

# The Supply Chain Modernisation of Pharmaceutical Products in the Hospital Authority in Hong Kong the “why, what, how and when”



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# Hospital Authority, Hong Kong

- A statutory body established on 1 December '90
- Manages all public hospitals in HK  
= 41 public hospitals (= 27,900 hospital beds)  
+ 49 specialist + 74 general clinics
- Total of 59,970 staff  
= 5,475 Doctors + 20,522 Nurses + 5,834 Allied Health
- 2011/12 Government Funding: ~ USD 4.74B



- Annual Drug budget = USD 387millions ( about 8-10% of HA's overall budget)
- Covers all drug dispensed to in-patients and out-patients
- About 1200 drug items in the drug list



# Magnitude of our daily business

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



# Quality, Safety and Efficiency in drug distribution/medication use



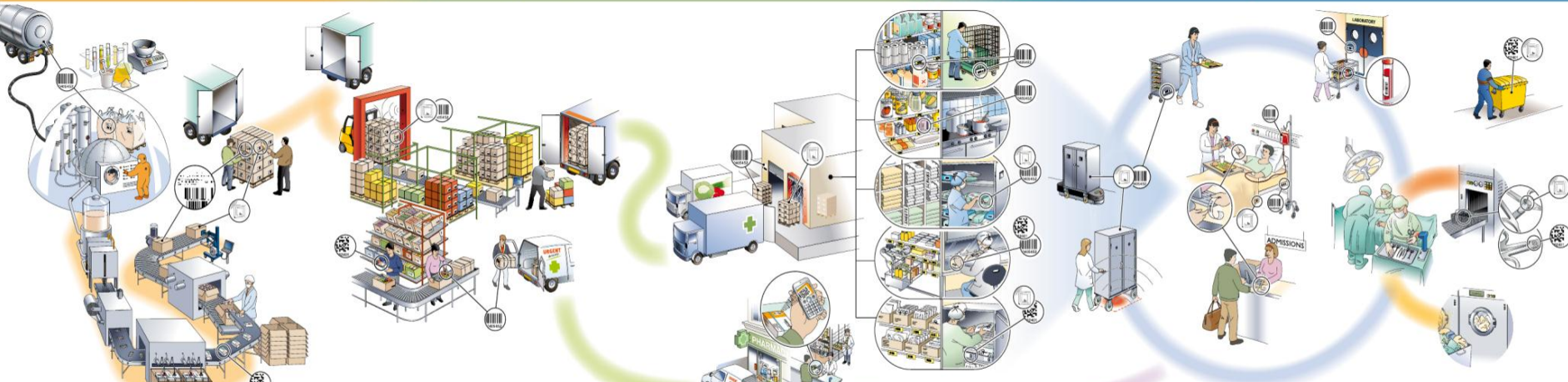
## Description of the Major Supply Chain Processes

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 numbers.

- 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 remaining 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 destination.
- 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 ↑**

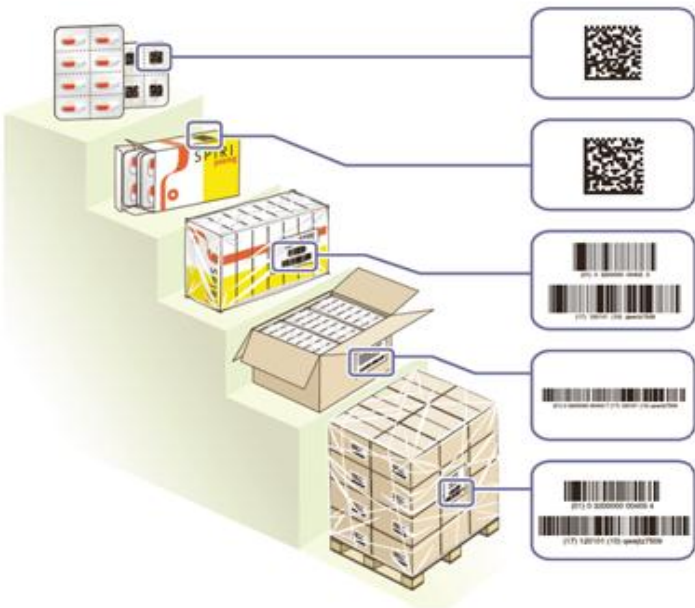
- For every participant receiving merchandise:
- Planning for receipt of goods based on shipping notices.
- Unloading and SSCC reading.
- Control of receiving through efficient coordination with shipping notices.
- Coordinating orders and deliveries, sending acknowledgements of receipt.
- Entering product 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 process, assignment and registration of SSCC, delivery and receiving, all based on the same information as all other logistics processes.
- Sterilization, bleaching and restocking, are all production processes using the full range of GS1 identifiers: GTIN, SSCC, GRAI.

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



## The backend of pharmacy operations in our pharmacy stores serving the hospitals, SOPC & GOPC

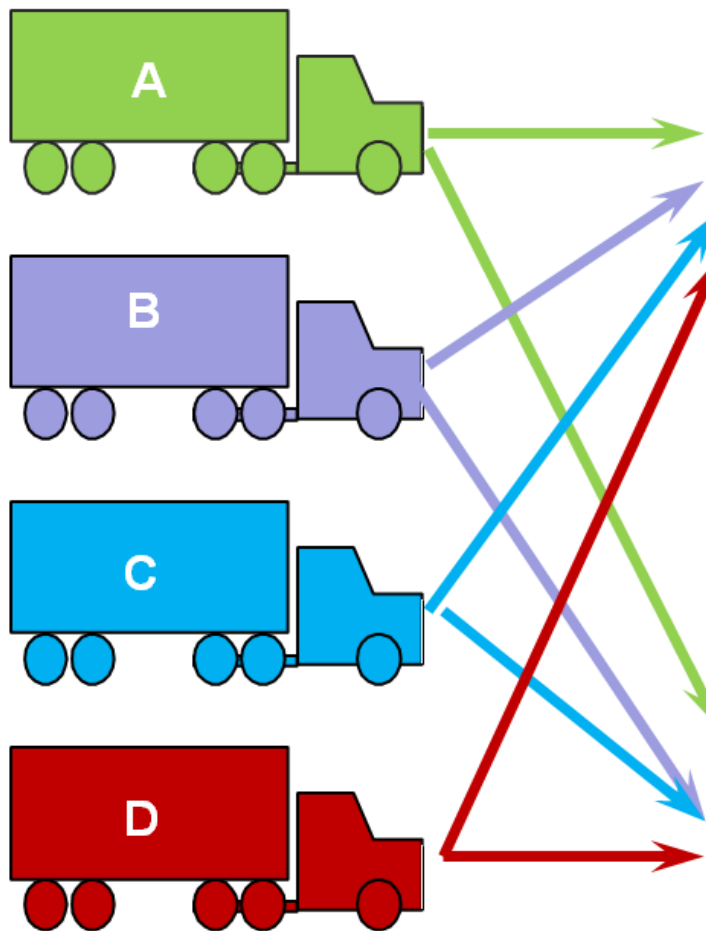


- Where do our drugs come from ?
- How to optimise the movement of drugs
- What are the logistics in stock receipts ?
- What are the processes ?
- How to track and trace the Supply Chain ?

# The Current Practice – drug delivery into stores

**External :**  
From Suppliers (>150)

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



**Delivery details  
on hard copy**



**No electronic  
nor bar-coded  
information**



1. Manual checking of standard information
  - manufacturer
  - country of origin
  - quantity
  - lot no., expiry date, etc.
2. Manual entry of standard information into Pharmacy system
3. Stocking onto the shelves in the Pharmacy stores

# Our current pharmacy stores (too many, too small ....., manual processes)



WORKING STORE REPLENISHMENT CONFIRMATION VOUCHER FOR OUT PATIENT 等待簽署

Quantity	Working Store	Medicine Name	Unit	Quantity	Working Store	Medicine Name	Unit	Quantity	Working Store	Medicine Name	Unit
100	100	AMOXICILLIN 500mg TABLETS	1000	100	100	AMOXICILLIN 500mg TABLETS	1000	100	100	AMOXICILLIN 500mg TABLETS	1000
100	100	AMOXICILLIN 500mg TABLETS	1000	100	100	AMOXICILLIN 500mg TABLETS	1000	100	100	AMOXICILLIN 500mg TABLETS	1000
100	100	AMOXICILLIN 500mg TABLETS	1000	100	100	AMOXICILLIN 500mg TABLETS	1000	100	100	AMOXICILLIN 500mg TABLETS	1000
100	100	AMOXICILLIN 500mg TABLETS	1000	100	100	AMOXICILLIN 500mg TABLETS	1000	100	100	AMOXICILLIN 500mg TABLETS	1000
100	100	AMOXICILLIN 500mg TABLETS	1000	100	100	AMOXICILLIN 500mg TABLETS	1000	100	100	AMOXICILLIN 500mg TABLETS	1000

WORKING STORE REPLENISHMENT CONFIRMATION VOUCHER FOR OUT PATIENT

APPROVAL: [Signature]

DATE: 25/11/2010

MANUFACTURER: APT PHARM LIMITED, HONG KONG

ORIGINAL

Barcode: 00250451



# Drug distribution from pharmacy stores (today's practice)



- Pharmacy working stores (for drug dispensing to out & in-patients & issue to wards)
- Manual entry of
  - lot no. & expiry date
- No functionality to enable auto track and trace lot no. & expiry information





3 million imported tablets were ineffective

# Drug's expiry date was faked

Ella Lee and Phyllis Tsang

More than 3 million tablets of a painkiller imported by a Hong Kong company carried a fabricated expiry date, the Department of Health revealed yesterday.

