



# GS1 STANDARD for PATIENT SAFETY

Cholatip Pongskul, MD





# SRINAGARIND HOSPITAL

โรงพยาบาลศรีนครินทร์ คณะแพทยศาสตร์ มหาวิทยาลัยขอนแก่น





# Patient safety

Magnitude	Incidence	Medication
<b>1 in 10</b>	<b>43 Million</b>	<b>\$ 42 Billion</b>
As many as 1 in 10 patients are harmed whilst receiving healthcare	Approximately 43 million patient safety incidences occur every year	Medication error cost an estimated 42 billion USD annually

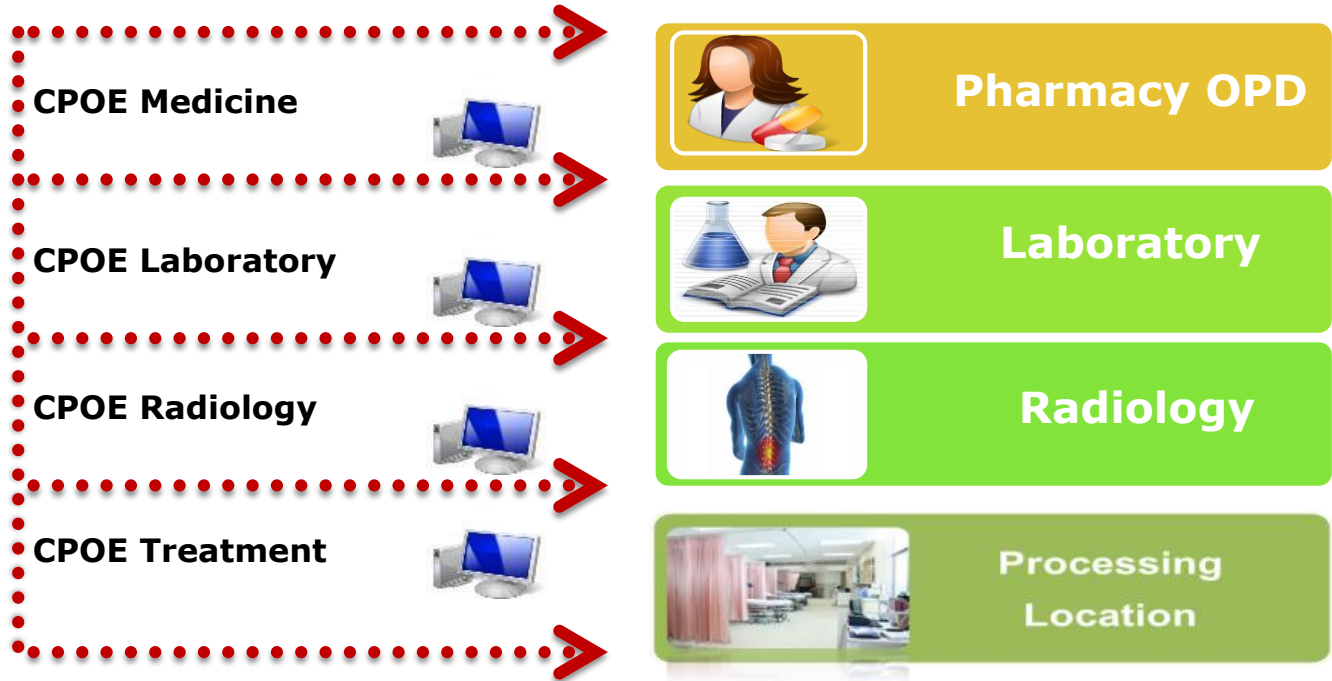


# 8 Rights of Medication Administration

- **Right PATIENT**
- **Right MEDICATION**
- **Right REASON**
- **Right DOSE for patient weight**
- **Right ROUTE**
- **Right FREQUENCY**
- **Right TIME**
- **Right SITE**



# Computerized Physician Order Entry<sup>5</sup>





# Right Medication, Dose, Route, Frequency By CPOE

Details Order Instructions

Item Name **Trazodel 50 mg TAB** Form **tablet** Strength Per Dose 50 mg

Dosage 1 TAB Route Per Oral Frequency หส | วันละ 1 ครั้ง ก่อนนอน Duration 1 Days Qty 1 TAB

