

Application of eHR

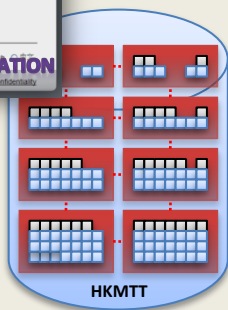
# Drug Standards in eHR CMS Adaptation and Structured Alert Module

EHR STRUCTURED ALERT ADAPTATION MODULE

EHR MOE MODULE

EHR CMS ONRAMP APPLICATION

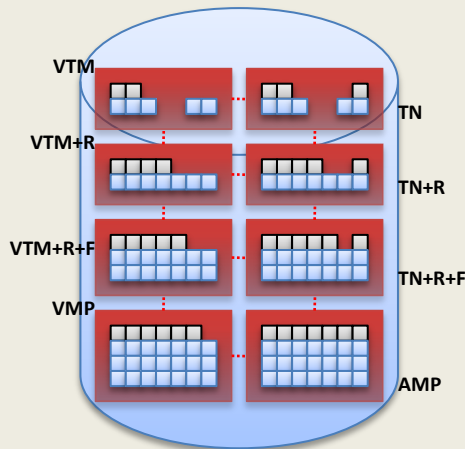
EHR DRUG ALLERGY CHECKING SYSTEM



Connie Lau  
Pharmacist  
Hospital Authority

# The uses of Hong Kong Medication Terminology Table (HKMTT)

HKMTT is the HK-wide eHR Drug standards to identify the registered pharmaceutical products used in Hong Kong.



HKMTT high level model

Which activities can HKMTT be applied to ?

**Drug records sharing**

**Prescribing**

**Dispensing**

**Drug allergy documentation**

**Medication decision support**

**This Session**

# Structured Alert Adaptation Module

- To enhance the capability of private hospitals to:
  - capture patients' allergy record
  - share these records with the future eHR system
- eHR Office has developed:
  - Structured Alert Adaptation Module (SAAM)
- Private hospitals can adopt SAAM by integrating them into their own eMR systems.

# Documenting an allergen using Structured Alert Adaptation Module

F

CHAN, SIU MAN (陳小曼)

HKIC: UH987654(1)

DOB: 24-May-1958

Age: 54 years

Ward: 5A-X12

Hospital No.: 456789

## Allergy / Adverse Drug Reaction / Alert

### Allergy ?

Add

☐ No Known Drug Allergy

### New Allergy Details

Allergen / Allergen Group:

**Drug Allergy**☐ Multiple-Ingredients products

### Adverse Drug Reaction ?

Add

**Adverse Drug Reaction**

### Alert

Add

**Clinical Alert**

# Documenting an allergen using Structured Alert Adaptation Module

HKIC: UH987654(1)

DOB: 24-May-1958

Age: 54 years

Ward: 5A-X12

Hospital No.: 456789

## Allergy / Adverse Drug Reaction / Alert

### Allergy ?

Add

Documenting Allergen...

**Aspilets (aspirin)**☐ No Known Drug Allergy

### New Allergy Details

Allergen / Allergen Group: 

#### Level of Certainty

☒ Certain ☐ Suspected

#### Clinical Manifestation

- |   |  |
|---|--|
| <input type="checkbox"/> Allergic contact dermatitis  | <input type="checkbox"/> Fibrosing alveolitis          |
| <input type="checkbox"/> Allergic rhinitis            | <input type="checkbox"/> Fixed eruptions               |
| <input type="checkbox"/> Anaphylaxis                  | <input type="checkbox"/> Generalised liver damage      |
| <input checked="" type="checkbox"/> <b>Angioedema</b> | <input type="checkbox"/> Haemolytic anaemia            |
| <input type="checkbox"/> Aplastic anaemia             | <input type="checkbox"/> Photosensitivity              |
| <input type="checkbox"/> Asthma                       | <input type="checkbox"/> Pruritis                      |
| <input type="checkbox"/> Atopic dermatitis            | <input type="checkbox"/> Rash                          |
| <input type="checkbox"/> Cholestasis                  | <input type="checkbox"/> Serum sickness                |
| <input type="checkbox"/> Eczema                       | <input type="checkbox"/> Stevens-Johnson Syndrome      |
| <input type="checkbox"/> Erythema multiforme          | <input type="checkbox"/> Toxic erythema                |
| <input type="checkbox"/> Erythema nodosum             | <input type="checkbox"/> Urticaria                     |
| <input type="checkbox"/> Erythroderma                 | <input type="checkbox"/> Manifestation uncertain       |
| <input type="checkbox"/> Exfoliative dermatitis       | <input type="checkbox"/> Others (Please specify below) |
| <input type="checkbox"/> Fever                        |  |

#### Additional Information

----- Please specify additional information if necessary -----

### Adverse Drug Reaction ?

Add

Specifying Clinical Manifestation...