The drug, coxalgesic, imported by Unipharm Trading from Britain, was found to have carried a fake expiry date one year later than what it should have been.

The department said there was "no immediate safety, efficacy or quality concern".

"However, people should stop using these two batches of coxalgesic and seek advice from doctors, dentists or pharmacists as appropriate on the use of alternative drugs," a department spokesman said.

Doctors said drug products with fabricated expiry dates would not be as effective as they should be.

The Department of Health said on Thursday that Unipharm had illegally packaged more than 2 million amitriptyline tablets, an antidepressant made in Britain.

Police have arrested two employees of the company.

Tests on Unipharm's amitriptyline "have so far indicated no microbiological contamination", a spokesman said. The department had not suspended the company's licence yesterday, but an investigation was continuing.

The department said it was informed by the UK manufacturer that the expiry dates of the two batches of coxalgesic tablets—3.6 million in total—numbered CX 3751 and CX 3754 and imported by Unipharm were May 2009 and June 2009 respectively.

But the expiry dates printed on the two batches of drugs found in Unipharm were June 2010. The case will be referred to police for further investigation, the department said. A total of 3,599 bottles of batch no CX3751 and 9 bottles of batch no CX 3754 were sold to the market. Each bottle contains 1,000 tablets. One mislabelled bottle of the CX3751 batch was found on the company's premises.

Unipharm has recalled the drugs. People who possess coxalgesic from the two batches are advised to contact Unipharm on its 2499 1373 hotline. The latest incident was the

second falsified expiry date in two weeks.

Last week, the department revoked Marching Pharmacy Limited's licence for a month for distributing pharmaceutical products with an indicated shelf-life of years when the products only two-year shelf life.

William Chui Chun-ming, executive director of the Society of Retail Pharmacists, called on the government to set up a drug safety system which could access the result tests done on drugs made or distributed in Hong Kong.

Kenneth Lee Kwing-chin, Chinese University's school of pharmacy, said Department of Health inspectors should monitor production by pharmaceutical companies, rather than just taking looks at production environment and records like they did at present.

## Official hints at grim outlook for drug firms

Ng Yuk-hang and Gary Cheung

Half of the 25 local drug makers may not survive after the Hospital Authority adopts new drug procurement procedures, an authority source said yesterday.

The source also said the authority would file a breach-of-contract lawsuit against Horopharm Laboratories, a local drugmaker whose alleged financial drop was found to contain levels of Macrobid ingredients 10 times above the allowable limit, and which was linked to the deaths of six hospital patients.

The authority was also considering banning drug makers involved in recent problems from tendering for future authority drug procurement contracts.

Seven measures would be enforced in the short term to enhance drug purchasing, authority chairman Anthony Wu Ting-yuk said yesterday after a board meeting. The measures are:

- The authority will consider buying high volume and high risk drugs, such as the anti-diabetes drug metformin, from multiple suppliers, so patients can obtain replacements more quickly in case of recalls.
- Drug makers will be required to produce evidence of microbiological testing (tests for fungi and bacteria) on drugs used on high-risk patients as a prerequisite for procurement.
- The authority will also sample a wider range of drugs for microbiological testing, in addition to the chemical tests it already does.
- Suppliers will need to provide more information on delivery so the authority can check drugs more effectively.
- The authority will ask the Department of Health for more information regarding drug registration details, such as pack sizes.
- Computer systems in pharmacies will be enhanced so that drugs, especially ones whose use-by dates have expired, can be tracked more efficiently. A barcode system will be introduced.
- A drug-quality assurance office will be established to handle frontline complaints.

Mr Wu said it was most important to restore public confidence.

"We hope consumers will know that our drugs are safe and they can use them without any worries," he said.

The authority will meet drug makers tomorrow to discuss its new procedures.

Asked to assess the authority's performance in handling the drug scare, Mr Wu declined to comment on the issue.

"Whether our performance has been good or not is up to the public to say," he said.

At present, almost 15 per cent of the drugs dispensed in public hospitals

### Whether our performance has been good or not is up to the public to say

Anthony Wu Ting-yuk, Hospital Authority chairman



come from one supplier, according to a Food and Health Bureau report to the Legislative Council.

The authority buys 3,200 types of drugs, of which 50 per cent are generic drugs whose patents have expired, while 350 drugs purchased by the authority are produced locally.

Cluster services director Cheung Wai-lun said multiple suppliers for all types of drugs were not necessary.

"If the same drug has different sizes and colours, patients and drug dispensers would be confused," he said.

Of the nearly 20,000 types of drugs that are registered in Hong Kong, about 70 per cent are imported.

# Cancer patient victim of chemotherapy blunder

was within the normal range and the dosage for the remaining treatment was adjusted to compensate on the following day.

The dosage applied did not exceed the overall prescribed amount, the hospital said.

The hospital would conduct an investigation and review the protocols on preparing drugs, it said. The pharmacy staff responsible would be handled according to "human resources protocols".

"The more serious side effects [of Cytarabine overdoses] stem from exceeding amounts of toxicity. This

blunder to the Hospital Authority. The family has since complained to the media about the incident.

Meanwhile, a Hospital Authority newsletter reported two more cases of surgical gaffes that occurred recently, the first involving a piece of gauze left in a woman's vagina after childbirth.

The patient complained of vaginal pain during a check-up 14 days after delivery.

Her complaint led to the discovery of the retained gauze.

The midwife's failure to confirm the gauze count after the procedure

## Medical malpractice adds up to \$300m hospitals bill

Matthew Lee

More than HK\$300 million in compensation and litigation costs for medical malpractice has been paid since the establishment of the Hospital Authority in 1992, the health chief said on Wednesday.

About HK\$224 million of the total HK\$307 million paid out was for compensation, the rest included legal costs and out-of-court settlements.

The figure shows a decreasing trend since 1999, when more than HK\$44 million was paid in that single year.

Secretary for Health, Welfare and Food York Chow cited the figures in Legco in response to a question by medical sector lawmaker Kwok Ka-ki.

Chow said the malpractice costs were rooted in a lack of confidence between patients and doctors.

"With patients feeling dissatisfied with the treatment process or outcome, an attending doctor has the responsibility to exercise sound professional judgment in arriving at the prognosis, to obtain the patient and his family's agreement and endorsement of the medical procedures to be undertaken, and to give them a clear explanation so that they would have realistic expectation of the treatment outcome."

He believes regular training and workshops held for the staff are enough to educate staff on how to communicate with patients.

matthew.lee@globalchina.com

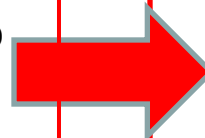


“Insanity:  
Continuing to do the same  
thing and expecting different  
results.”