Admin. Instruct No. Of Refills 0

Priority Normal Label

Order To Loc ห้องจ่ายยาฉุกเฉิน LQ 3118.5 Primary Payor OFC-สิทธิข้าราชการ/สิทธิรัฐวิสาหกิจ(จ) Unit Price 2.25

Order Date 23/03/2017 Valid upto 23/03/2018 Alias Name trazodel,trazodone,desirel

Start Date 23/03/2017 16:5๕ End Date 24/03/2017 16:5๕

Protocol Is Tapering Order Brought from Outside (BFO)

Diagnosis Continuous Order Add a STAT order

Essential Drug (บัญชี ก)  Independent Double Check Reqd  Special Approval Reqd  Authorization Reqd  Post-Authorization Reqd

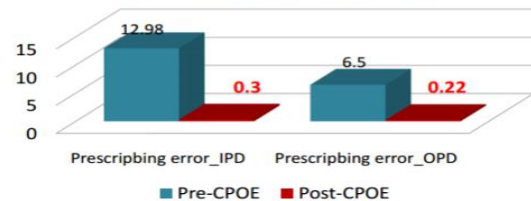
Ok Cancel

## Result

### Result:

Prior to CPOE implementation, the incidences of prescribing error were ranged between 5.14-6.50 and 3.35-12.98 events/1000 prescriptions in outpatient and inpatients, respectively. A year after the CPOE implementation, the incidence of prescribing error was decreased to 0.22 and 0.30 events/1000 prescriptions in outpatients and inpatients, respectively, and meant that the incidences of prescribing errors were reduced approximately 99.9% in both outpatient and inpatient.

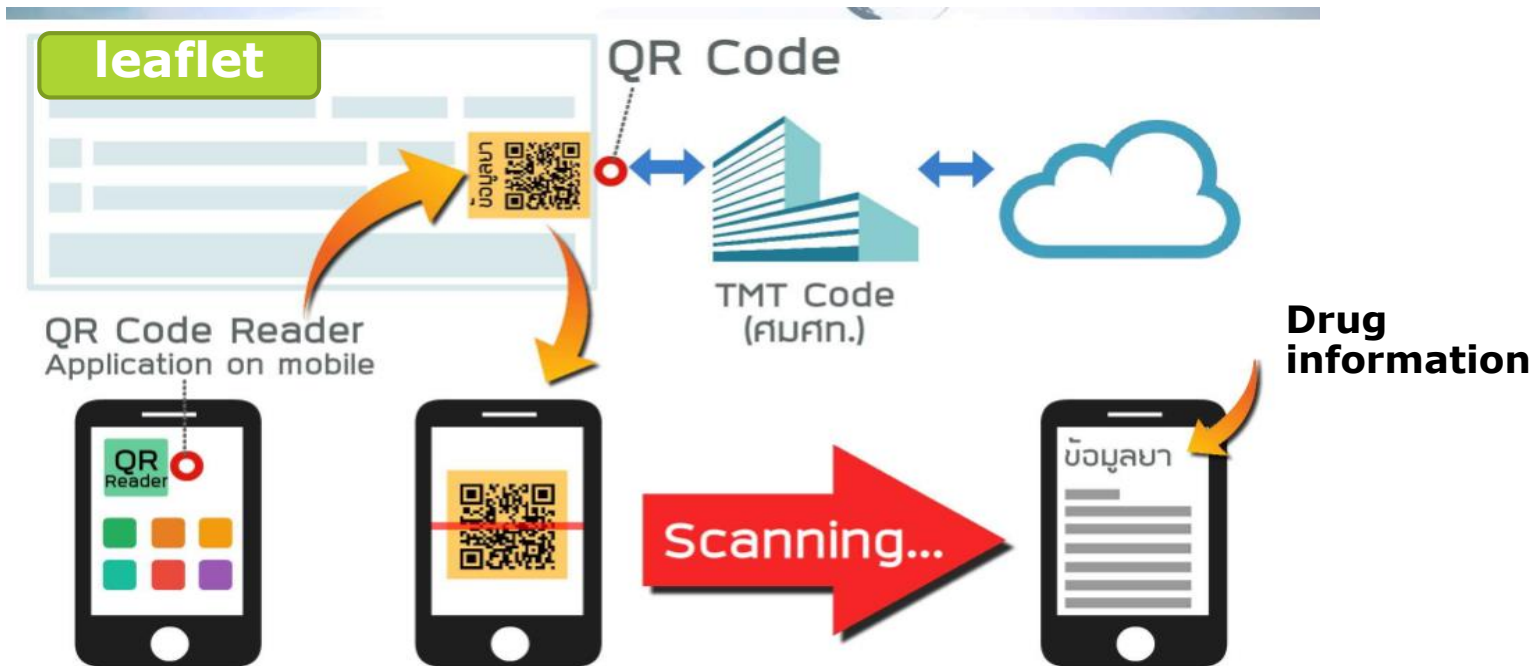
**Prescribing error Pre and Post CPOE  
(event per 1000 prescription)**





