



Hospital transformation using GS1 Standards

H. Reissmann

University Medical Center Schleswig-Holstein, Lübeck & Kiel



Today's speakers

- Jean-Michel Descoutures, Hospital Pharmacist, IHF, France
- Yolanda Bokking, Policy staff officer and Process manager Procurement, Amsterdam UMC, the Netherlands
- Anthony Wong, Senior Pharmacist, Hospital Authority, Hong Kong



Our agenda

- 5 min intro – Hajo
- 15 min presentation – Jean-Michel
- 15 min presentation - Yolanda
- 15 min presentation – Anthony
- 35 min Q & A from the audience – Facilitated by Hajo
- 5 min close – Hajo

Please be ready with your questions!

On our way to digitalisation ...



Jean-Michel Descoutures

- Hospital Pharmacist Centre Hospitalier d'Argenteuil (95)
- Coordinator for Drug Procurement - GPO Resah
- Member of the French Academy of Pharmacy

Bangkok, 2018



The Global Language of Business

Serialisation, Unique identifier, Decommissioning ... February 2019



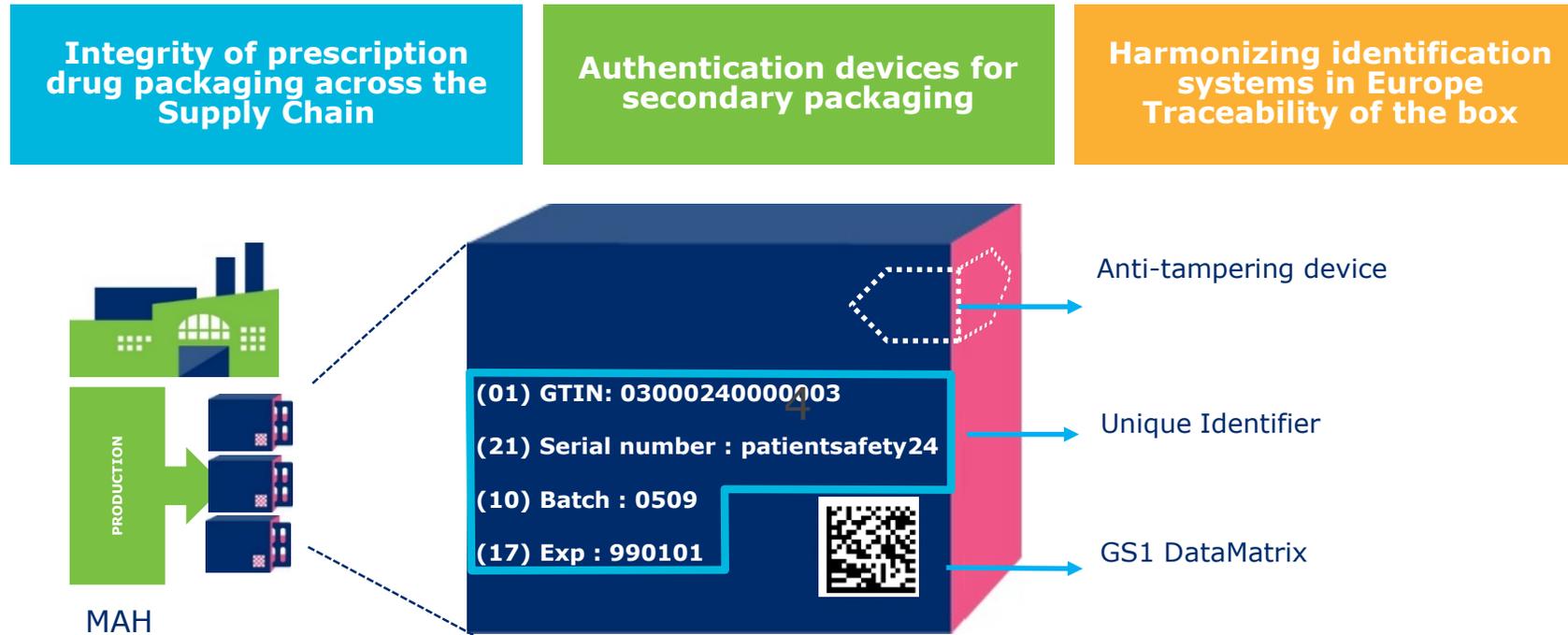
General hospital : 1 000 beds

- short stay : medicine, surgery, OBGyn,
- long stay and psychiatry
- Main hospital of the Territory Hospital Group : Sud Val d'Oise-Nord Hauts-de-Seine – 5 hospitals
- Receipt = 200 000 boxes/yr :
- 80% go in the storage and distribution robot (ROWA)
- 20% are split between : shelves, refrigerator, anti-cancer drug production unit and narcotic room

Tomorrow

- Centralisation of the preparation of unit doses for the other hospitals
- Receipt = 800 000 boxes/yr

Context – Regulations - Objectives



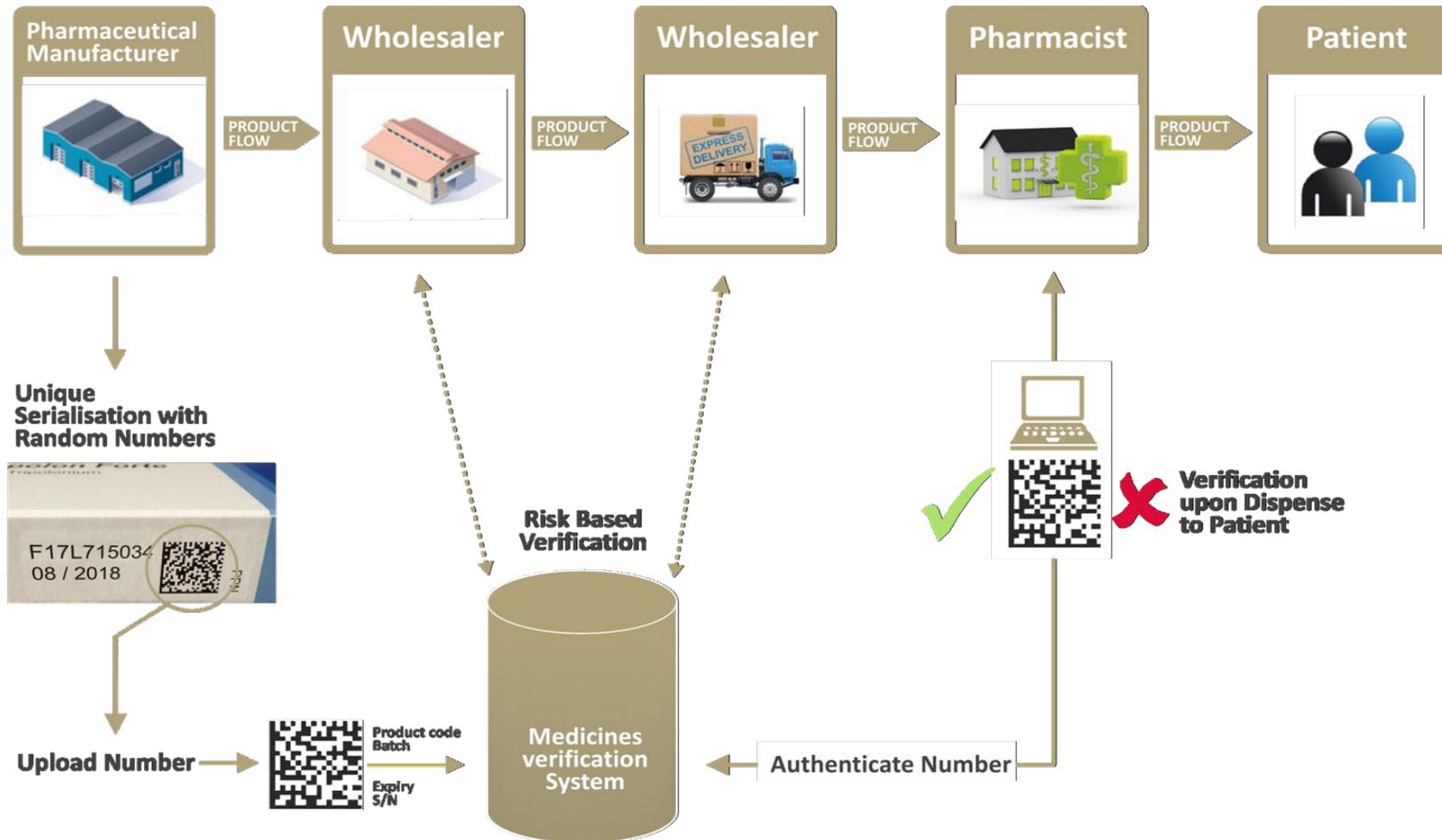
European directive on falsified medicines 2011/62/EU (FMD)

