The Hong Kong Hospital Authority and GS1 Hong Kong advise: How to start implementation of standards in hospitals?

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Some of our hospitals in
Hospital Authority Hong Kong (HAHK)

Our out-Patients waiting to be served at different pharmacies at our hospitals

Magnitude of our daily business transactions in all HA pharmacies in 2013

Transaction types	Units
No. of Dispensed Items	215,000
No. of Dispensed Prescriptions	66,000
No. of Patients Served	58,000
No. of Suppliers dealt with	60
No. of Purchase Orders made	845
Dollar value of Stock items received in HK$	36M
No. of stock items involved in stock receipts	1,600
No. of Pharmacy Stores for Stock Receipt/ issue	80
No. of Stock Movements in these stores	2,400

Ever wonder what is happening at the backend of in our pharmacy stores serving the hospitals, SOPC & GOPC ?
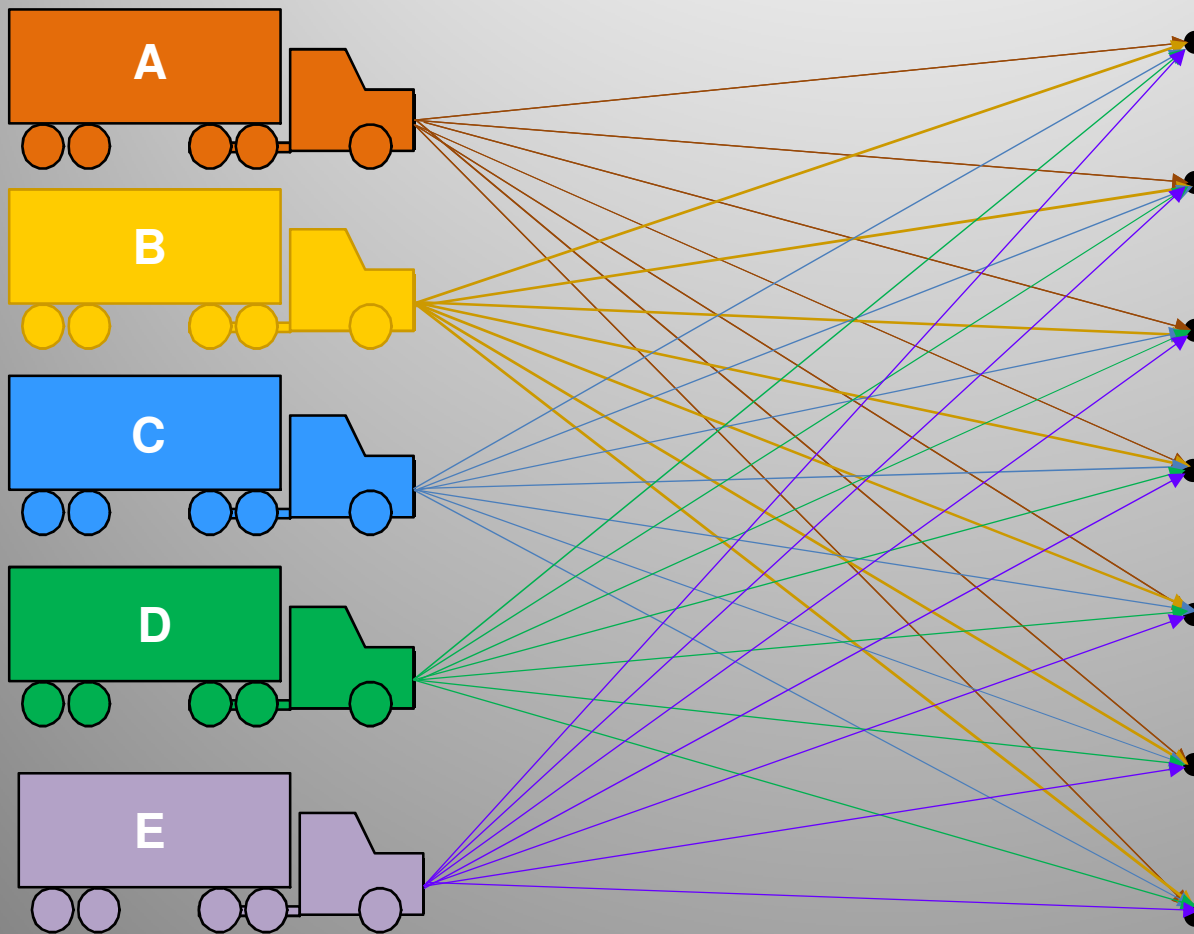
- Where do our drugs come from ?