- Albert Einstein

# The Journey on SCM begun when HA announced in March 2009 – The Key Initiatives

- 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**



Thur, 26 March 2009

## Key initiatives to enhance HA's pharmaceutical products procurement system

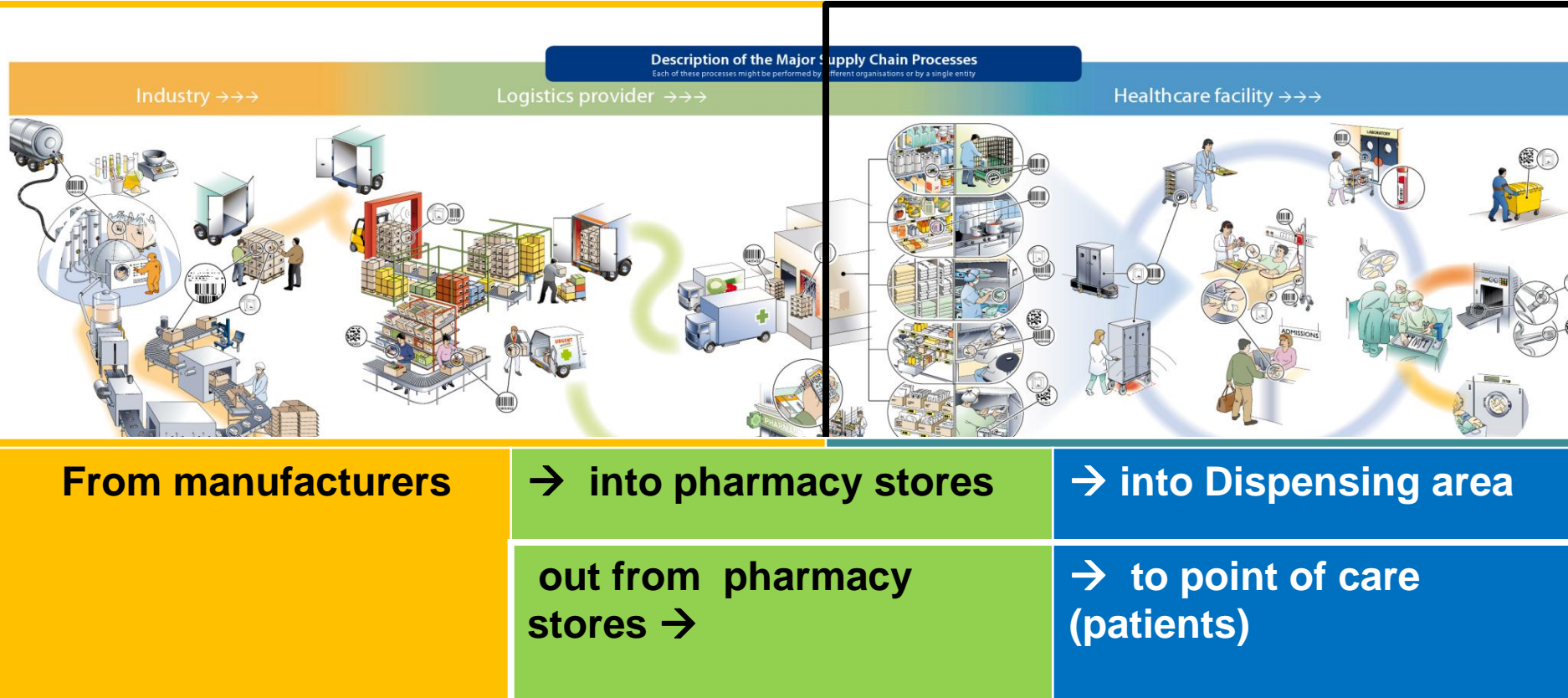
To ensure drug quality and safeguard patient safety, the HA announced today the following key initiatives to enhance our pharmaceutical products procurement system:

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](mailto:ehaslink@ho.ha.org.hk)

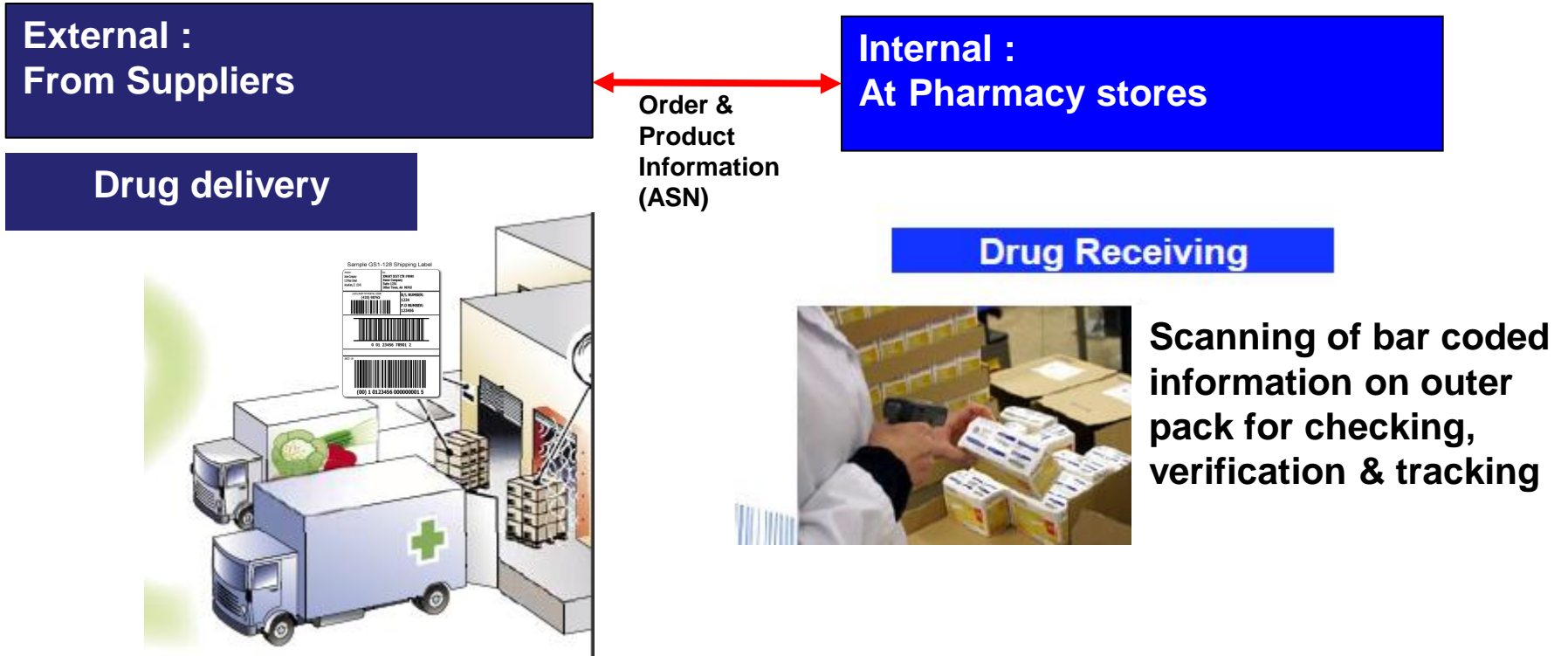
# 1<sup>st</sup> step – identify the need to Modernise the Supply Chain on Pharmaceutical Products



\*IPMOE = In-patient Medication Order Entry

\*\*DDAS= Drug Distribution and Administration System

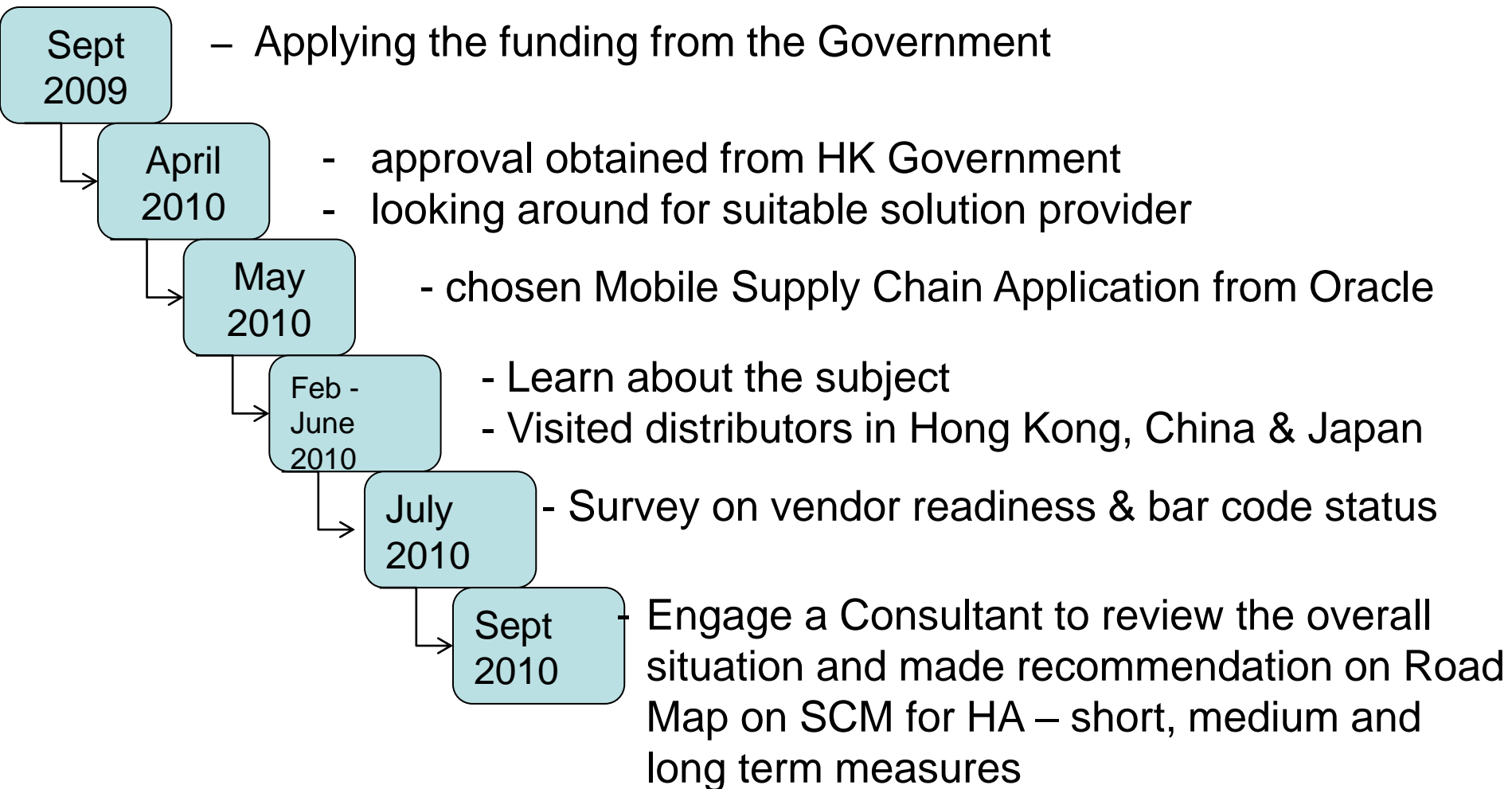
# 2<sup>nd</sup> Step – Defining what we want to do in SCM ?