- https://ec.europa.eu/health/sites/health/files/files/eudralex/vol-1/dir_2011_62/dir_2011_62_fr.pdf

Règlement Délégué 2016/161 sur dispositifs de sécurité figurant sur l'emballage des médicaments

- https://ec.europa.eu/health/sites/health/files/files/eudralex/vol-1/reg_2016_161/reg_2016_161_fr.pdf

Organisation of the system

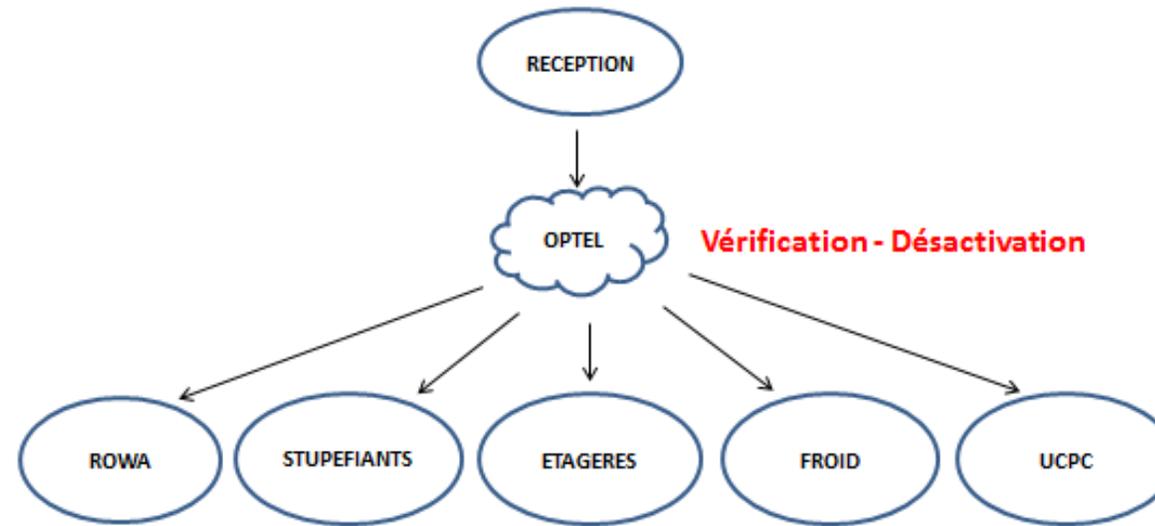




Argenteuil and the FMD Decommissioning in a hospital

The test phases - The two options – Goods In
and Goods Out

Option 1 : « GOODS IN »



➤ Advantages

- Simplification of the system management : one point where to scan, a limited number of technicians in direct link with France MVO

➤ Challenges

- More distant from the spirit of FMD
- Staff ++ (*has to be evaluated*)

Option 2 : « GOODS OUT »



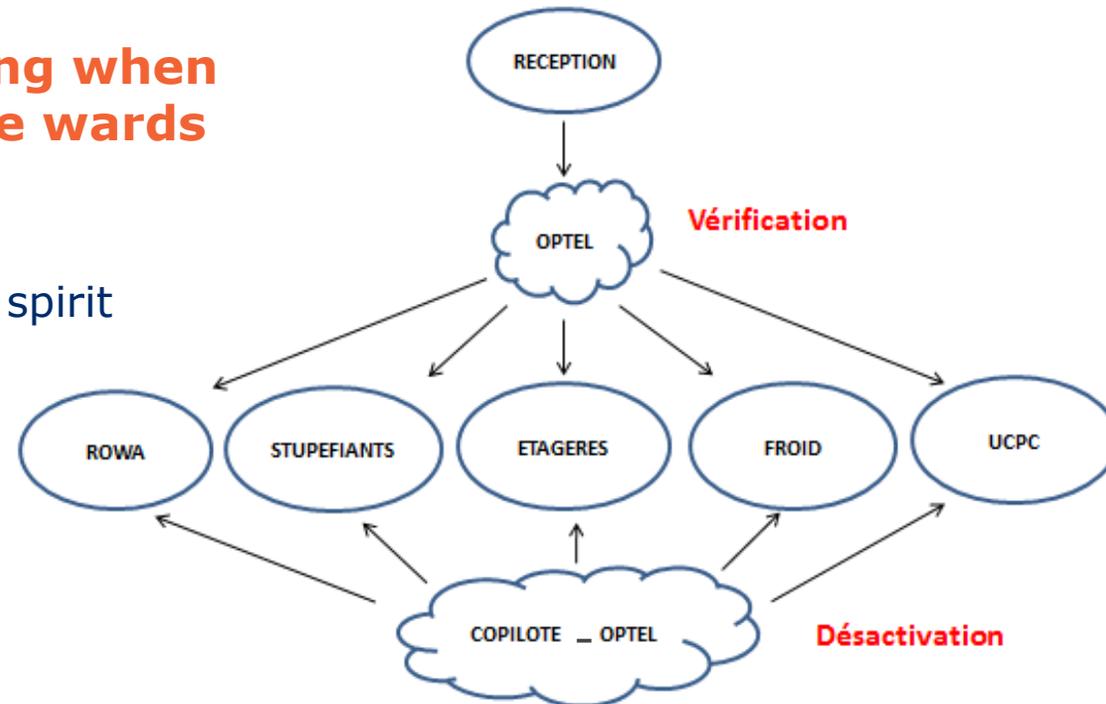
Decommissioning when delivering to the wards

➤ Advantages

- More linked with the FMD spirit
- Reduced time for decommissioning
(*has to be measured*)

➤ Challenges

- Different technicians -> escape decommissioning because added to their traditional workflow operations
- Increase in the number of devices (*has to be measured*)
- Cost of interface (*has to be measured*)



Main challenges for Argenteuil



Lack of Interoperability of the information systems

Interface between :

- OPTEL with ARIM (*ROWA*)
 - + COPILOTE (*our « WMS »*)
 - + e-MAGH 2 (*our financial ERP*)

... And tomorrow with the unit dose preparation robot software

Progress report Sept. 2018

Phase 1 – « Goods In »



- Gateway provider : OPTTEL
- Test : compatibility of EU FMD with OPTTEL Certa Software
- Training of the 2 technicians
- Analysis of a fortnight receipt in the July 2018
- With hardware devices : vertical scanner, optic station, handheld wire scanner

Metrics « in real world » : Nb of scanned boxes : 830 per day
[273-1737]

- 90% are prescribed medicines
- Scanning time : 5 sec per box or 56 min per day
- Only 3 suppliers had the unique identification with a serial number
- The DataMatrix of 3 different drugs was impossible to scan (no differentiation in the colours)
- OPTTEL Certa is easy to use and very didactic but the hardware takes place and the scanner uneasy to handle

Next steps ...



- ✓ Work with new wireless mobile scanners with an integrated screen
- ✓ Reinforce the Wifi hotspot network at the Pharmacy
 - VERY IMPORTANT for the connection of OPTEL software with France MVS

New metrics :

- ✓ - Measure the delay for decommissioning since the connection with France MVO is now open
- ✓ - Has to be done with « Goods In »
- ✓ **Phase 2 – October 2018** : « Goods Out » option after storage and before dispensing to the patient

For the future ...



- ✓ Preventing falsified medicines in our European countries is undoubtedly a necessity
- ✓ But really cost effective on both sides : the suppliers and the healthcare providers
- ✓ For hospitals, decommissioning box by box is time and human resources consuming

To minimize these aspects, the European hospitals through their associations ask for digital aggregation

In discussion with the European Commission

Steps for a decommissioning system



In summary

- ✓ Choose a gateway provider among the 12 accredited by France MVO
- ✓ Analyse the flow of prescribed drug boxes
- ✓ Connect the whole system to France MVO
- ✓ Test the best solution in « real life » for verification and decommissioning between « Goods In » or « Goods Out » within your own hospital organisation :
 - duration of scanning box by box,
 - readability of the 2D DataMatrix code,
 - efficiency and responsiveness of the hardware devices ...
- ✓ Use this new mandatory task to improve your supply chain



The Global Language of Business

Argenteuil and e-catalogues



e-catalogue in Healthcare Trusted, complete, quality data sharing

Necessity of reliable and synchronized **product information** in the hospital information systems