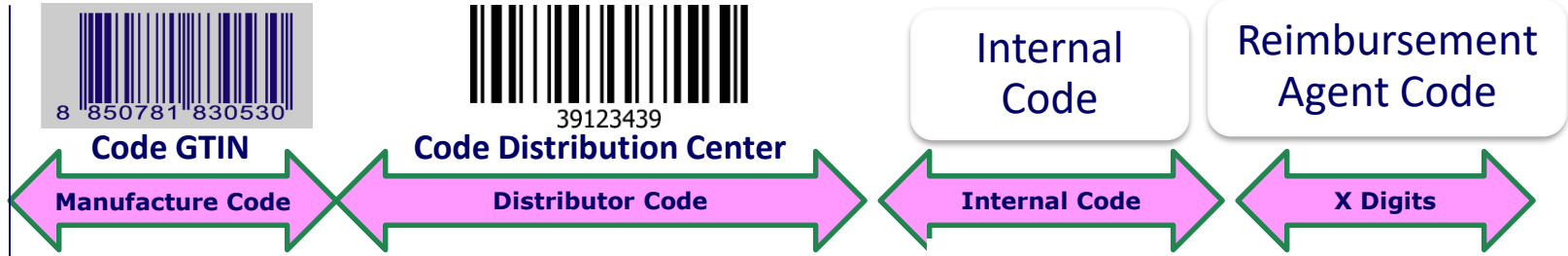
# Future

## • Patient information Leaflet





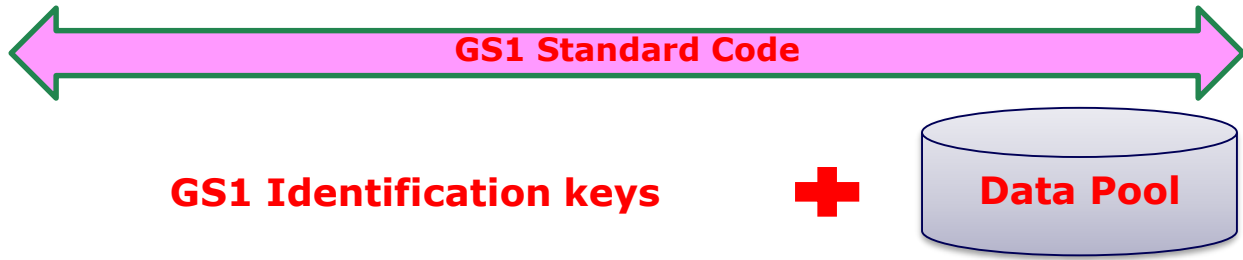
**Present**



**User**



**Future**







# WHY SO MANY CODES?

Code	Internal code	TMT (SNOMED)	24 Digits code	GTIN
<b>Purposes</b>	Mapping, Data migration	Pharmacology and Re-imburement	Re-imburement	Standard Safety
<b>Users</b>	Hospital	Comptroller General's Department	National Health Security Office	Everyone
<b>Problems</b>	Maintenance	Mapping, update, maintenance	Mapping, update maintenance	Not every drugs <i>False barcode</i>



# Inventory Interface

## ERP Purchase



PR → PO → Good Receive

*Update ledger*

Good Receive  
Interface  
Transaction

*Update Stock  
HIS*

Inventory Interface Transaction  
(Receive/Transfer/Issue/Adjust)