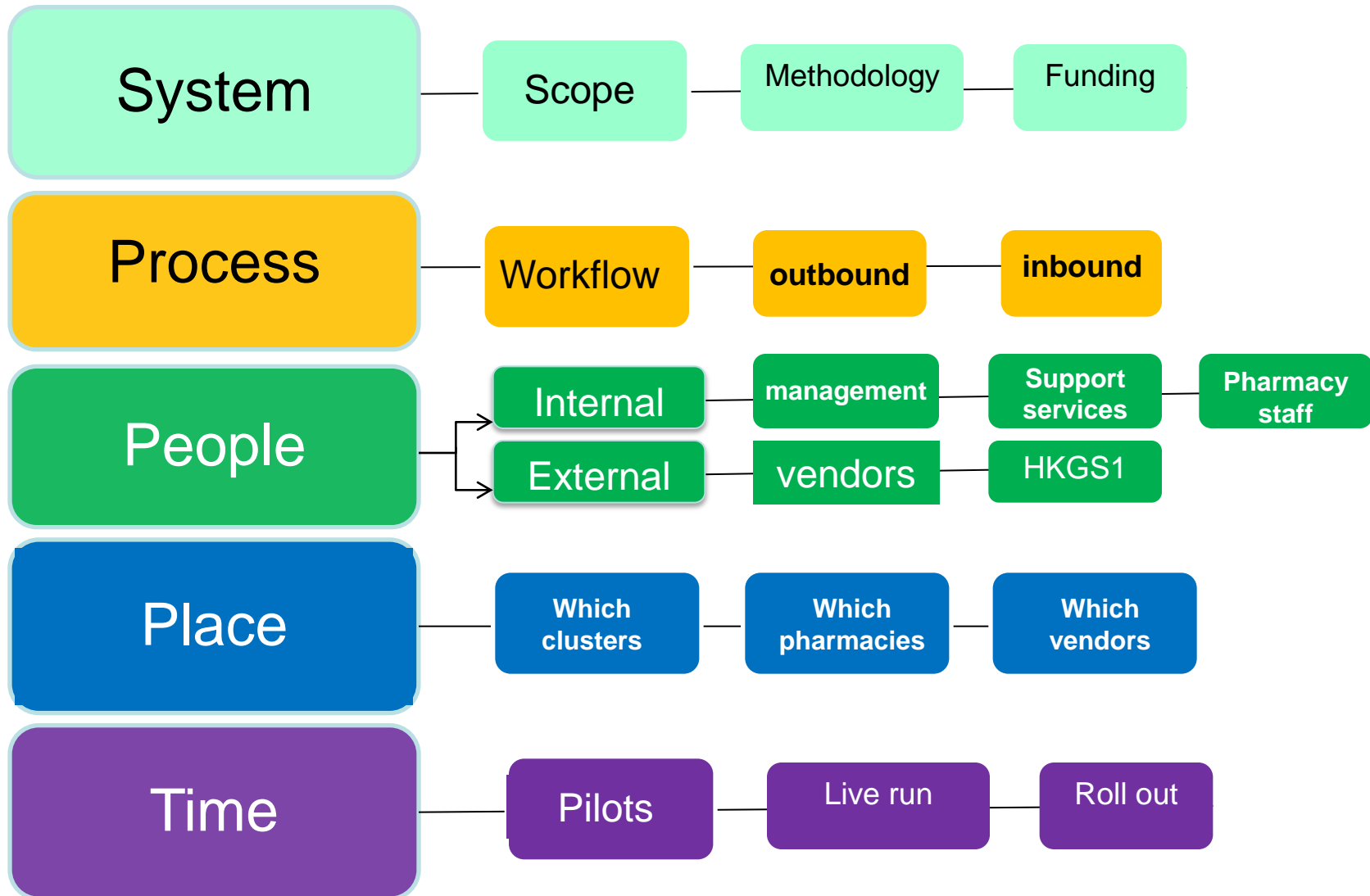
Enable track and trace of product movement from suppliers to pharmacy stores through MSCA with provision of :

- Advance Shipping Notice (ASN) from suppliers to pharmacy ERP to verify PO
- Bar coded information on individual product and outer delivery pack from suppliers to verify required information, manufacturer, lot no., expiry dates etc

# 3<sup>rd</sup> Step : Finding out the means and How's to do the project



# Supply Chain Modernisation on pharmaceutical products



# Scope of MSCA

## What is Mobile Supply Chain Application?

- Making use of mobile devices to support the Supply Chain Process from Goods receipt to Goods issue as much as possible
- Use wireless connection, scanners, bar codes, data transmission
- Minimize manual data entry
- Improve accuracy & efficiency of data capture
- Not RFID but bar codes



Radio  
Frequency  
Network



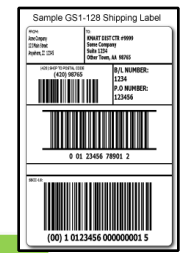
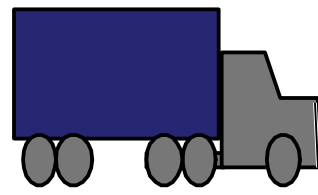
ERP Server



# The process flow in MSCA

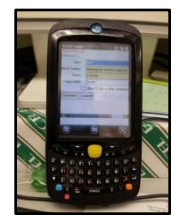
**External : From Suppliers**

Advanced Shipping Notice (ASN)

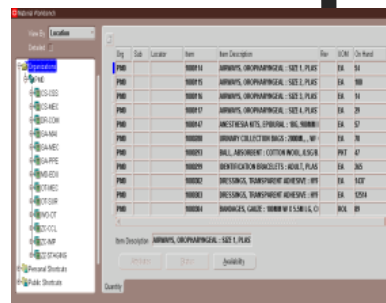


Entire shipment with bar coded SSCC on each logistic unit

**Internal : At Pharmacy stores**



Before goods arrive	<ol style="list-style-type: none"> <li>1. Prior validation of manufacturer, country of origin, quantity, etc.</li> <li>2. Online provision of lot no, expiry date</li> </ol>
When goods arrive	<ol style="list-style-type: none"> <li>3. Scan outer pack bar code label to verify Purchase Order (PO)</li> <li>4. PO details displayed in scanner for inspection</li> <li>5. Confirm receipt &amp; instant update into system</li> </ol>
Stock into stores	<ol style="list-style-type: none"> <li>6. Pack-unpack containers to separate items</li> <li>7. Scan GTIN with lot no. expiry date and confirm qty</li> <li>8. Stock to pre-defined location in stores</li> </ol>
Drug distribution	<ol style="list-style-type: none"> <li>9. Enable lot-control with track-and-trace functionality</li> </ol>