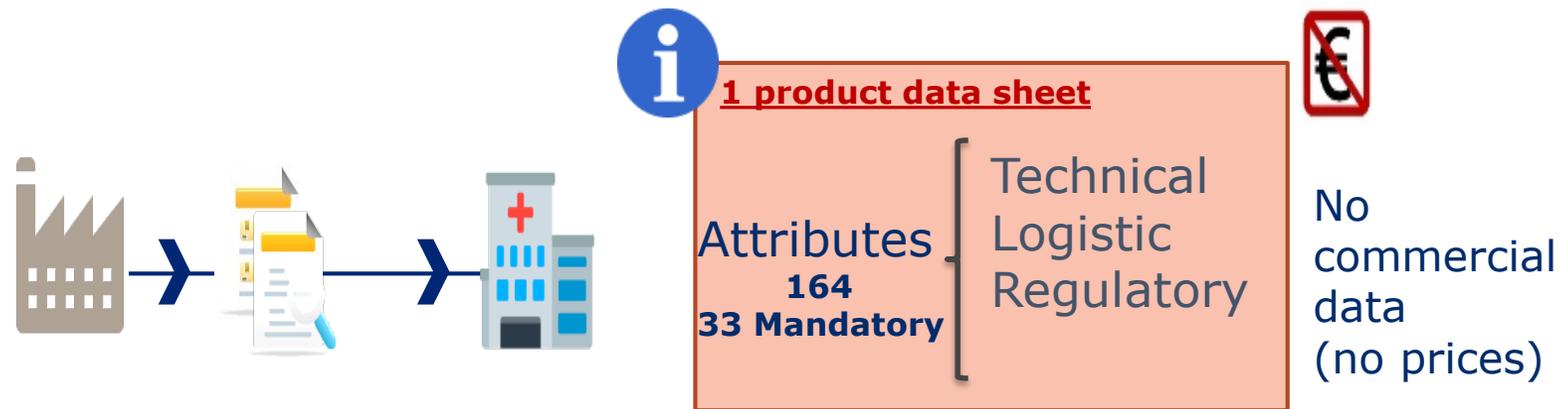
Essential for **sharing information** between suppliers and hospitals

- On the initiative of the GPO Resah
- In line with GS1 standards
- In cooperation with the software provider MiPih, pilot hospitals and suppliers
- Interoperability with the different hospital softwares
- Sharing product data sheets in a standardized data model under the supplier's responsibility
- Open to everyone



The objectives

- **Anticipation** of the medical device unique identification regulations (UDI)
- **Availability** of comprehensive and updated information
- **Incentive, then mandatory** for the calls for tender - **January 2020**



eCat-Santé

The answer to the stakeholders' needs



Hospital

- Secure the health product distribution
- Get complete and up-dated information
- Facilitate the access to the product data of the awarded contracts

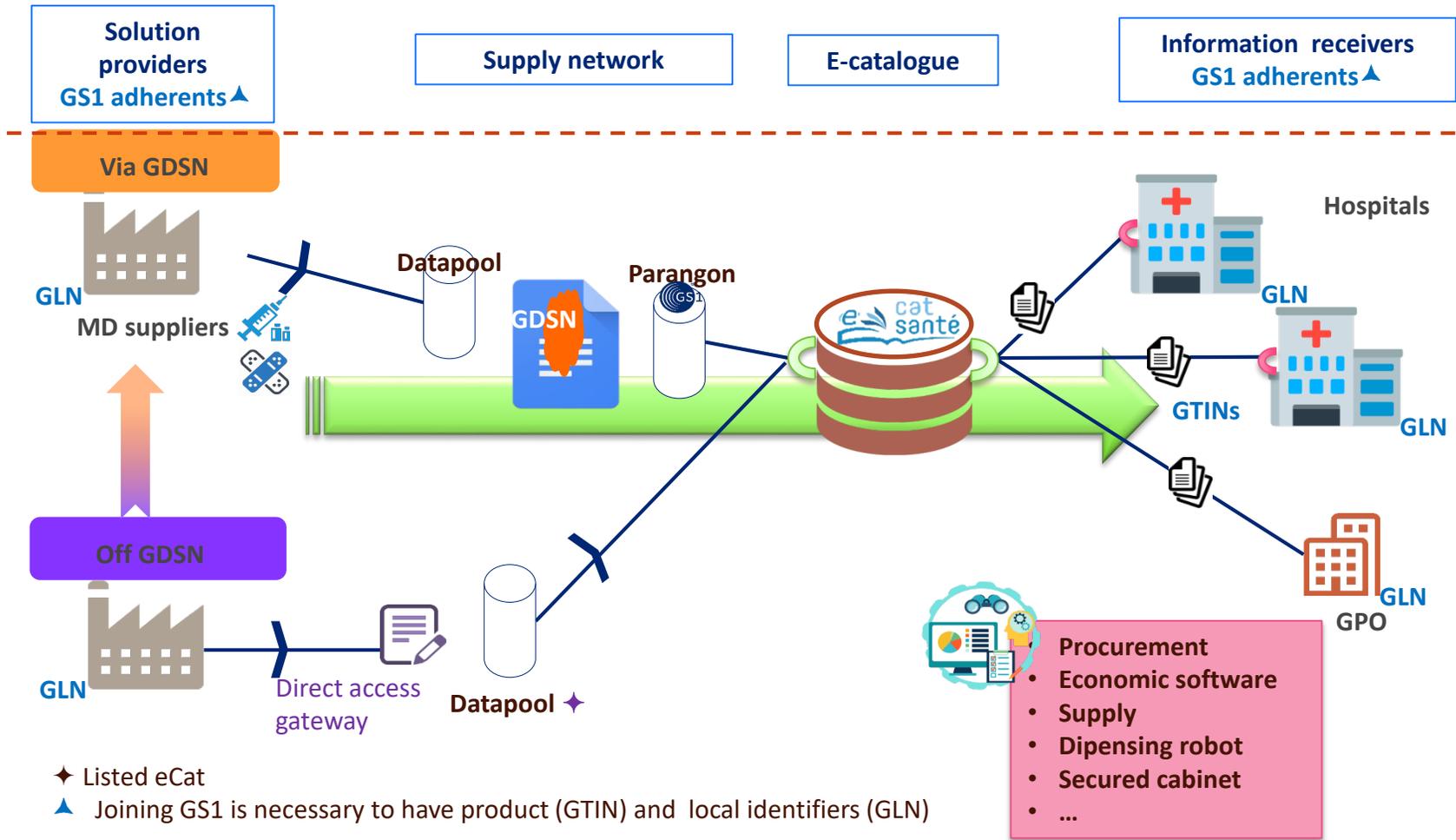
Supplier

- Manage the data relayed to the hospitals
- Automate the secured updated transmission of data to everyone in one go
- Minimise the different feedbacks coming from data errors

GPO

- Anticipate the different changes related to the dematerialisation and traceability processes
- Ensure that the hospitals have an equal access to reliable product information
- Secure the whole process thanks to worldwide used international standards

Operating method (MD flow)





Medical devices

- **Datamodel** : RESAH uses the datamodel validated by GS1 France 
- **Guidelines** : published and released - **800** suppliers
- **Test** : phase in progress Oct 18 with **1600** data sheets received
 - 2 hospitals :
CH Argenteuil, GHEF
 - 6 MD suppliers
B.Braun, Vygon, Bio-Rad, BD, WL Gore, Biomérieux

Miscellaneous

- Pharma Datamodel-to be confirmed 
- Information gateway-to open
- Direct access gateway-to design
- Economic software interoperability-to evaluate
- Service deployment
- Opening to other purchasing segments

Thanks for your attention



GS1 standards in Amsterdam UMC

From procurement to healthcare





Hello we are Amsterdam UMC

Nice to meet you

- Merge of 2 academic hospitals
AMC and **VUmc**
- more than **15,000** professionals
- over **350,000** patients a year
- teaching and training **thousands** of young people to become doctors, specialists or nurses
- Patient care is **complex** and **highly-specialized** treatment of **rare** medical conditions
- international, cutting-edge research in **8** research centers





What is going on in Europe and The Netherlands?

National and international laws on:

- **Implants (LIR + MDR)**
- **Medical supplies (MDR)**
- **Medical equipments (MDR)**

People get older



More complex care



Growing cost healthcare



More technology





Amsterdam UMC wants to improve performance and outcomes on patient safety, quality and cost control HOW?

- JCI accreditation is considered the gold standard in global health care - quality and patient safety is core
- Buying power in the cooperation NFU
= all 8 academic hospitals NL working together





My focus = Masterdata Governance

- Follow up on legislation (MDR, LIR and JCI)

get our masterdata correct and complete

- Optimize masterdata maintenance

do it faster and more simple

- Optimize software systems for EDI (Electronic Data Interchange)

automate it

KEYWORD DATA QUALITY



DATA QUALITY the basic = GS1 standard

- For all products use a **Uniform** language and **Unique** key = **GTIN**
- Get the correct **Units of Measure** (packages)
- Use the correct manufacturers / suppliers code = **GLN**

GS1 and GDSN helps

Extra benefits:

- Getting more **analyzing** power
- Getting more **efficiency** in master data maintenance in ERP and EHR systems
- Minimalizing **administrative workload** and errors in invoicing workflows



How to do it? Start project GDSN

Follow the procurement to health process



1. Manufacturers and suppliers are responsible for providing:
 - Right products
 - Right prices
 - Right and readable barcodes (GS1 standard)**
2. Procurement and logistics send **products and data** to the Healthcare Department
3. Hospitals and Healthcare Departments (OR) **operate, scan and register** on patient level



Current status Global Data Source Network in The Netherlands

- 17 Mandatory fields of the \pm 140 fields must be a **"PIECE OF CAKE"** for manufacturers, suppliers **and** hospitals



- Start UP with **14** manufacturers /suppliers in the GDS network
next **150 have top priority** ... so who is next??