- How to control and monitor the movement of drugs

- What are the logistics in stock receipts ?

- What are the processes ?

- How to track and trace the Supply Chain ?

The ordering and delivery processes in our HA pharmacies

**External :
From Suppliers (>200)**

**Internal :
At Pharmacy stores (>100) in 7 clusters**

A

B

C

D

E

The overall situation about our pharmacy stores (too many, too small …… manual processes…..) before 2009

Drug distribution from pharmacy stores to dispensing areas (as it used to be)

Pharmacy main stores

Manual entry of lot no. with expiry date – record only

Pharmacy working stores (for dispensing to out & in-patients & issue to wards)

No functionality to enable track and trace lot no. & expiry information

There are some major issues in our methods of doing things

Need to improve
Quality, Safety and Efficiency
in drug distribution/medication use

From manufacturers / distributors	Into pharmacy stores	Out from pharmacy stores	Into dispensing areas	To point of care / patient areas
150 suppliers	42 hospitals	100 pharmacies	80 Stores	500 wards

Description of the Major Supply Chain Processes
Each of these processes might be performed by different organisations or by a single entity

Industry →→→   Logistics provider →→→   Healthcare facility →→→

Production ↑
- Receipt of a shipping notice indicating traceability information linked to the raw material and packaging being used.
- Quantity control of merchandise using SSCC.
- Validation of receipt and delivery slip signature.
- Registration of lot/batch numbers and dates.
- Acceptance of primary materials.
- Recording of lot numbers used.
- GTIN assignment and marking for base units and creation of their lot number.

- Link between the production lot number and the raw materials used.
- GTIN and SSCC assignment for logistic units.
- Recording the links between SSCC and the content of logistic units: GTIN + lot/batch number + expiration date.

Warehousing – Preparation ↑
- Management of physical product arrivals and shipments using SSCC.
- Management of the separation and release of lots.
- Assignment of locations.
- Registering the movement of merchandise.
- Physical inventory.
- Order picking.
- Creation of logistic units, assignment and remarking of SSCC.
- Tracking inventory movements, linking SSCC, product, lot/batch number, and delivery destination.

Shipping ↑
- Loading.
- Reading and registering SSCC.
- Sending shipping notices to recipients with delivery itemisation.
- Sending shipping orders to the carriers.
- After delivery, the carrier sends a transport status report.
- Integrating information in order to efficiently coordinate orders, deliveries, and invoices.

Receiving ↑
For every participant receiving merchandise:
- Planning for receipt of goods based on shipping notices.
- Unloading and SSCC reading.
- Control of receiving through efficient coordination with shipping notices.
- Coordinating orders and deliveries, sending acknowledgements of receipt.
- Entering product data into inventory records.
- Transmitting information to efficiently manage orders and invoices.

Healthcare Delivery ↑
- Services and functional units identified by their GLN send out internal requests using the product's GTIN.
- Preparation processes, assignment and registration of SSCC, delivery and receiving, all based on the same information as all other logistics processes.
- Sterilization, bleaching and restoring, are all production processes using the full range of GS1 identifiers: GTIN, SSCC, GRAI.

- Delivery traceability is enabled by the link between the GRAI and the delivery contents as indicated by its SSCC.
- Patients, and the services provided to them, are identified using a GSRN, read and registered in a database at each stage and movement of the

- Tracking internal deliveries is done with the aid of a GRAI, which identifies the material and also allows for tracking, washing, disinfecting, maintenance, etc.