## HIS Inventory

Update  
Transaction

Receive

Update  
Transaction

Transfer

Update  
Transaction

Dispose / Issue

Update  
Transaction

Adjust

Document Code  

## Receiving

Business Unit KKUMD

Receipt Status Open

## Inventory Putaway Information for Line 1

Business Unit KKUMD

Status Open

Receipt ID NEXT

Item IMICAF50

Mycamine INJ 50 mg

Receipt Line 1

Standard UOM 029

## Distribution Information

Find | View All First 1 of 1 Last

Distribution Line 1

Merchandise Amount 75000.00000

Distributed Quantity 30.0000

Merch Amt Base 75000.00000

Inventory Business Unit KKUMD

Default Location IN\_FR

[Item Detail](#) Consigned Non-Owned Item

## Putaway Information

Personalize | Find | View All First 1 of 1 Last

Putaway Information Putaway Location

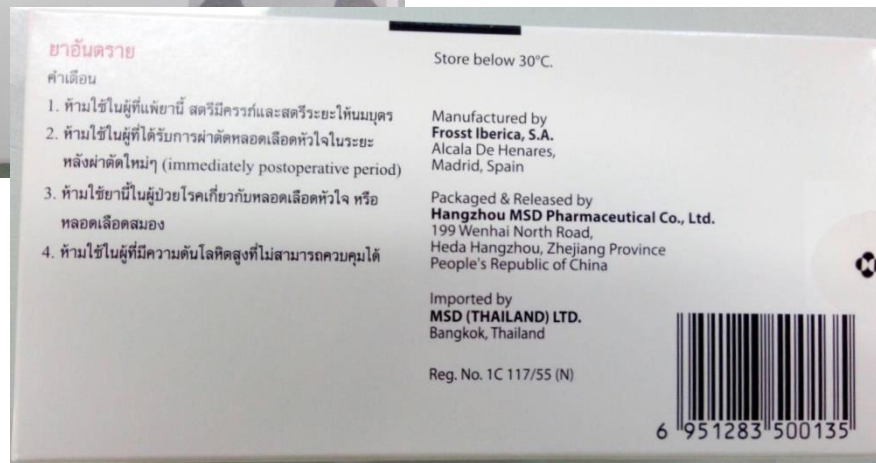
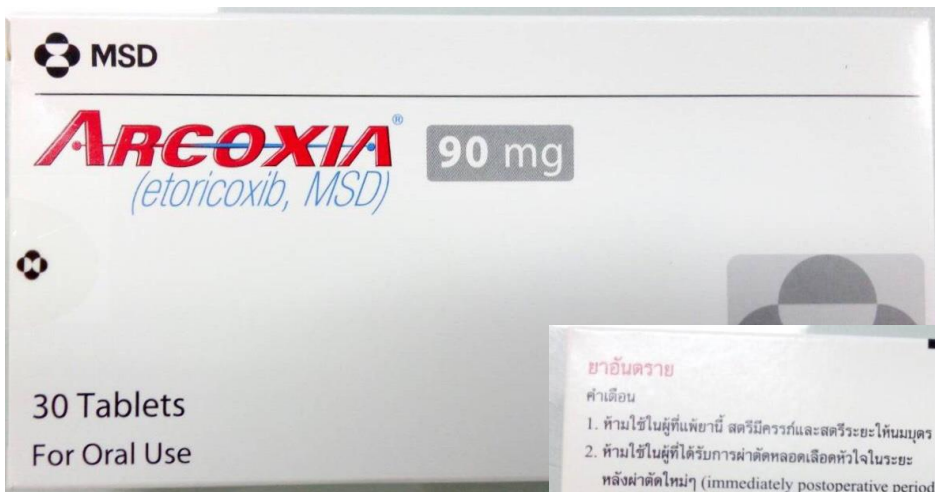
Dist Seq	BU Unit	Status	Quantity	Lot ID	*Expiration Date	Serial ID	Lot ID	Supp Lot	Expiration Date	
1	KKUMD	Open	30.0000							✘ +



		<b>Siam Bheasach Co., Ltd.</b> Bangkok, Thailand	
<b>SUGRIL TAB 5 MG BLISTER 10X10 TAB</b>			
Code No. : 20000374		EAN Code : 8852738490736	
Mfg. Date : 05.07.2016	Exp. Date : 04.07.2020		
Batch NO. : 1041807-1			
Remark :			
<b>72 Units</b>			
<b>Store Below 30° C</b>			