Project works: Do's



- Get **every one** involved in **GDSN**
 - doctors, nurses, IT , procurement , logistics staff, suppliers, manufacturers , software providers, sales and marketing etc. etc...
- Share the feeling of urgency - **START NOW!!**
- Start small and be flexible The **1^E STEP** is just **1 GTIN**





Project works: Don'ts!

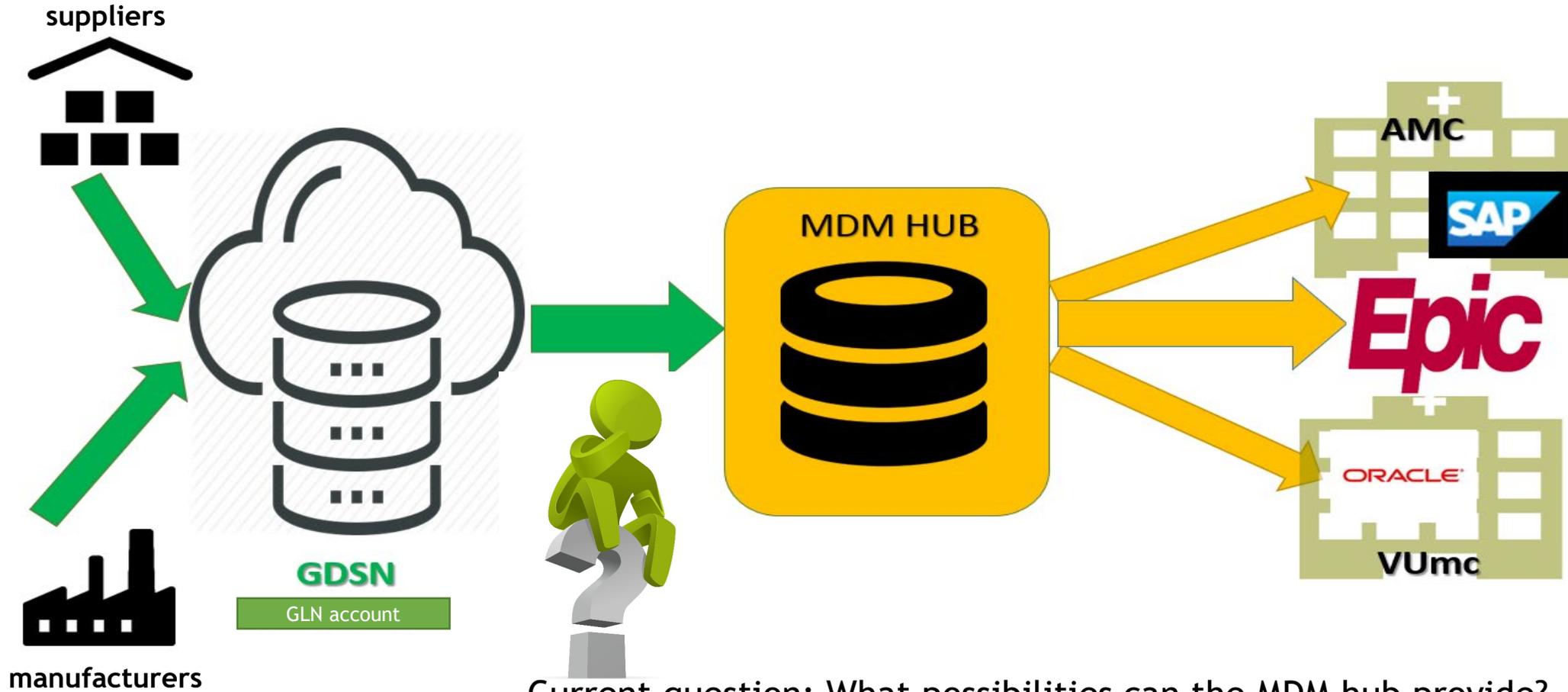


- Do not forget to **involve IT** or **your software provider**
 - otherwise you have to start again...
- Do not loose your **focus** and your **spirit**
 - take a deep breath occasionally
 - accept not everyone is on the same track
- Do not act without a good night of **sleep**
 - expect new insights





Next step in the Amsterdam UMC project GDSN feeds MDM Hub



Current question: What possibilities can the MDM hub provide?



Ideal world: everything connected by



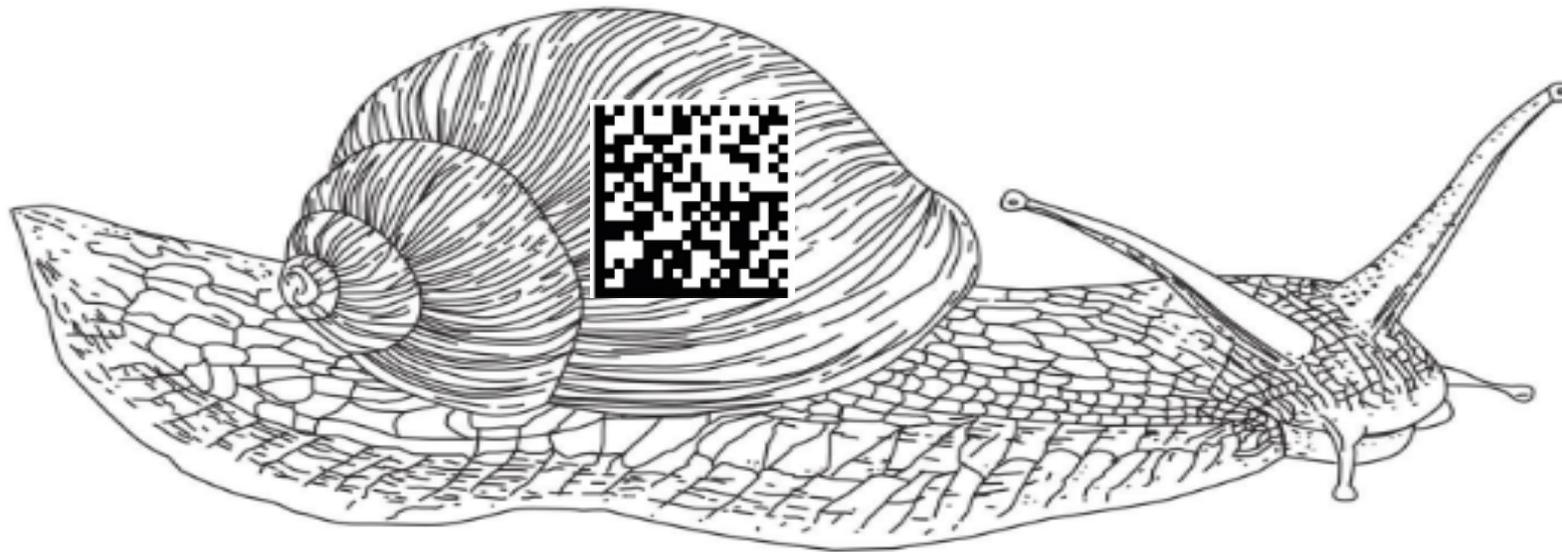
- All this must lead to patient safety and higher quality
- And all this must lead to complete **Electronic Data Interchange (= EDI)** based on GS1 standards



So to Hospitals, Manufacturers, Suppliers, Software providers and Governments:
We have to work together and share information and experiences



Questions?



Oh snail
Climb Mount Fuji
But slowly, slowly

Haiku van Kobayashi Issa
(1763 - 1828)

Pharmaceutical Supply Chain at the Hong Kong Hospital Authority

Anthony Wong
Senior Pharmacist
Chief Pharmacist's Office
Hong Kong Hospital Authority
aycwong@ha.org.hk

In Today's Sharing.....