- Products are identified by their GTIN + lot/batch number and are recorded in the patient's medical chart/records so as to ensure the complete safety and traceability of all events that take place during the patient's stay.

patient, during their hospital stay. The GSRN thus contributes to the safety and traceability of the patient. This information facilitates itemized billing.
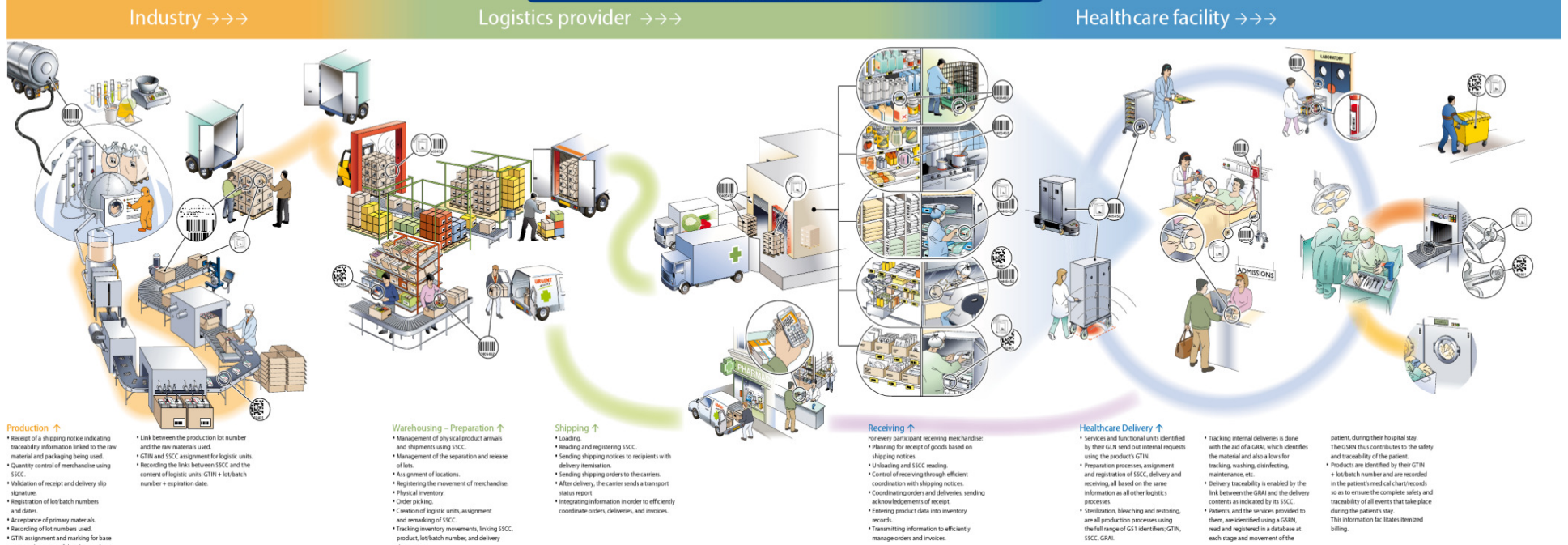
in March 2009 HA announced – The Key Initiatives to enhance pharmaceutical products' procurement system

6. Enhance the HA's Pharmaceutical IT systems to improve controls by moving progressively towards :
- **introducing bar coding**
- **automatically check what is received against what was ordered**
- **automatically tract and trace drugs to the point of issue and**
- **prevent dispensing of expired items**

HASLink Express

Thur, 26 March 2009

Key initiatives to enhance HA's pharmaceutical products procurement system

To ensure drug quality and safeguard patient safety, the HA announced today the following key initiatives to enhance our pharmaceutical products procurement system:

1. Require manufacturers to introduce microbiology testing as a prerequisite to procurement for high risk drug items and for provision of batch release reports on delivery of drug products.