# 4<sup>th</sup> step : Defining our action plans

## External

### 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
- shipper case & logistic units
- Testing and preparation

## Internal

### Hospital side :

- Management buy in
- Support services
- Pharmacies

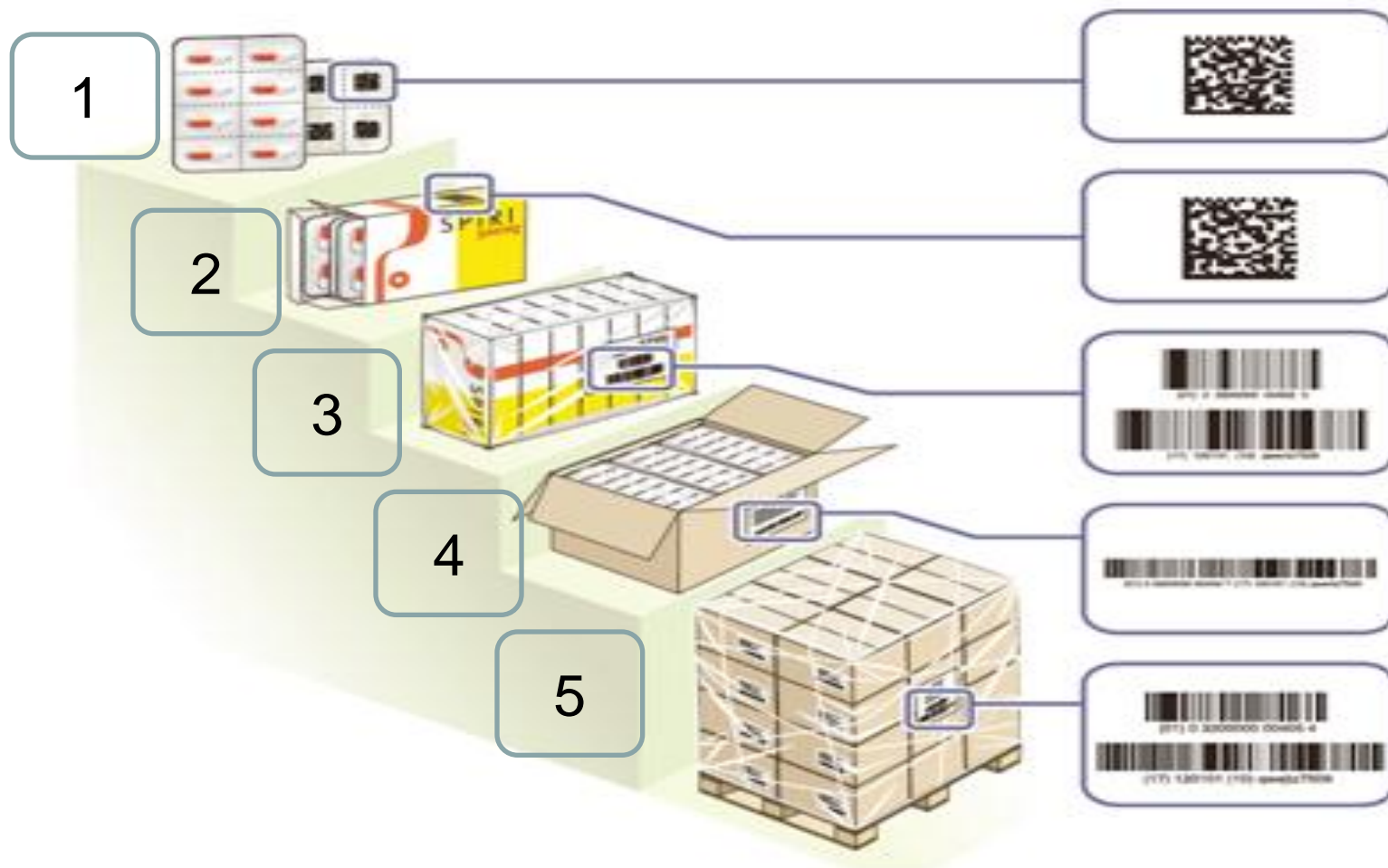
### Engagement & support :

- implementing MSCA
- renovating stores & facilities
- adding manpower
- supporting training

# Vendor Engagement

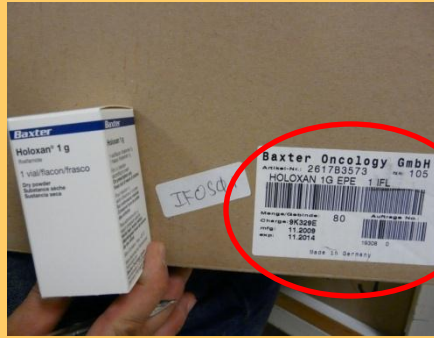
- No less than 5 vendor briefings, 20 meetings, training workshops, testing, emails, etc...
  - Clarifications on project objectives, process, technical requirement, time frame.....
  - Frequently Ask Questions
- Mock ups on bar code labels,
- EDI testing
- End to End testing with mock up products
- On site testing at pilot sites

# What is the status of bar code on different levels of pharmaceutical products ?



# Examples of problems encountered on bar codes

Difficulties to identify the correct bar code to scan



Some bar codes are not in black and white



Not a GTIN bar code, only a supplier Item bar code

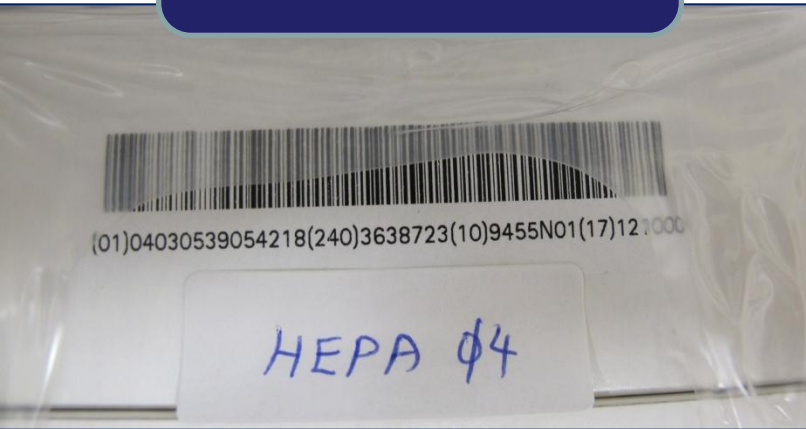


AI (241) which is a customer Part Number and cannot be used as an item identifier



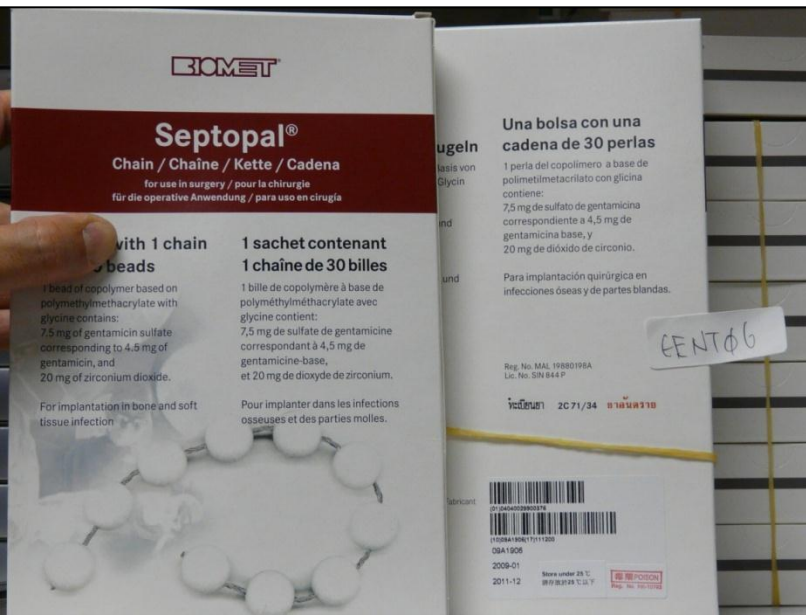
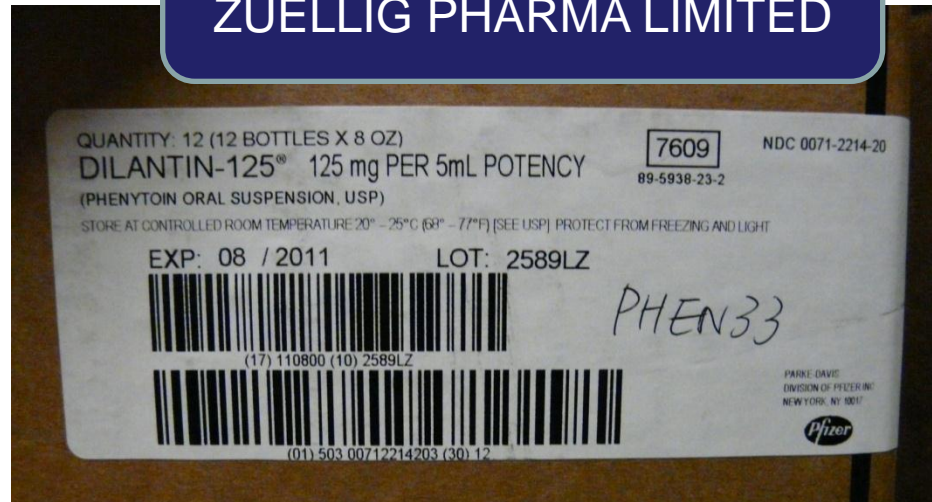
# Full set of bar code on Level 2