**Various format of code  
70%: No GTIN code**

**Not apply for drug  
Registration in THAILAND**





002758@10.87.55.169 HO v3.0.440.54.6.4

Home Masters Inventory Reports Settings Search Adv Search

Stores Items Bin Locations UOM Conversion Masters

### Manage Item **Arcoxia 30 mg TAB**

Details Reorder Unit Conversion Stores Vendors **Synonym** Image

Type  Synonym

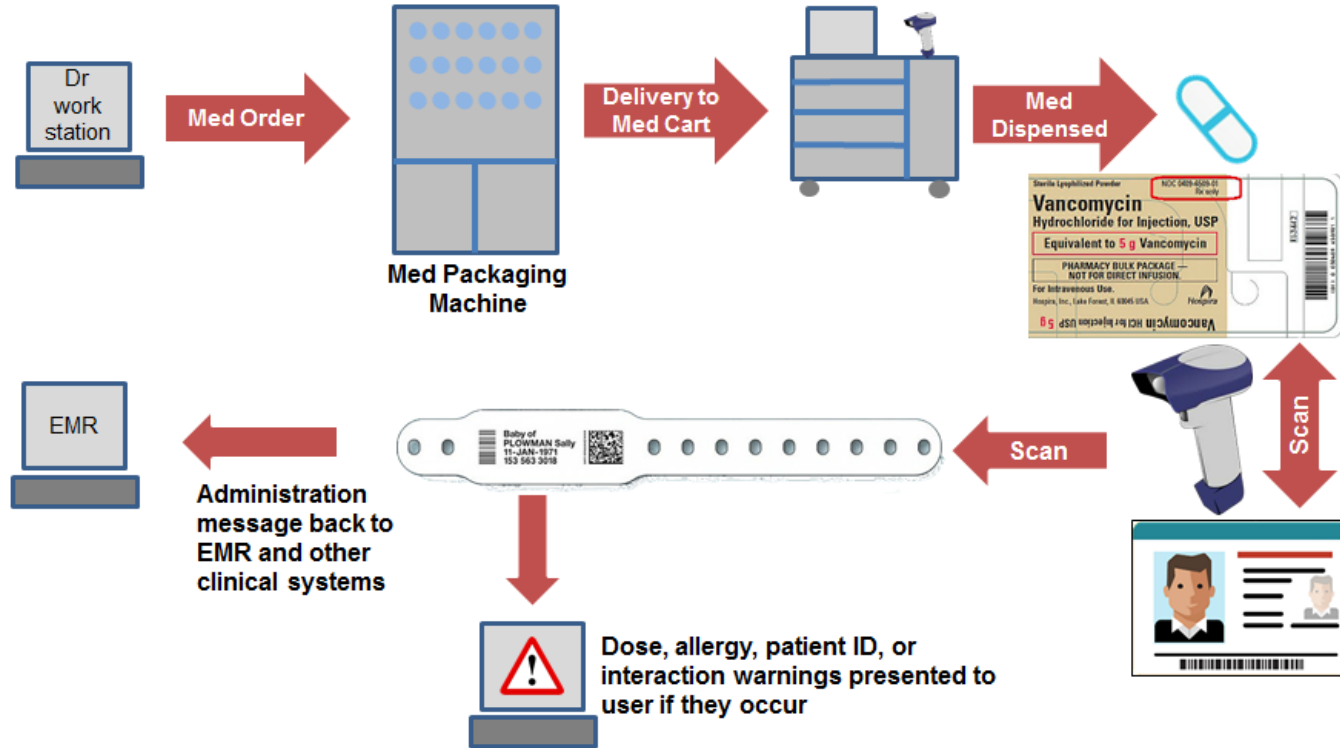
Add Update Delete

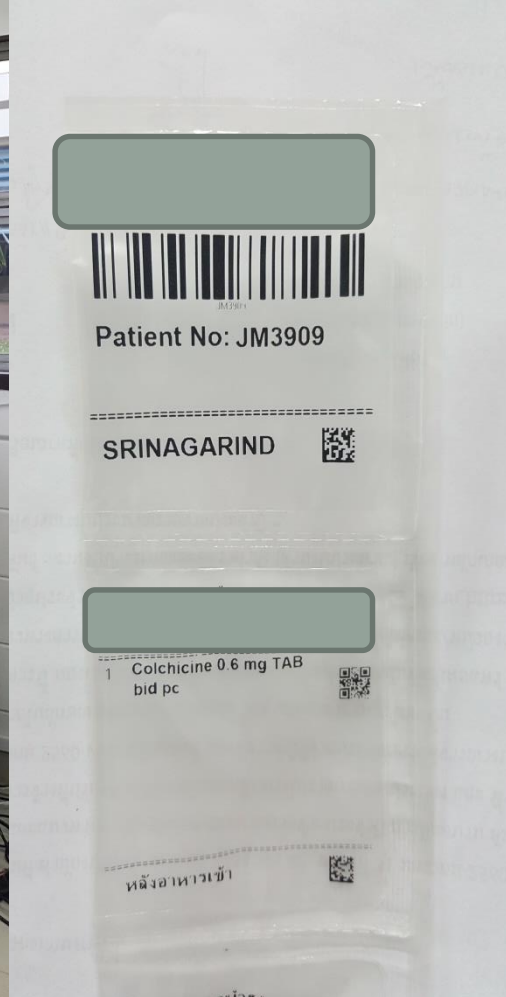
Synonym	Type	
ETORICOXIB	Synonym	
120483	TMT Code	
TARCOXIA30	Synonym	
9317935680155	GTIN Code	