2. Enhance the HA's sample testing to include a wider range of drugs and microbiology testing based on risk levels.

3. Require suppliers to provide additional standard information for drug delivery documentation to enable more effective physical checking of goods received.

4. Work with the Department of Health to improve ease of access to key additional registration details, including pack sizes to strengthen regulatory compliance.

5. Consider introducing multi-source for high volume/risk drugs.

6. Enhance the HA's Pharmaceutical IT systems to improve controls by moving progressively towards :
   - Introducing bar coding;
   - Automatically check what is received against what was ordered;
   - Automatically track and trace drugs to the point of issue; and
   - Prevent dispensing of expired items.

7. Establish a Drug Quality Assurance Office to enhance quality monitoring and implementation of improvement initiatives.

Please send your suggestions via fax: 2808 0242 or e-mail: ehaslink@ho.ha.org.hk

Major Milestones for the SCM project in 2009 -2010

Sept 2009 – Applying the funding from the Government

April 2010
- approval obtained from HK Government
- looking around for suitable solution provider

May 2010 - chosen Mobile Supply Chain Application from Oracle

Feb -June 2010
- Learnt about the subject
- Visited distributors in Hong Kong, China & Japan

July 2010 - Surveyed on vendor readiness & bar code status

Sept 2010 - Engaged a Consultant to review the overall situation and made recommendation on Road Map on SCM for HA – short, medium and long term measures

The Hospital Authority of Hong Kong (HA) has set the following goals for the SCM project:

1. Operational efficiency

- To enhance speed of operation by replacing manual work processes with system and technology aided processes

- To improve the accuracy of information capturing in all trading documents during a procurement cycle

- To automate the validation procedures during goods receipt processes

- To shorten the operation time of goods receipt processes

The Hospital Authority of Hong Kong (HA) has set the following goals for the SCM project:

2. Traceability of pharmaceutical products

- To uniquely identify

    A. the logistic units received by HA with serial number

    B. the received drugs with ID number and batch number

    C. the drugs suppliers

    D. the locations of the hospitals

- To link the received logistic unit to the batch number of the drug contained within

- To collect and record traceability information accurately and completely in a timely manner

The achievement made in SCM project as of April 2014

Some facts and statistics about the magnitude of the Supply Chain Modernisation (SCM) Project in the Hospital Authority Hong Kong as at Dec 2013

The total number of public hospitals implemented with the SCM system	42
The total number of goods receiving points in these 42 hospitals	136
Average daily number of Purchase Orders (PO) raised at these 136 goods receiving points	436
Average daily number of EDI Purchase Orders (PO)	229 (52.5% of total PO)
Average daily number of deliveries by EDI ASN from Batch I vendors	717

	The total number of vendors engaged in the SCM project	The total number of pharmaceutical product items allocated with GTIN
Batch I * (live run in June 2012)	14 *	2448 (54.61% of total products)
Batch II vendors (live run in April 2014)	13**	436 (9.73% of total products)

Provide answers to some questions on the SCM project

- **Why do we need to transform the Healthcare Supply Chain on pharmaceutical products ?**

- **What were the problems in the system?**

- **How did we do it ?**

- **What challenges did we encounter ?**

- **What was the outcome ?**

How did we do it ?

The implementation plan consisted of 2 parts:

1. Planning

A. Management Endorsement and communication

- The project lead of HA sought management buy-in of the project to secure the necessary resources, such as additional manpower and support from pharmacy department and IT department for the implementation.

- As the project covered all the 41 public hospitals in

- Hong Kong, the project lead had to communicate with the management as well as the pharmacy staff in each hospital for their support to accept and work together to achieve the new changes.