1. Pharmaceutical supply chain in Hong Kong's public health care sector
2. What we have done
3. Where we wish to get to

Hong Kong (SAR)

(Special Administrative Region of The People's Republic of China)



High Population Density

Population: **7.4 million**

Total Area: **1,106 km²**

Hong Kong's Health Care Management

Food and Health Bureau

(Government department)



衛生署
Department of Health

- Health Affairs Adviser to the SAR Government, responsible for implementing government health policies and statutory duties
- Promote health, prevent disease, medical care and rehabilitation services, and strengthen community collaboration
- Supervision of private medical institutions

(Non-government public sector)



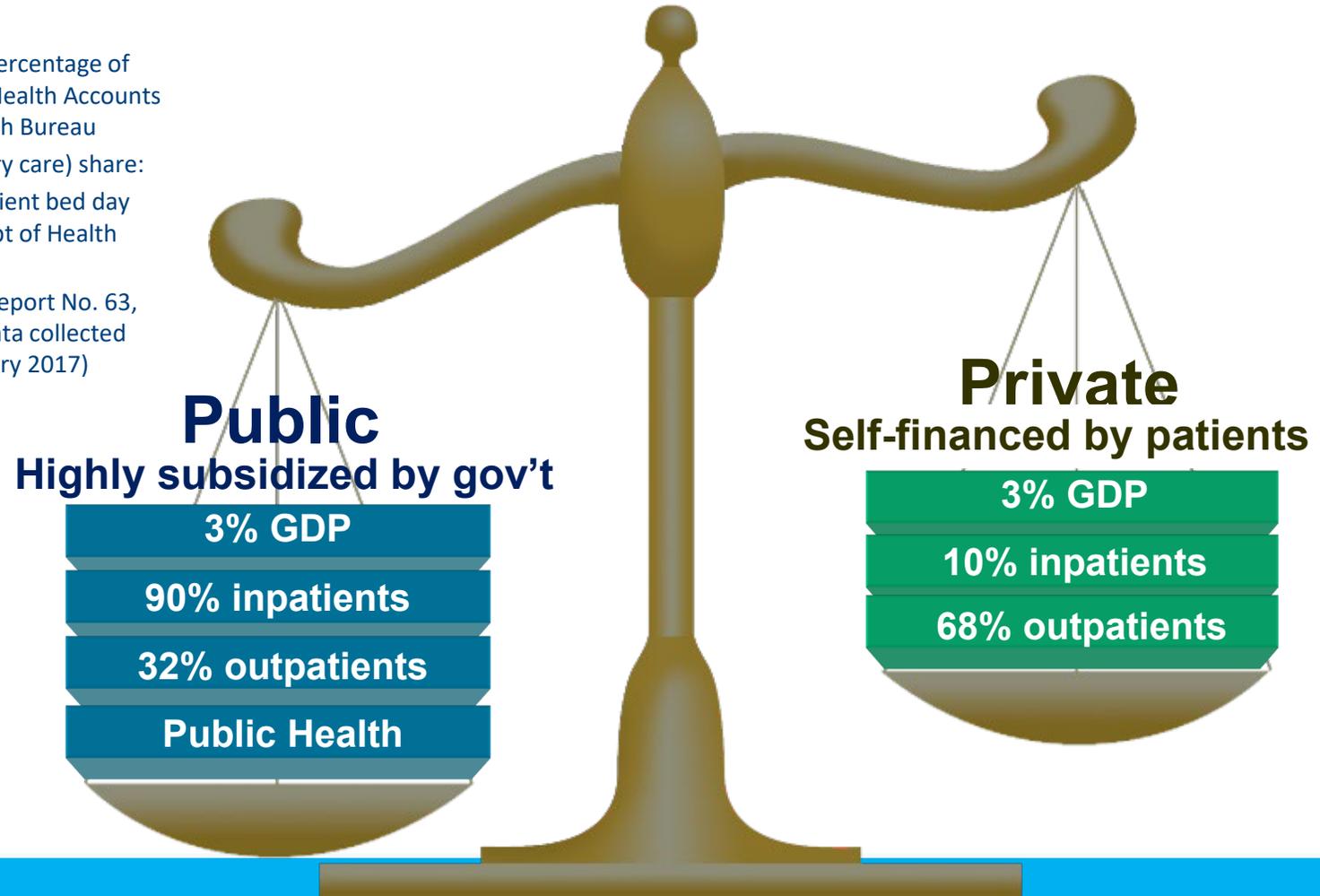
醫院管理局
HOSPITAL
AUTHORITY

- Directly manage all public hospitals/institutions and primary care

Hong Kong Healthcare System - Dual System

Source:

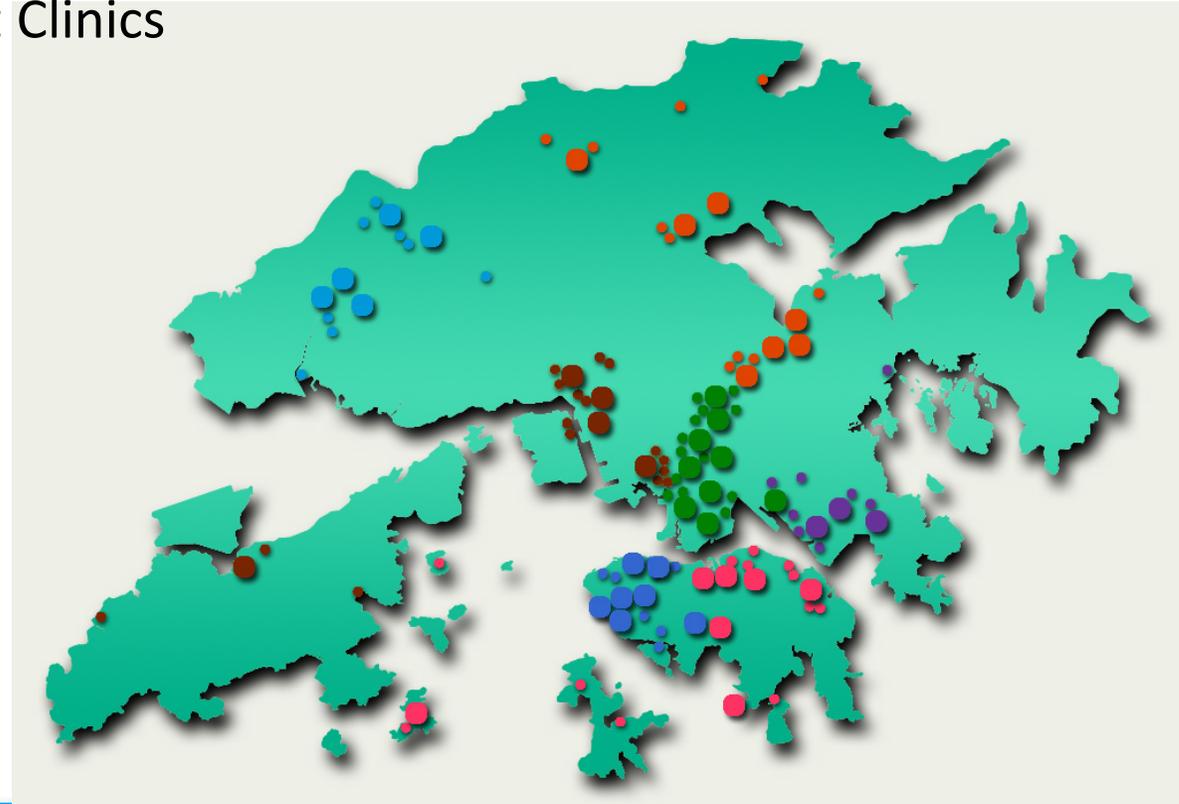
1. Total health expenditure as percentage of GDP: Hong Kong's Domestic Health Accounts 2014/15 from Food and Health Bureau
2. Inpatient (secondary & tertiary care) share: Public/private share by in-patient bed day occupied in 2016, HA and Dept of Health
3. Outpatient care: Thematic Household Survey Report No. 63, Census and Statistics Dept (data collected during October 2016 to January 2017)



Hong Kong Hospital Authority

Within 7 clusters :

- **43** Hospitals
- **48** Specialist Out-patient Clinics
- **73** General Out-patient Clinics
- **119** Pharmacies



Scope of Pharmaceutical Supply in HA



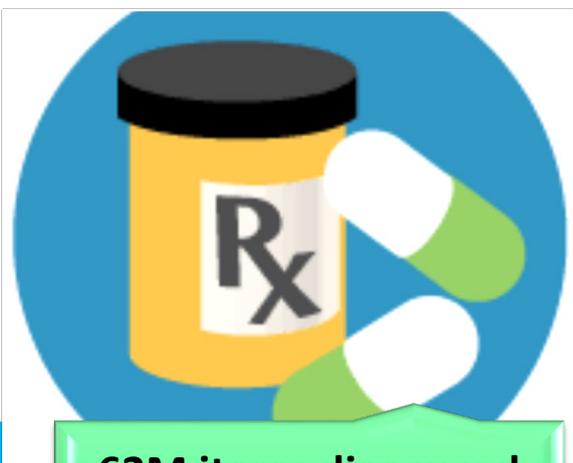
3,200
Drug items



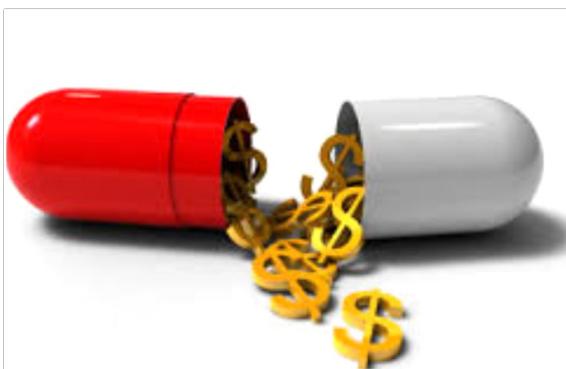
3,800
Item sources



>450,000
Order lines per annum



62M items dispensed
per annum



Drugs
10% of HA Expenditure
(HK\$6.2Bn)



HK\$15 SOPD item drug
charge (highly
subsidized)

What have we done?

