline
RADICAL THOUGHT
TO CLOSE

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www.gs1.org
We now have Benchmark Data to Establish Goals, Timelines and Measure Real Progress

<table>
<thead>
<tr>
<th>Implementation Measures</th>
<th>2004 Benchmark</th>
<th>Goal</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of consumer units allocated GTIN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of cases/cartons/inners allocated GTIN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of pallets/unit loads labeled</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of item exceptions to GTIN allocation rules</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of shipping or receiving locations that have been allocated a GLN</td>
<td>64.4</td>
<td>80</td>
<td>Jan 2007</td>
</tr>
<tr>
<td>% of orders transacted via EDI or XML</td>
<td>85.1</td>
<td>95</td>
<td>Jan 2005</td>
</tr>
<tr>
<td>% of invoices transacted via EDI or XML</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of sales with synchronized master data between trading partners via standards compliant data pools</td>
<td>12.3</td>
<td>50</td>
<td>Jan 2007</td>
</tr>
<tr>
<td>% of GTINs that are catalogued consistently with Global Product Classification Standards</td>
<td>8.6</td>
<td>80</td>
<td>Jan 2007</td>
</tr>
<tr>
<td>% of checkouts that can scan a 13 digit barcode</td>
<td>99.9</td>
<td>99</td>
<td>Jan 2005</td>
</tr>
<tr>
<td>% of checkouts that can scan Reduced Space Symbology (RSS)</td>
<td>0.4</td>
<td>99</td>
<td>Jan 2008</td>
</tr>
</tbody>
</table>

GTIN ALLOCATION RULES

SSCC & LOGISTIC LABEL

GLN ALLOCATION RULES

GTIN ALLOCATION RULES

This is all about clean data

Gap is "inners"
[Do?] We now have Benchmark Data to establish Goals, Timelines and Measure Real Progress

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>2005</th>
<th>GOAL</th>
<th>Timeframe / barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>GTIN for Unit-of-use</td>
<td>60%</td>
<td>90%</td>
<td>Needs Global GTIN Rule endorsement</td>
</tr>
<tr>
<td>Batch/Expiry for Case</td>
<td>80%</td>
<td>95%</td>
<td>GS1-128 roll-out</td>
</tr>
<tr>
<td>Medical Device Serialisation</td>
<td>25%</td>
<td>50%</td>
<td>EPC endorsement</td>
</tr>
<tr>
<td>Regulators endorsing GTIN</td>
<td>20</td>
<td>60</td>
<td>???????</td>
</tr>
</tbody>
</table>
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