Leadership & Project Governance

- **Central level**

  - User Resource Group (URG)

    - Chaired by Cluster Service Director at Headoffice level

    - members from project team & clusters representatives

    - define project plan & monitor progress

    - allocate resources, prioritise issues & make decision on direction

    - deal with concerns from system vendor and users

- **Cluster level**

  - 7 Cluster Implementation Project Resource Groups

    - each Chaired by Cluster Chief Executives

    - members from hospital administrators, finance and pharmacy

    - meet quarterly to report & monitor progress of implementation

How did we do it ?
Defining the scope of the
Supply Chain Modernisation Project

How did we do it ?
Communication and engagement

External	Internal
HKGS1: - Technical guidelines - industry standards on ASN, SSCC, GTIN,GLN **Pharmaceutical vendors**: – System interface to HA – GTIN on smallest order unit – bar code readiness to include GTIN, Qty, BN, Expiry date – Bar coded Labels for shipper case & logistic units – Testing and preparation	**Hospital side** : - Management buy in - Support services - Pharmacies **Engagement & support** : – implementing MSCA – renovating stores & facilities – adding manpower – supporting user training

How did we do it ?
- Defining the process improvement in SCM

**External :
From Suppliers**

Advanced Shipping Notice (ASN)

Entire shipment with bar coded SSCC on each logistic unit

Internal : At Pharmacy stores

Before goods arrive	1 . Prior validation of manufacturer, country of origin, quantity, etc. 2. Online provision of lot no, expiry date
When goods arrive	3. Scan outer pack bar code label to verify Purchase Order (PO) 4. PO details displayed in scanner for inspection 5. Confirm receipt & instant update into system
Stock into stores	6. Pack-unpack containers to separate items 7. Scan GTIN with lot no. expiry date and confirm qty 8. Stock to pre-defined location in stores
Drug distribution	9. Enable lot-control with track-and-trace functionality

What is required on the product to enable track and trace

there should be bar coded information on GTIN, Batch, Expiry Date and QTY at the primary packing
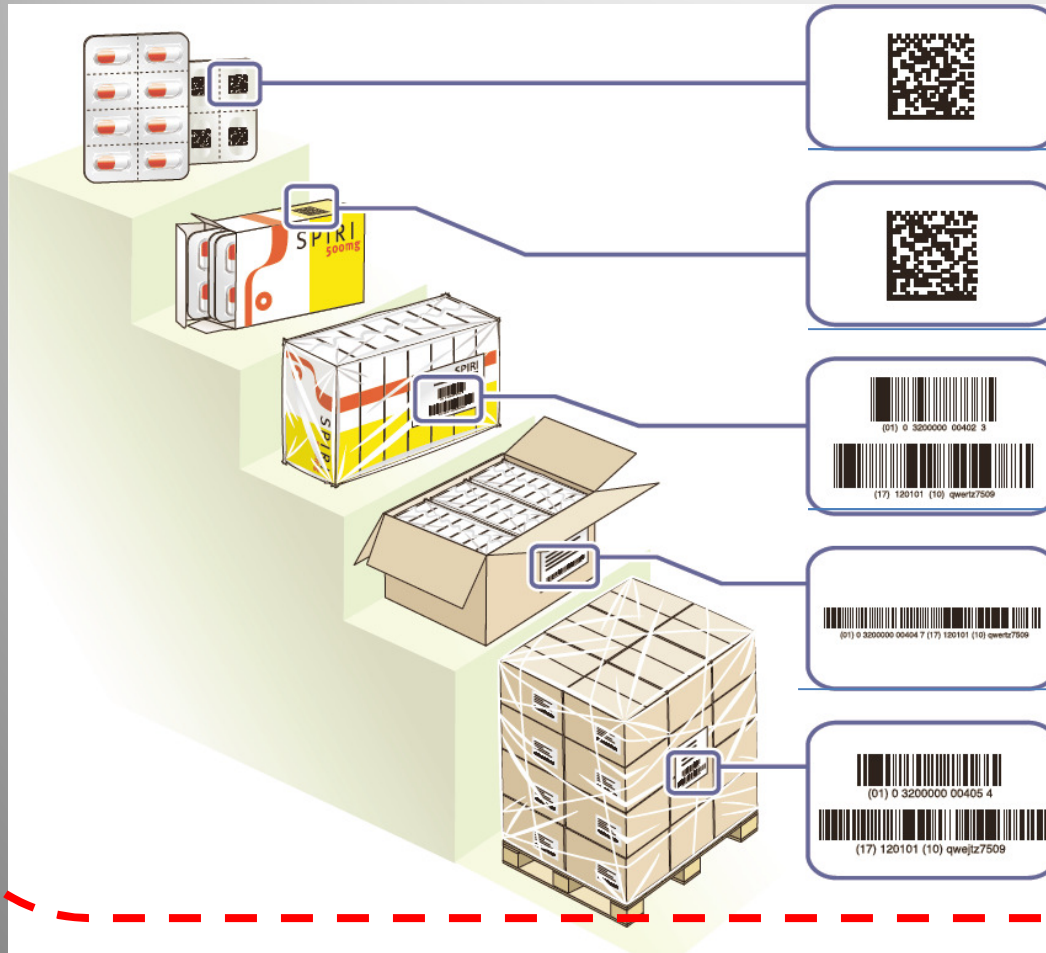
Legislation in Hong Kong on pharmaceutical products