Supplier : DKSH,  
Manf : BB

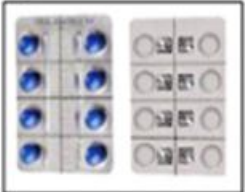
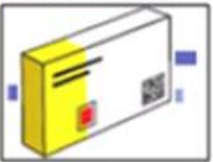




# Full set of bar code on Level 4

Supplier :  
ZUELLIG PHARMA LIMITED



# The HA requirement on GTIN and bar codes on the different levels of pack

Packaging Hierarchy	Example	Identification Key	Example	Bar code	Bar Code Type
Primary Packaging	<p>A pill in blister cell</p> 	No	NA	No	NA
Ordering base unit	<p>2 blisters in 1 box</p> 	GTIN ✓	<p>GTIN A: 489-1668-00002-2</p>	Optional	GS1-128, GS1 Data Bar, GS1 Data Matrix, EAN/UPC.
Multi Pack	<p>7 boxed bound to create one package</p>	No	NA	No	NA
Case	<p>8 multi pack in a corrugated cardboard cartons</p> 	Optional	<p>GTIN B: 489-1668-00001-5 ( 1 unit of GTIN B = 56 units of GTIN A)</p>	✓	GS1-128, GS1 Data Matrix
Logistic Unit	<p>Pallet of 8 cases</p>  <p>Pallet</p>	SSCC ✓	<p>SSCC: 1-489-1668-000000001-2</p>	✓	GS1-128

# Standards provided by GS1



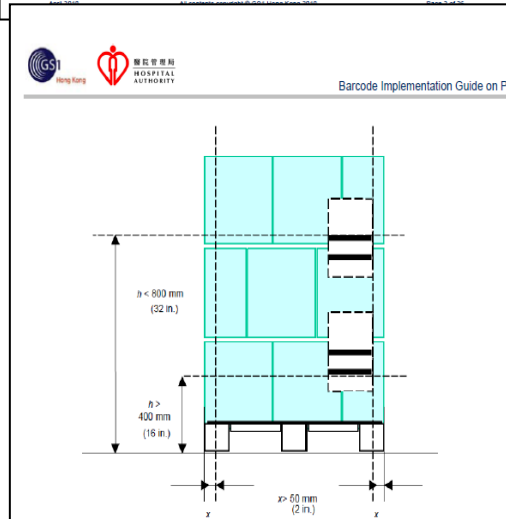
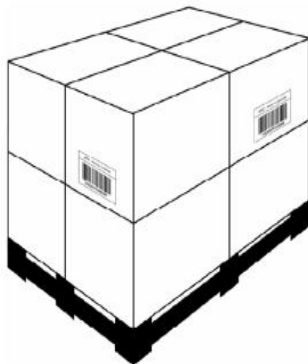
Barcode Implementation Guide on Pharmaceutical Products (Logistics Unit)

### Table of Contents

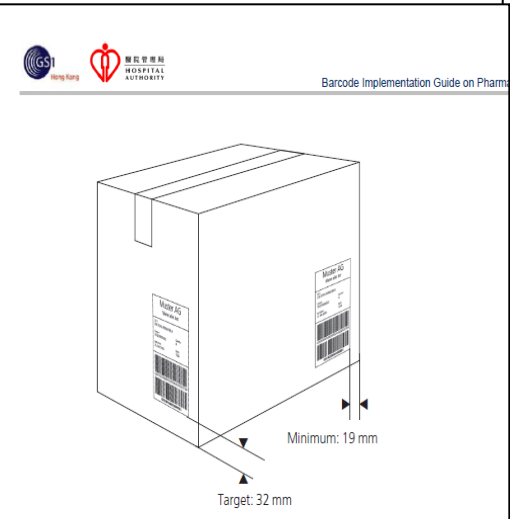
Introduction.....	4
About Barcode Implementation program of Hospital Authority.....	4
Scope of Work.....	4
<b>1. Step 1: Get a GS1 Company Prefix.....</b>	<b>4</b>
1.1. Pharmaceutical product supplier.....	4
1.2. Hospital Pharmacy.....	5
<b>2. Step 2: Assign SSCC Numbers to Logistics Unit.....</b>	<b>5</b>
2.1. SSCC Number Structure.....	7
2.2. Check Digit Calculation.....	8
2.3. SSCC Allocation Rules.....	8
2.3.1. Life of SSCC.....	8
2.3.2. Standard package.....	9
2.3.3. Mix package.....	10
<b>3. Step 3: Select a Bar Code Printing Method.....</b>	<b>10</b>
3.1. Printing Bar Codes on Logistic Unit.....	10
<b>4. Step 4: Select a Bar Code Symbol.....</b>	<b>10</b>
4.1. Use GS1-128 Bar Code Symbol for Logistics Unit.....	11
<b>5. Step 5: Design a Bar Code (Technical Specifications).....</b>	<b>12</b>
5.1. GS1-128 Symbology.....	12
5.2. Format the Bar Code Text.....	14
5.2.1. Bar Code Text.....	14
5.3. Pick a Bar Code Color.....	14



The symbol including, its Quiet Zones, should be at edge to avoid damage.



7.2. Bar Code Placement on Cartons and Outer Cases



7.3. Bar Code Placement on Shallow Trays and Cases





## GS1 Identifiers in Healthcare

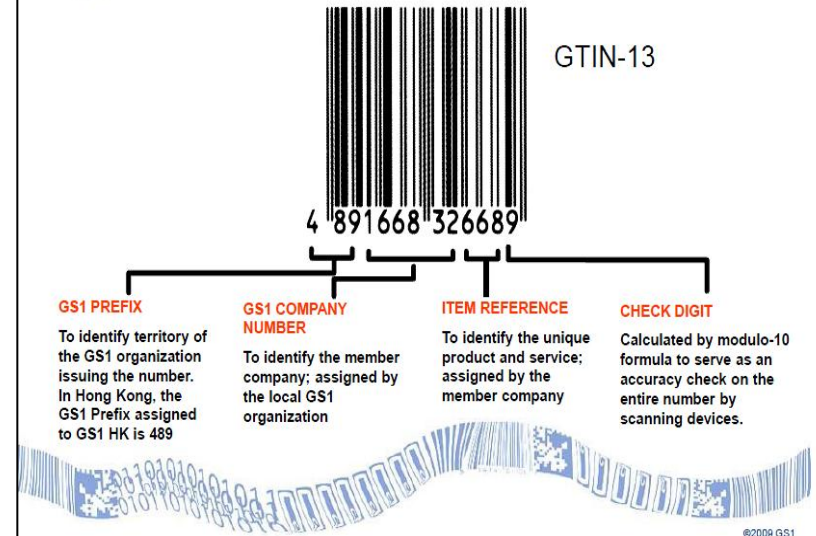
GS1 Key	Represented Information
GTIN <i>(Global Trade Item Number)</i>	Identification of Healthcare Product
GLN <i>(Global Location Number)</i>	Identification of Location & Legal Entity
GSRN <i>(Global Service Relation Number)</i>	Identification of Patient & Care Giver
Application Identifier	Represented 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