Adopting GS1 Standard



GS1 Identifiers in Healthcare

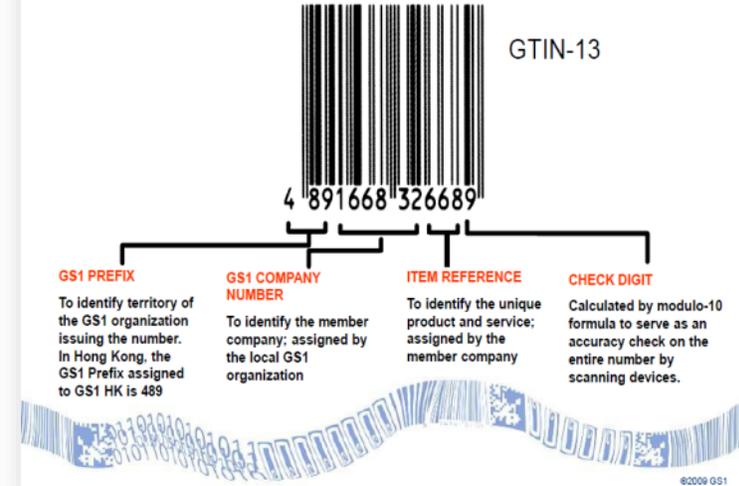
GS1 Key	Represented Information
GTIN <i>(Global Trade Item Number)</i>	Identification of Healthcare Product
GLN <i>(Global Location Number)</i>	Identification of Location & Legal Entity
GSRN <i>(Global Service Relation Number)</i>	Identification of Patient & Care Giver
Application Identifier	Represented Information
AI(01)	Global Trade Item Number
AI(10)	Batch Number
AI(17)	Expiration Date
AI(21)	Serial Number

* GS1 keys & Application Identifiers are recognised by ISO.

©2009 GS1

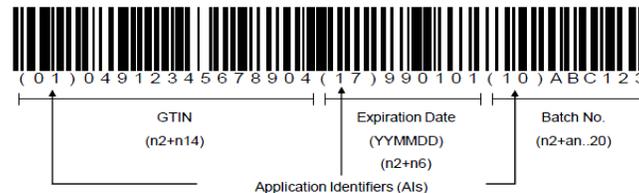


Data Structure of a GTIN




Batch Level Identification & Expiration Control

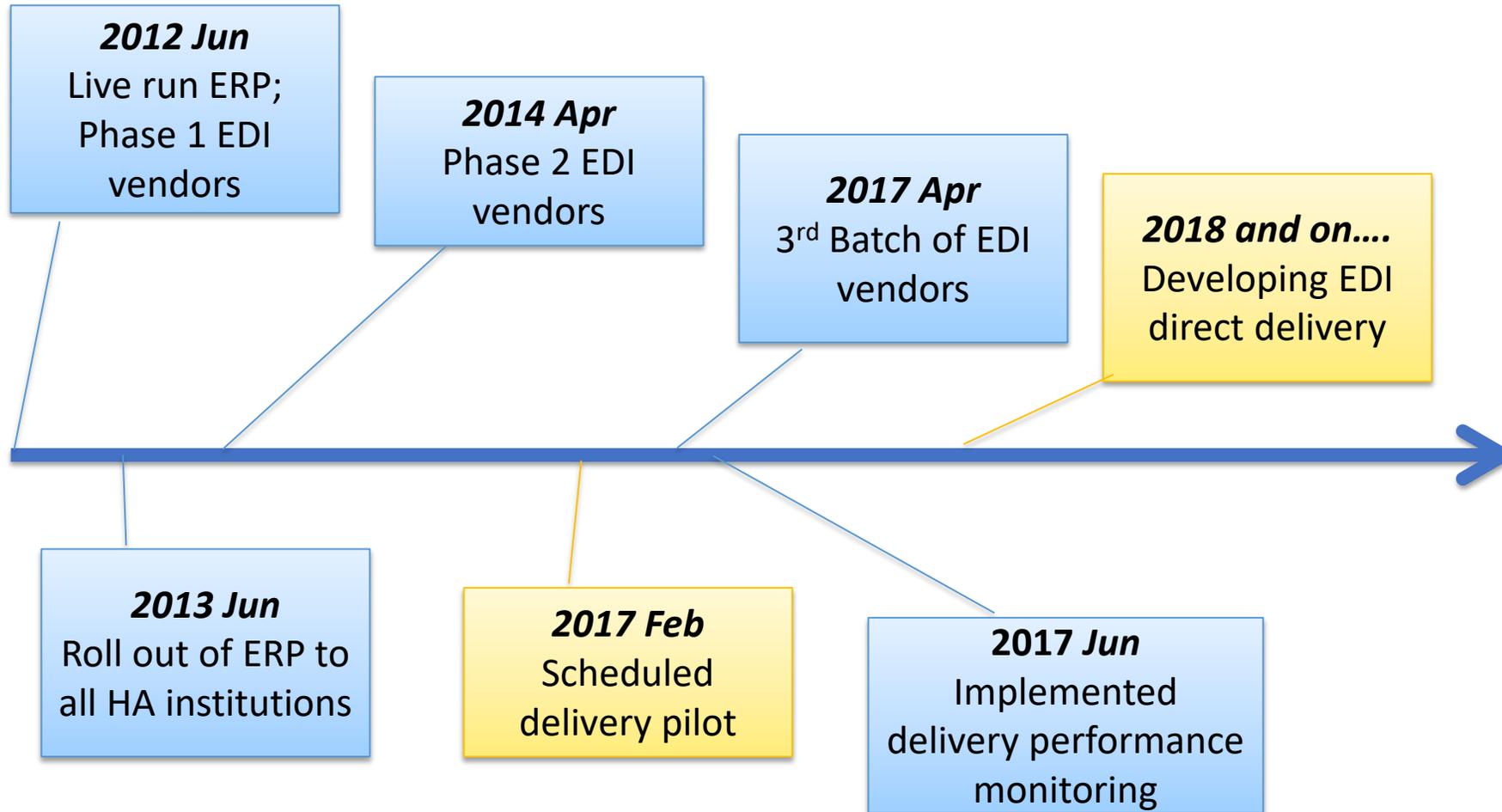
- For batch control or expiry date control, which are common to healthcare items, people may prefer encoding batch number and expiration date in barcode.
- GS1 System provides data structure standard for them as well:
 - Batch number – Alphanumeric data format with variable length up to 20 characters
 - Expiration date – Numeric data format (YYMMDD) with fixed length of 6 digits



Expiration date & batch no. must be used with GTIN and application identifier (AI) in a barcode.

©2009 GS1

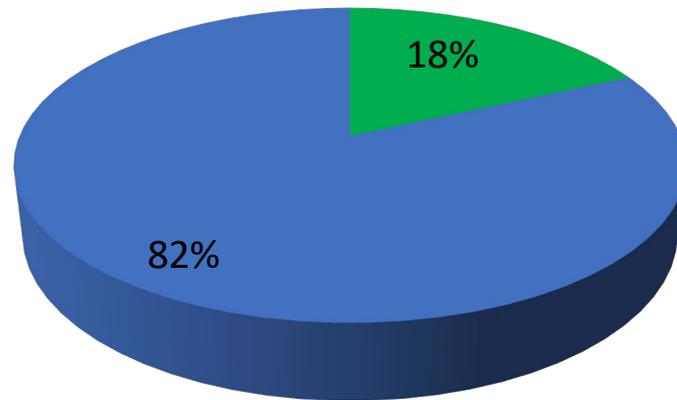
Recent Milestones in HA Drug Supply Chain