Save Cancel



# Barcode medication administration



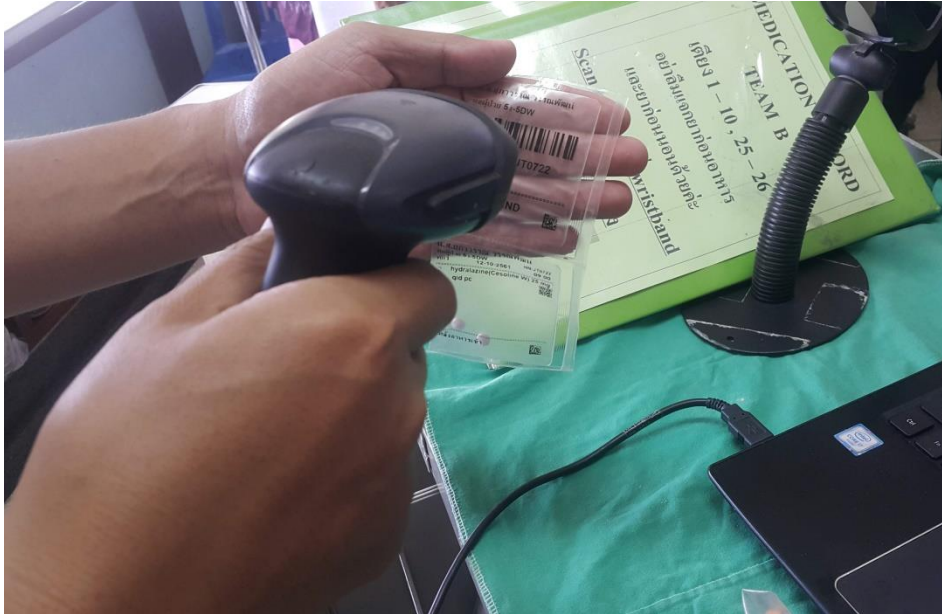


**Data matrix  
from GS1?**





# eMAR (Electronic Medication Administration Record)



The screenshot shows the eMAR software interface. At the top, there is a patient profile section with a photo and name. Below that, there are filters for 'Start Date' (10/03/2016), 'Valid Up to' (10/03/2018), 'Status' (All), 'Drug Type' (All), and 'Drug' (searchable). The main area is a grid showing medication administration records for three dates: 09/03/2017, 10/03/2017, and 11/03/2017. The grid columns represent time slots: 13:00, 18:00, 21:00, 08:00, 09:00, 13:00, 18:00, 21:00, 08:00, 09:00, 13:00, 21:00. The rows list medications with their respective administration status (e.g., 1A, 1C, 1F) in colored boxes. A legend at the bottom indicates the status of each box: A (Administered), N (Not Administered), C (Current Dose), F (Future Dose), D (Discontinued), H (Hold), and R (Refusal).