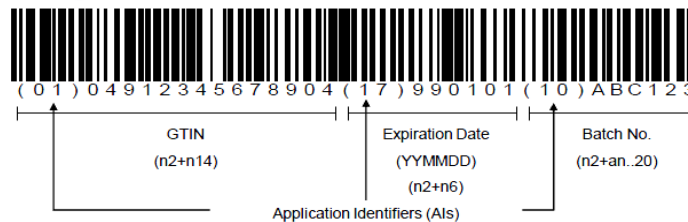


## Data Structure of a GTIN



## 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



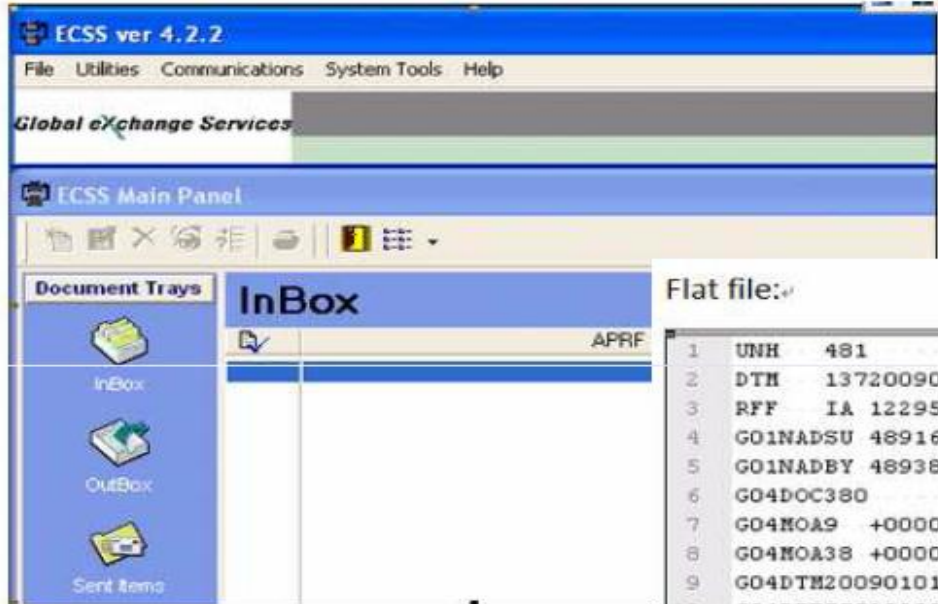
Expiration date & batch no. must be used with GTIN and application identifier (AI) in a barcode.

©2009 GS1



# Cat A – EDI Gateway (EDI PO, PO Response, PO Change, ASN, Invoice)

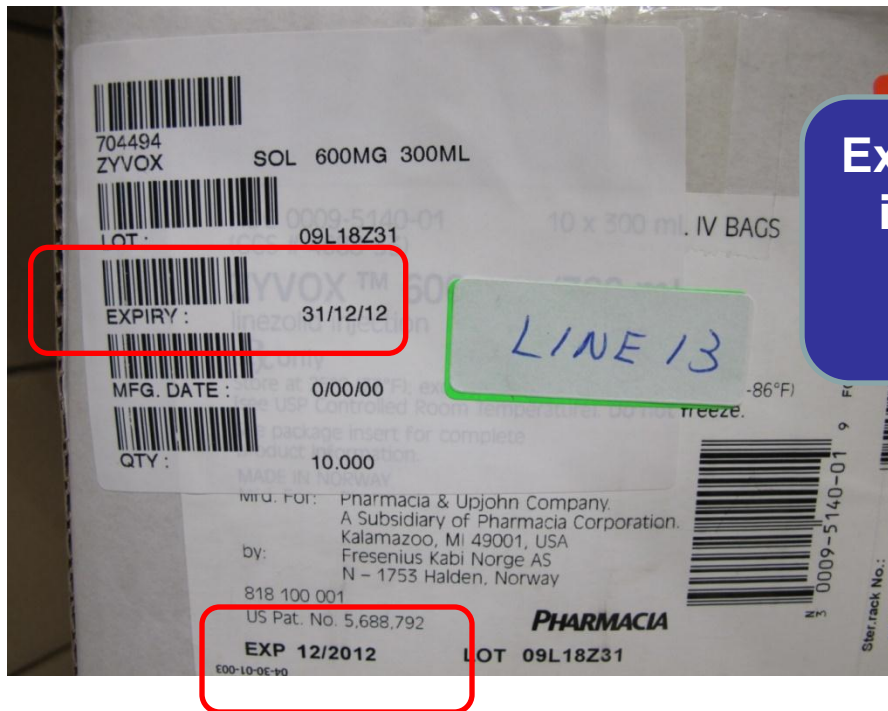
Programming and Integration is needed  
ERP Capable Suppliers



Flat file:

```
1 UNH 481 RA00002
2 DTH 13720090808 102
3 RFF IA 12295
4 GO1NADSU 4891668900032 VENDOR ABC
5 GO1NADBY 4893899000000 MANNINGS
6 GO4DOC380 INV0000
7 GO4MOA9 +0000000000180000.00
8 GO4MOA38 +0000000000001000.00
9 GO4DTM20090101 102
10 GO4RFFZZZ20090102
11 GO4RFFON PO00000
12 GO4DOC380 INV0001
13 GO4MOA9 +0000000000010000.00
14 GO4MOA38 +00000000000011000.00
15 GO4DTM20090201 102
16 GO4RFFZZZ20090111
17 GO4RFFON PO00001
18 GO6AJT4
19 GO6MOA+0000000000001000.00
20 G08DLI1 +000001
21 G08MOA146+0000000000000011.00
22 G08PIA48900000000011 EN
```

# Problem on Expiration date format



Expiration date on printed label is DDMMYY which does not match ERP expiration date format "YYMMDD"

# Tendering of Hardware & printers & labels



# Hospitals side

- ERP System
  - Early engagement
  - Data preparation
  - Data cleansing
  - Data conversion
- MSCA / SCM
  - Hospitals Stores Facilities
- Manpower
- Training

# Stores in Queen Elizabeth Hospital



# Ultimate conditions of our pharmacy stores



# The Challenges encountered



infrastructure



leadership



technology

- **Entire SCM process is voluntary for vendors**
- **No credit , no penalty (yet)**
- **Depends on the vendors readiness & willingness & ability**
- **first batch involving 13 vendors (out of 150+)**
- **Pharmacy users' acceptance to adopt new processes**
- **Increase in manpower with skills and knowledge on SCM**
- **Installation of wi fi in our pharmacy stores, modernise the environment, increase space and layout....**
- **Choice of hardware,**
- **Training of staff, vendors....**
- **.....**



resources



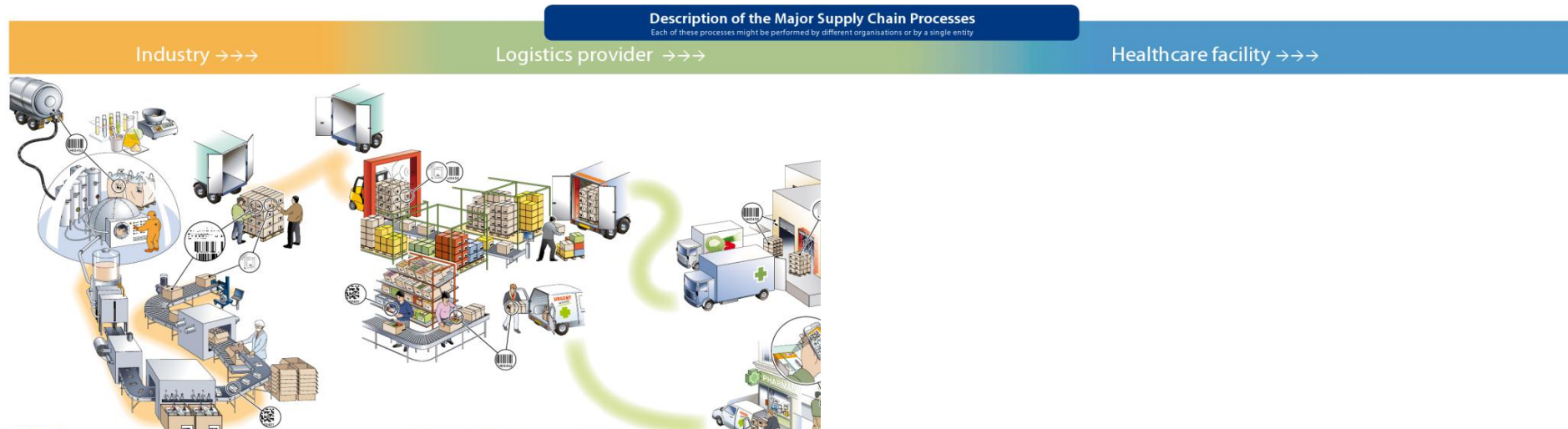
# Full scale SCM – external dependencies