Vendor Engagement

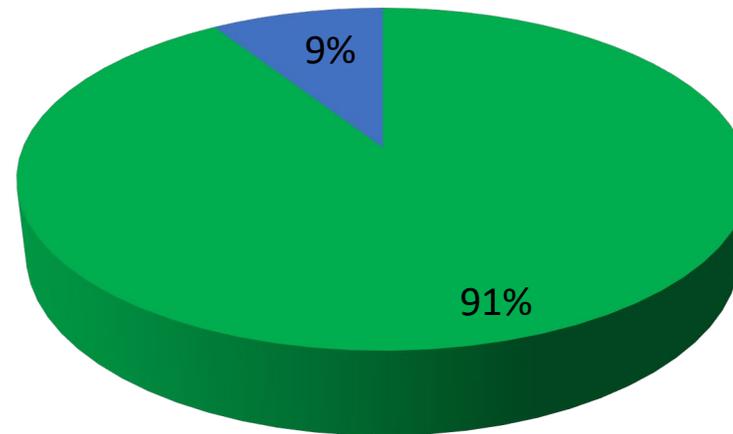
Suppliers

■ EDI ■ Non-EDI

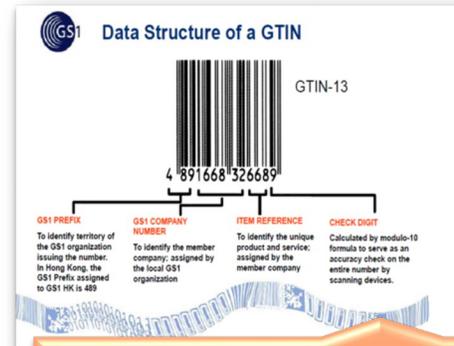


Order Lines

■ EDI ■ Non-EDI



Current Status



70% Items with GTIN



91% Order lines processed through EDI

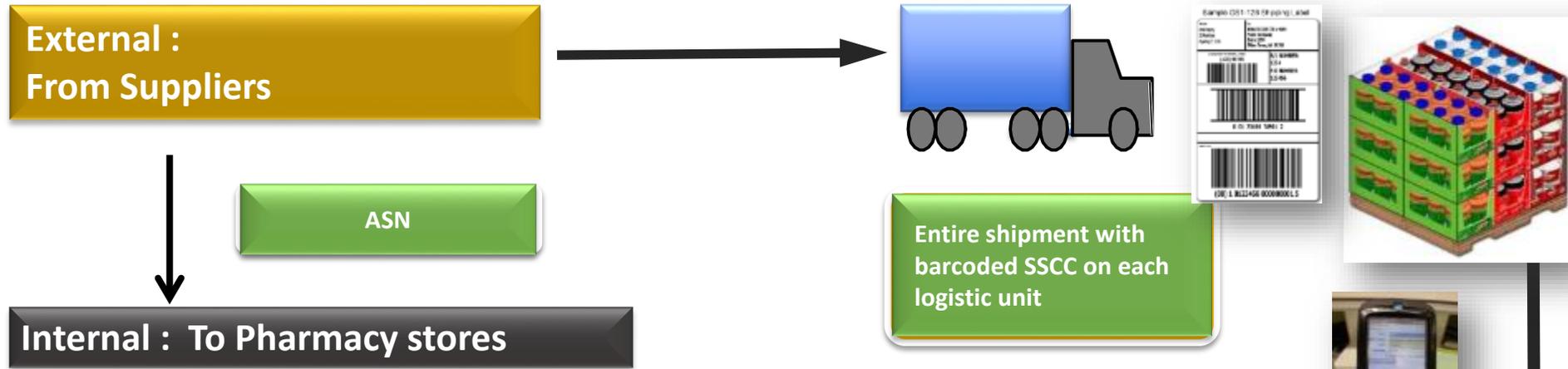


Goods receipt processes with ASN & SSCC



Improved storage space & facilities planning

GTIN = Global Trade Item Number
ASN = Advanced Shipping Notice
SSCC = Serial Shipping Container Code

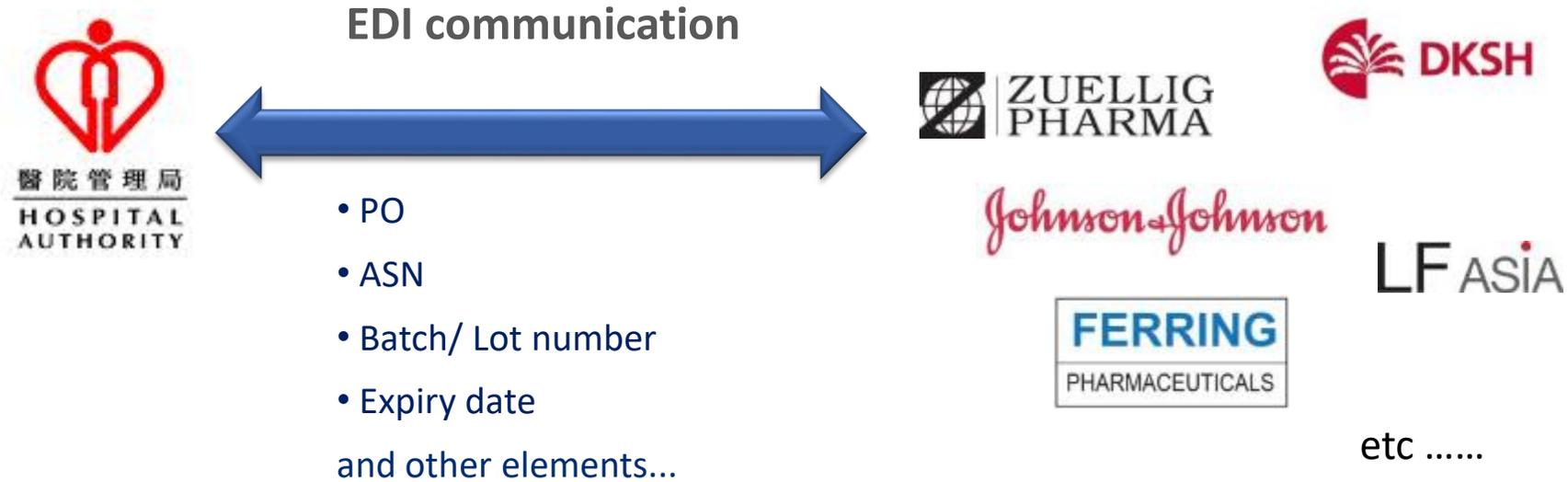


Logistic for Goods Receipt : From EDI vendor using ASN & SSCC

Qty	Unit	Item Description	Exp. Date	Lot No.
100	MM	AMINO SULFONAMIC (20 L) P/B	36 04	
100	MM	AMINO SULFONAMIC (20 L) P/B	36 08	
100	MM	AMINO SULFONAMIC (20 L) P/B	36 14	
100	MM	AMINO SULFONAMIC (20 L) P/B	36 20	
100	MM	AMINO SULFONAMIC (20 L) P/B	36 27	
100	MM	AMINO SULFONAMIC (20 L) P/B	36 34	
100	MM	BILLIACETIC SULFONAMIC (20 L) P/B	36 07	
100	MM	AMINO SULFONAMIC (20 L) P/B	36 30	
100	MM	AMINO SULFONAMIC (20 L) P/B	36 10	
100	MM	AMINO SULFONAMIC (20 L) P/B	36 05	
100	MM	AMINO SULFONAMIC (20 L) P/B	36 01	



Win-Win for Both HA and Suppliers



- **Improve efficiency**
 - Reduce manual data entries
- **Ensure accuracy**
 - Checking of ASN details against purchase order information
 - Reduce incidents of wrong delivery by supplier or mistaken receipt by pharmacy

A step forward – Scheduled delivery

- Aims
 - Facilitates supplies continuity
 - Towards AI
- pilot since Feb 2017 on bulky and frequently ordered items with positive feedbacks from frontline and suppliers
- Engaging GS1 to establish supplier capabilities on the processes through EDI platform