- Pharmaceutical Product registration requirement by HKSAR

  – no legislative requirement on bar code on drug package

- Pharmaceutical industry not mandate to have the bar code printed

- Generally, the sales and marketing people are not concerned with this need

Is it feasible to have Bar-code track-and-trace all the way ?

stop at the logistic units!

(01) 0 3200000 00402 3
(17) 120101 (10) qwertz7509

(01) 0 3200000 00404 7 (17) 120101 (10) qwertz7509

- item identity, batch no. , expiry date

(01) 0 3200000 00405 4
(17) 120101 (10) qwejtz7509
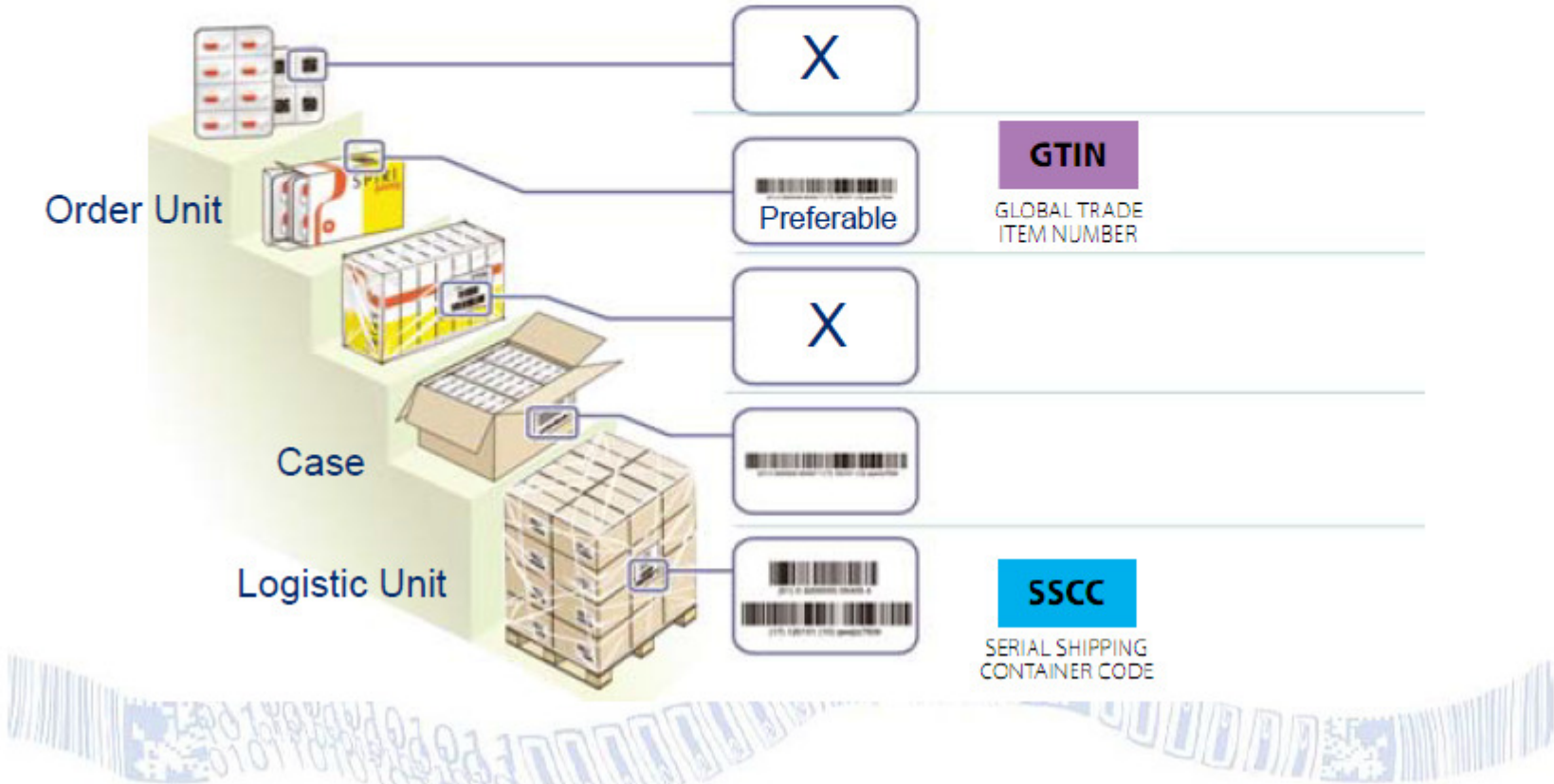
- item identity, batch no. , expiry date