Medication	09/03/2017 13:00	09/03/2017 18:00	09/03/2017 21:00	10/03/2017 08:00	10/03/2017 09:00	10/03/2017 13:00	10/03/2017 18:00	10/03/2017 21:00	11/03/2017 08:00	11/03/2017 09:00	11/03/2017 13:00	11/03/2017 21:00
Folic Acid 5 mg TAB					1C					1F		
Multivitamin TAB	1A	1A			1C	1F	1F			1F	1F	
Vitamin B 1 100 mg TAB	1A	1A			1C	1F	1F			1F	1F	
fluoxetine(FLUOX) 20 mg TAB					1C					1F		
lorazepam(Anxi) 2 mg TAB							1C					
Vitamin B 1 100 mg INJ 1ml												



# Confirm the right PATIENT, MEDICATION

นาย นพพล พาณิชกิจ (BA9596) Age: 32 Y 5 M 7 D Date of Birth 03-10-1984 ชาย นอญป่วยจิตเวช / เติบโตตามวัย 08-จิตเวช-PSW08

I17-007331 พ.ญ.พิมพ์พร กมลศรี ay - ช่างระเงินแดง  
Blood Group: HT: 172 Wt: 47.3 BMI: 15.99 BSA: 1.55

eMAR Existing Orders

Start Date 10/03/2016 Valid Upto 10/03/2018 Status All Drug Type All Drug Presc. ID

09/03/2017						10/03/2017					
08:00	09:00	12:00	13:00	18:00	21:00	08:00	09:00	13:00	18:00	21:00	08:00
<p><b>C Vitamin B 1 100 mg INJ 1ml</b></p> <p>IP17-242401 Total Qty = 3 AMP Infusion Rate 0 ml Over 0 Minutes As Direct   ใช้อัตราตามแพทย์สั่ง Route : Injection 100 mg iv od x3 d Start Dt 01/03/2017 Valid Upto 04/03/2017 พ.ญ.นลิน นนดี</p> <p><b>C Topamax 50 mg TAB(ฟ้า)</b></p> <p>IP17-263300 0 TAB Total Qty = 6 TAB As Direct   ใช้อัตราตามแพทย์สั่ง Route : Per Oral 1/2 เม็ดเช้า 1 เม็ดก่อนนอน Start Dt 05/03/2017 Valid Upto 08/03/2017 พ.ญ.นลิน นนดี</p> <p><b>C Topamax 50 mg TAB(ฟ้า)</b></p> <p>IP17-259993 0 TAB Total Qty = 2 TAB As Direct   ใช้อัตราตามแพทย์สั่ง Route : Per Oral 1/2 เม็ดเช้า 1 เม็ดก่อนนอน Start Dt 05/03/2017 Valid Upto 08/03/2017 พ.ญ.นลิน นนดี</p> <p><b>N lorazepam(Anta) 2 mg TAB</b></p> <p>IP17-263648 0 TAB Total Qty = 5 TAB As Direct   ใช้อัตราตามแพทย์สั่ง Route : Per Oral Start Dt 06/03/2017 Valid Upto 07/03/2017 พ.ญ.นลิน นนดี</p> <p><b>C nortryptylene(NORTYLINE) 25 mg TAB</b></p> <p>IP17-278902 1 TAB Total Qty = 1 TAB As Direct   ใช้อัตราตามแพทย์สั่ง</p>											

Legend: **A** Administered **N** Not Administered **C** Current Dose **F** Future Dose **D** Discontinued **H** Hold **R** Refusal

Print Close

**Topamax 50 mg TAB(ฟ้า)**

Drug Information Local Information

Abbreviated Full Generic

Contents Topiramate

indications Monootherapy in patients w/ newly diagnosed epilepsy; conversion to monotherapy in patients w/ epilepsy; Adjunctive therapy in patients w/ partial onset seizures generalised tonic-clonic seizures, seizures associated Lennox-Gastaut syndrome, Prophylaxis of migraine headache in adults.

Dosage Adjunctive therapy epilepsy *Adult* Initially 25-50 mg nightly for 1 wk. Subsequently at wkly or bi-wkly interve increase dose to 25-50 (to 100) mg/day in 2 divided dos Min effective dose: 200-400 mg in 2 divided doses. *Child* ≥2 yr Approx 5-9 mg/kg/day in 2 divided doses. Titrate 25 mg (or less, based on a range of 1-3 mg/kg/day) nigh for the 1st wk. Subsequently at 1 or 2 wkly intervals, w/

Print Close



## Leveraging GS1 for patient safety

- **We need true GTIN for medications and supplies**
- **Standard format for logistic code**
- **Automatically input (to IT system) by RFID**
- **National drug database by **THAI FDA?****
  - **GTIN**
  - **TMT**
  - **Drug information**



**Thank you!**

**Contact Address:**  
**Cholatip Pongskul**  
**Email: [cholatip@kku.ac.th](mailto:cholatip@kku.ac.th)**