**Angioedema**

### Alert

Add

It is the screen dump of SAAM. In this example, the allergen '**Aspilets (aspirin)**' can be picked up from the allergen list and therefore, can be documented structurally.

# Documenting an allergen using Structured Alert Adaptation Module

HKIC: UH987654(1)

DOB: 24-May-1958

Age: 54 years

Ward: 5A-X12

Hospital No.: 4

## Allergy / Adverse Drug Reaction / Alert

Allergy ? Add

Aspilets (aspirin)

Adverse Drug Reaction ? Add

Alert Add

## New Allergy Details

Allergen / Allergen Group:

hydr

☐ Multiple-Ingredient products

?

hydralazine hydrochloride  
hydrochlorothiazide  
hydrocortisone  
hydrocortisone (as sodium succinate)  
hydrocortisone acetate  
hydrogen peroxide  
hydroxocobalamin  
hydroxycarbamide  
hydroxychloroquine sulfate  
hydroxyzine hydrochloride  
acebutolol (as hydrochloride)  
alfentanil (as hydrochloride)  
alfuzosin hydrochloride  
aluminium hydroxide  
aluminium hydroxide dried  
amantadine hydrochloride  
ambroxol hydrochloride  
amiloride hydrochloride  
aminophylline (as dihydrate)  
amiodarone hydrochloride  
amitriptyline hydrochloride  
amorolfine (as hydrochloride)  
amoxicillin (as trihydrate)