Target areas for direct-from-supplier bar-coding

Knowing the limits on what we can do initially

GS1® Hong Kong

GTIN/SSCC and bar code requirement

Order Unit — X

Order Unit — Preferable — GTIN — GLOBAL TRADE ITEM NUMBER

Case — X

Case

Logistic Unit — SSCC — SERIAL SHIPPING CONTAINER CODE

How did we do it ?
Defining time frame for SCM implementation

by phase & batch approach :

Phase I

- Track from distributors into the main stores
- Applicable to all pharmacy stores in all hospitals
- Involve 2 batches of vendors on all their products

Phase II

- Track from pharmacy stores to the dispensing stores
- Pilot in two hospitals PWH and QEH on Dangerous Drugs

How did we do it ?
- using Global Industry Standards with professional service support

GS1 Hong Kong

**GS1 Standards adopted in the procurement cycle**

	1.Purchase	2.Delivery	3. Goods Receipt	4. Payment Settlement
GTIN	✓	✓	✓	✓
GLN	✓	✓	✓	✓
SSCC		✓	✓	
GS1 Bar Code			✓	
EDI	✓	✓	✓	✓

How did we do it ?
Vendor Engagement started in 2010

- No less than 6 mega vendor briefings, 25+ meetings, training workshops, testing, emails, etc…

  – Clarifications on project objectives, process, technical requirement, time frame…..

  – Frequently Ask Questions

- Mock ups on bar code labels,

- EDI messages testing

- End to End testing with mock up products

- On site testing at pilot sites

- With HKGS1 assistance and support
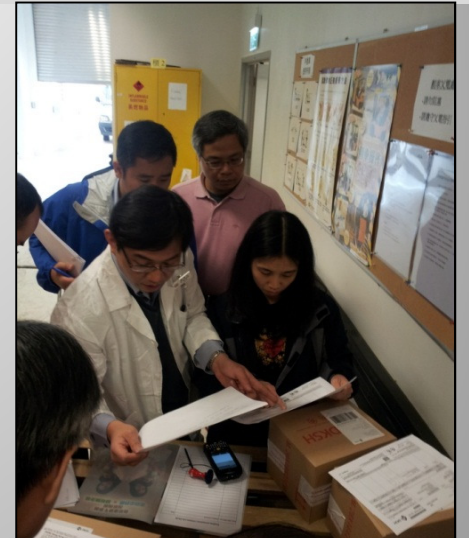
SCM Project implementation:
by batch & phase approach