Tracking from manufacturers /suppliers into pharmacy stores

<b>Phase I</b> <b>(2011/12)</b>	<ul style="list-style-type: none"><li>- Persuading vendors to comply with requirement on system support, GTIN, Bar codes</li><li>- Provide support e.g. education, training, defining requirement</li><li>- No mandates</li></ul>
<b>Phase I/II</b> <b>(2012/13</b> <b>2013/14)</b>	<ul style="list-style-type: none"><li>- Increasing the no. of vendors to comply with requirement on system support, GTIN, Bar codes</li></ul>
<b>Phase II</b> <b>(2014/15)</b>	<ul style="list-style-type: none"><li>- Built into procurement requirement</li><li>- Mandatory requirement for vendors</li><li>-Increasing vendors compliance with full requirement</li></ul>

# Full scale SCM – internal dependencies

<b>Stage I</b>	<b>Tracking from manufacturers/suppliers into pharmacy stores</b> <ul style="list-style-type: none"><li>-only possible for vendors which are ready</li><li>-only for goods receipt process</li></ul>
<b>Stage II</b>	<b>Tracking from pharmacy stores to issue areas</b> <ul style="list-style-type: none"><li>-only possible for vendors who are ready on the level 2 bar codes availabilities</li><li>- only possible for selected areas of the stores</li></ul>



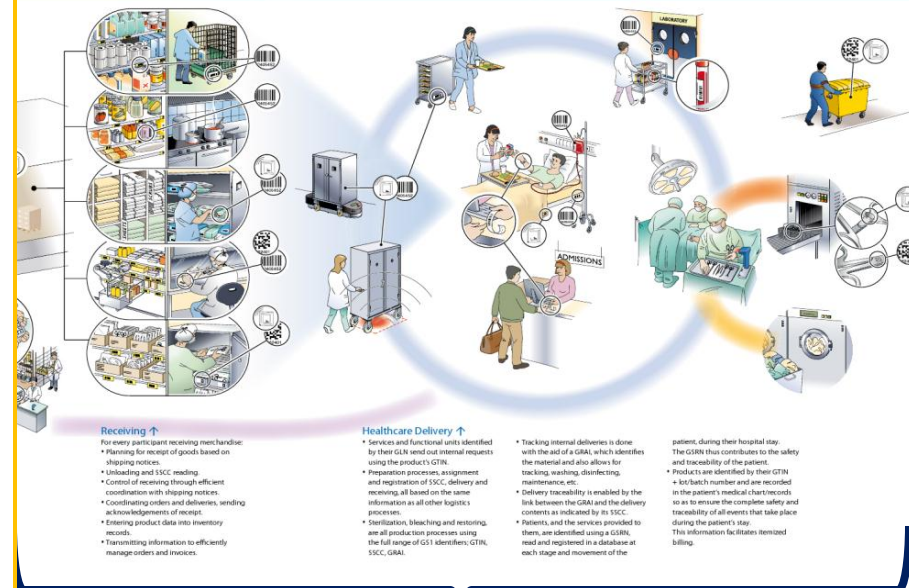
## Description of the Major Supply Chain Processes

Each of these processes might be performed by different organisations or by a single entity

Industry →→→

Logistics provider →→→

Healthcare facility →→→

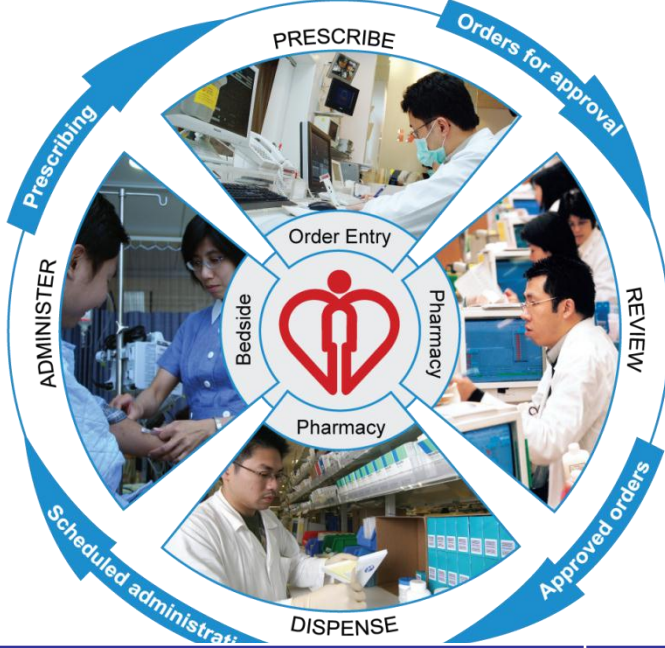


# Stage II

# IPMOE \*/ DDAS\*\*

\*IPMOE = In-patient Medication Order Entry  
\*\*DDAS= Drug Distribution and Administration System

# Track and Trace to the point of care



IPMOE \*/ DDAS\*\*



Doctors

pharmacy

Nurses

**PATIENT, 587858**  
 M 40 DOB: 20-Oct-1988 UM600606(4) MED D1 Adm: 20-Oct-1998 HN98074701(3)  
 Drug Name: B-CAVE  
 Regimen: B-CAVE Start Date: 1/12/2009 End Date:  
 Body surface area: Height 160 cm Weight 50 kg BSA 1.50 m<sup>2</sup>  
 Status: In progress  
 Day 1: Bleomycin, 5 units/m<sup>2</sup> i.v.; Lomustine, 100 mg/m<sup>2</sup> p.o.; Doxorubicin, 60 mg/m<sup>2</sup> i.v.; Vinorelbine, 5 mg/m<sup>2</sup> i.v.  
 Day 28: Bleomycin, 5 units/m<sup>2</sup> i.v.; Lomustine, 100 mg/m<sup>2</sup> p.o.; Doxorubicin, 60 mg/m<sup>2</sup> i.v.; Vinorelbine, 5 mg/m<sup>2</sup> i.v.  
 Day 35: Bleomycin, 5 units/m<sup>2</sup> i.v.  
 \* Repeat every 8 weeks I.

PHS IPMOE Enquiry Report File Maintenance System Configuration CDD4 Help

Save Profile Vet Verify Suspend Pending Urgent

張文文 Chan, Man Man  
 DOB: 18-Dec-1970 HSD#: A123456(7) MED A3(7) HR0211234567 Weight 62.1 kg Height 160.1 cm BSA 1.85 m<sup>2</sup> Alert

PHS Spec: MEDA PHS Ward A2 Patient Cat SA1 Other Doc: Pregnancy Contraindication Checking

Drug	Dosage	Frequency	Duration	Total Qty Adj./ Issue Qty
1 Paracetamol - PANADOL tablet According to pain scale	500 mg	qid		8 tablet(s)
WY PARAN1 - Paracetamol Tablet 500mg	1 tablet(s)	qid		8 TAB
Phenyleph - injection IV bolus	100 mg	q8h		20mg
PHEN34 - Phenyleph Injection 50mg/ml 5ml Today 15:00	100mg	q8h		2 VAL
3 Enoxaparin Sodium - prefilled syringe SC bolus	40 mg	q24h		40mg
ENOX002 - Enoxaparin Sodium Prefilled Syringe 40mg/0.4ml Today 10:00	40mg	q24h		2 VAL
4 Gentamicin - injection IV intermittent infusion in 100mL NS over 30min	240 mg	q24h		48mg
GENT02 - Gentamicin Injection 40mg/ml 2ml 16/6/2011 10:00	240mg	q24h		2 VAL

CHUK, ON HONG(張文文) M25y DOB: 01-06-1982 A123456(3) MED 5A-11 Adm: 01-03-2007 HN07000011(3)

Start	End	Drug	Reviewed By	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
01-03-2007		LASK (FRUSEMIDE) tablet oral: 40mg om	MEDCHIN, TH BIN																						
01-03-2007		ATENOLOLE tablet oral: 40mg qid	MEDCHIN, TH BIN																						
01-03-2007		PARACETAMOL tablet oral: 500mg qid	MEDCHIN, TH BIN																						
01-03-2007		BIKOLON (IBITOLCLOPRAMIDE NS) tablet oral: 500mg qid	MEDCHIN, TH BIN																						
01-03-2007		ALICANTIN Injection 1.2g parenteral: 1.200mg q8h [intravenously (inletC)]	MEDCHIN, TH BIN																						
01-03-2007		GENTAMICIN SULPHATE injection 40mg/ml 2ml	MEDCHIN, TH BIN																						

- Electronic prescribing by clinicians
- Vetting & dispensing with workflow reengineering at Pharmacies
- Drug administration by nurses using BCMA

# The Journey is long & tough



**Insanity :**

**Continuing to believe that if we insist and persist , we can make the difference, some day ....**

**- S C Chiang**