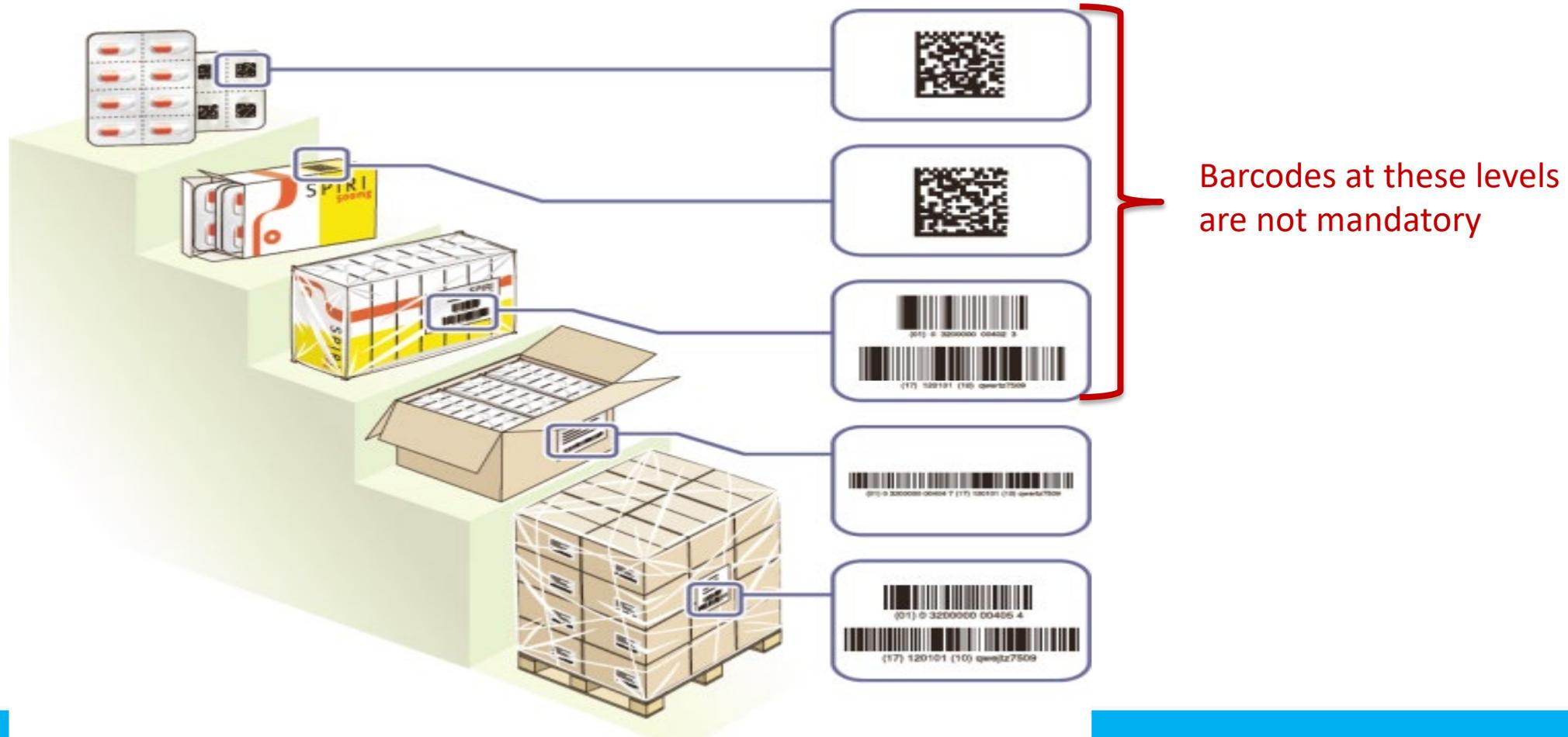
Our Goals



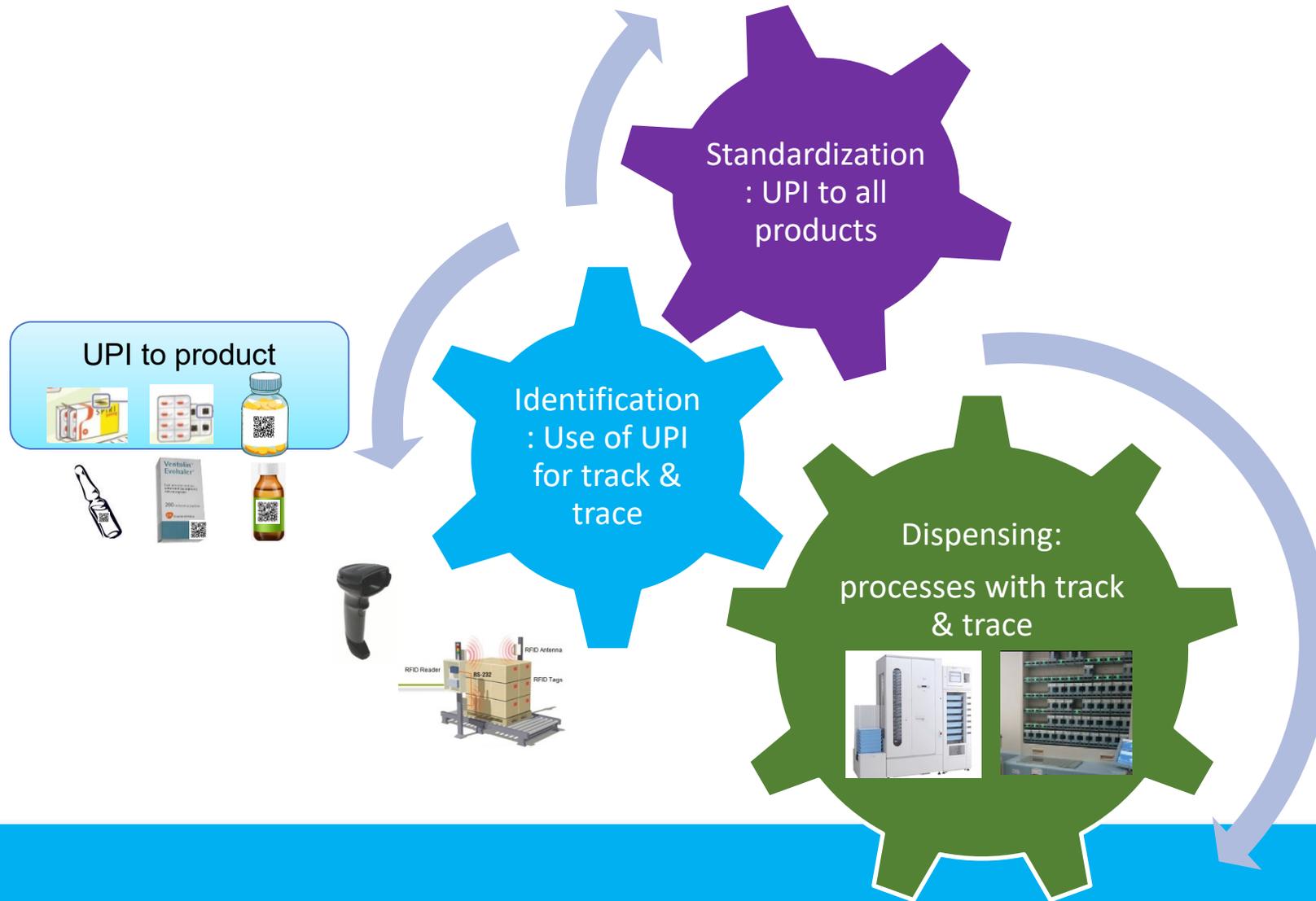
- **Enhance Patient Safety**
- **Increase Accuracy**
- **Improve Efficiency**

Where we wish to get to...

Current Situation



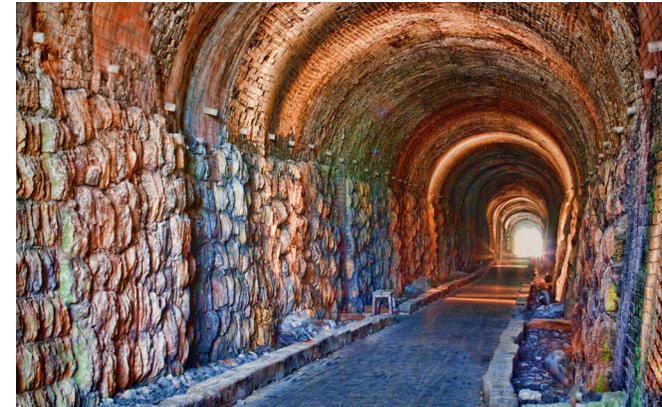
Unique Product Identifier (UPI)



Opportunities

- **USA: Drug Supply Chain Security Act (Nov 18)**
 - Product tracing
 - Product identification
 - Verification
- **EU: The Falsified Medicines Directive (Feb 19)**
 - Safety features & verification
 - Unique Identifier
 - Anti-tampering device

PC:	09876543210982
SN:	12345AZRQF1234567890
NN:	(optional)
Batch:	A1C2E3G4I5
Expiry:	180531



Drug Supply Chain Security Act (DSCSA). U.S. Food and Drug Administration. Available at <https://www.fda.gov/Drugs/DrugSafety/DrugIntegrityandSupplyChainSecurity/DrugSupplyChainSecurityAct/>

Falsified medicines. European Commission. Available at https://ec.europa.eu/health/human-use/falsified_medicines_en

Continuous Challenges

- Market availability
- GTIN availability
- UPI availability
- HK vs. rest of the world
- Costs

Track and Trace to the Point of Care

Improved Patient Safety



Thank You



Questions from the audience





Some messages to take away

- Across various business and clinical process, GS1 standards are being implemented in hospitals around the world.
- In this session, we have highlighted medicines verification, master data communication, medical device inventory management & receiving, and much more!
- We hope our experiences motivate you to use GS1 standards in your hospital processes



Hear, Discuss, Enjoy!

**Get the most value
from the conference...**