Batch I (live run in June 2013)	Batch II (live run in April 2014)
➤ **13+1 vendors**	➤ **+ 13 vendors**
➤ **= about 70% of order lines**	➤ **= about 16% more order lines**
➤ **About 38% of item sources**	➤ **About 13 % item sources**
BAXTER HEALTHCARD LTD	EUROPHARM LABORATOIRES CO. LTD.
DKSH H.K. LTD	HK MEDICAL SUPPLIES LTD
FERRING PHARMACEUTICALS LTD	JOHNSON & JOHNSON (HK) LTD
FRESENIUS MEDICAL CARE HK LTD	MEDIPHARMA LTD
GAMBRO HK LTD	MEKIM LTD
HIND WING CO LTD	PRIMAL CHEMICAL CO LTD
JACOBSON MEDICAL HK LTD	STAR MEDICAL SUPPLIES LTD
JEAN-MARIE PHARMACAL CO LTD	SYNCO (HK) LTD
KERRFLEX SUPPLY CHAIN SOLUTIONS LTD	THE INTERNATIONAL MEDICAL CO. LTD.
LF ASIA (HONG KONG) LIMITED- HEALTHCARE DIVIS	TRENTON-BOMA LIMITED
LF ASIA (HONG KONG) LIMITED- UNIVERSAL DIVISIC	UNITED ITALIAN CORPORATION (HK) LTD.
LUEN CHEONG HONG LTD	VICKMANS LAB LTD
U S SUMMIT CO LTD	Y. C. WOO & CO. LTD.
ZUELLIG PHARMA LTD	

How did we do it ?
Making available improved storage facilities

The Change - Goods Receipts from batch I vendors using ASN & SSCC

SMART Achievement

System — Scope — Methodology — Funding

Time — Roll out

**Live run on
June 2012 in two clusters
Dec 2012 in three clusters
June 2013 in two more clusters**

Way Forward

Patient & Medication Safety

Visibility

Traceability

where we want to go
via the SCM Project

Track and Trace to the point of care
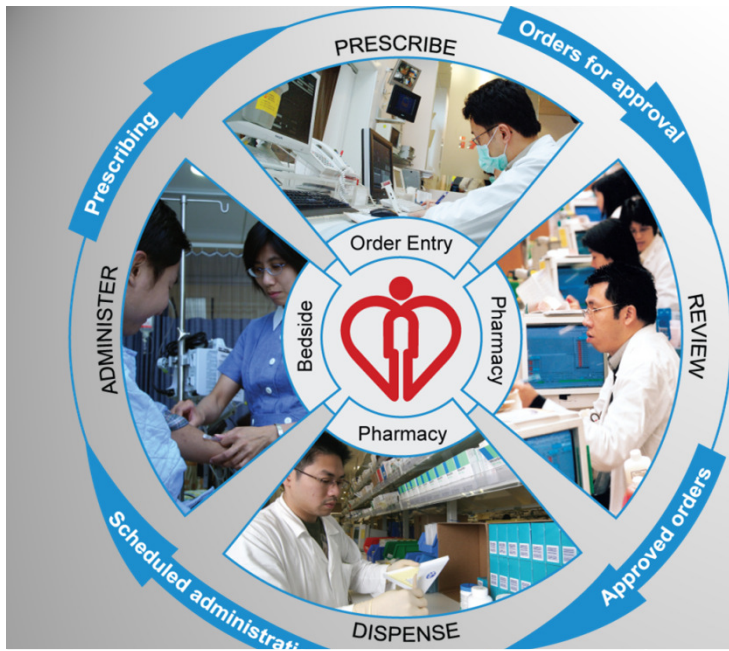
IPMOE */ DDAS**

Doctors	pharmacy	Nurses

- Electronic prescribing by clinicians
- Vetting & dispensing with workflow reengineering at Pharmacies
- Drug administration by nurses using Bar Coded Medication Administration (BCMA)