Structured Free Text Imported free text data Deleted  
\*Match found

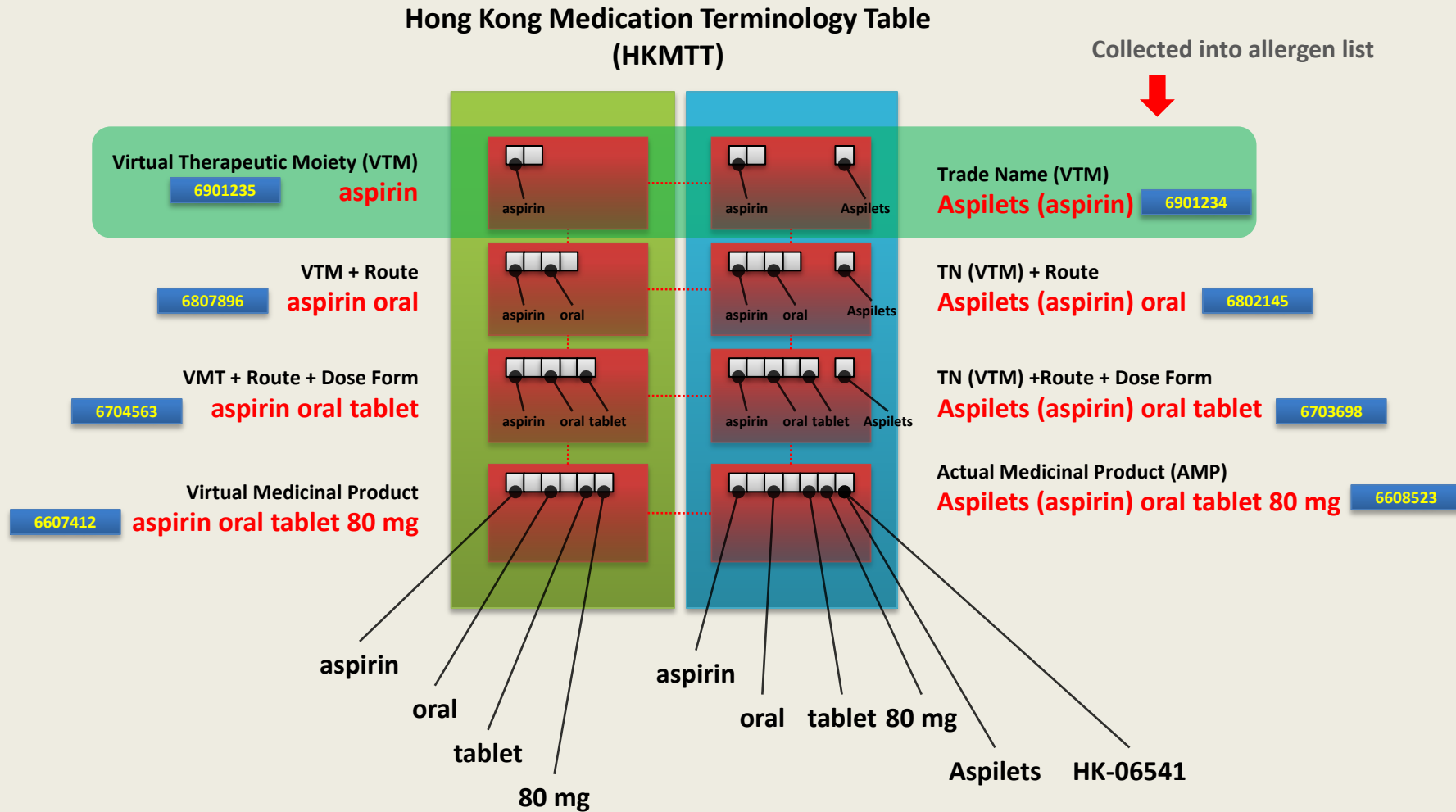
Log

Print

Close

# The allergen list in the eHR Structured Alert Adaptation Module comes from HKMTT

## HKMTT example - Aspilets®



The top level adopted for allergen list - Why?

- Information on ingredients of the allergen is sufficient for drug allergy checking
- Trade name is used to assist the doctors in searching the allergen

# Drug nomenclatures



CHAN, SIU MAN(陳小雯)

HKIC: UH987654(1)

DOB: 24-May-1958

Age: 54 years

Ward: 5A-X12

Hospital No.: 789456

## Allergy / Adverse Drug Reaction / Alert

### Allergy ?

Add

Aspilets (aspirin)

Augmentin ⓘ

T4 (levothyroxine sodium)

benzhexol hydrochloride ⓘ

co-trimoxazole ⓘ

### Adverse Drug Reaction ?

Add

### Alert

Add

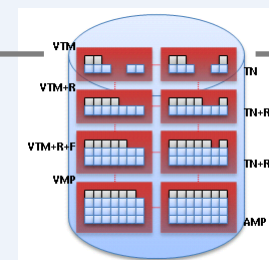
Structured Free Text Imported free text data Deleted  
\*Match found

Log

Print

### New Allergy Details

Allergen / Allergen Group:

☐ Multiple-Ingredients products**World Health Organization****International Nonproprietary Name (INN)**

Trade name, e.g.

**Augmentin™**

### Abbreviation

**T4 (levothyroxine sodium)**

### Former British National Name (BAN)

**benzhexol hydrochloride ⓘ**

INN = trihexyphenidyl hydrochloride

### Other commonly used name

**co-trimoxazole ⓘ**

co-trimoxazole (sulfamethoxazole + trimethoprim)

Cancel

Close



Drug allergy: *Brofen*

Drug allergy: *Seprím, Cotrimoxazole*

Drug allergy: *Biogesic, Panadol*

What's Brofen?  
Is it Brufen?

What's Biogesic?

Seprím = Septrín  
= cotrimoxazole ???



# Structural input checking



CHAN, SIU MAN(陳小雯)

HKIC: UH987654(1)

DOB: 24-May-1958

Age: 54 years

Ward: 5A-X12

Hospital No.: 787878

## Allergy / Adverse Drug Reaction / Alert

### Allergy ?

Add

Brufen (ibuprofen)

Panadol (paracetamol)

Septrin

### Adverse Drug Reaction ?

Add

### Alert

Add

## New Allergy Details

Allergen / Allergen Group:

brofen

☐ Multiple-Ingredients products**Did you mean *ibuprofen* ?**

ibuprofen

baclofen

ketoprofen

Brufen (ibuprofen)

Nurofen (ibuprofen)

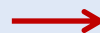
Bronal (levodropropizine)

Bifen (ibuprofen)

Batrafen (ciclopirox)

brofen (Drug)(Free Text)

brofen (Non-Drug)(Free Text)

Drug allergy: *Brofen*

■ Structured ■ Free Text ■ Imported free text data Deleted  
\*Match found

Log

Print

Close

Cancel


# Duplication checking

Drug allergy: *Biogesic, Panadol*

**F** CHAN, SIU MAN(陳小雯)  
HKIC: UH987654(1)      DOB: 24-May-1958      Age: 54 years      Ward: 5A-X12      Hospital No.: 7


**Allergy / Adverse Drug Reaction / Alert**

**Allergy ?** Add

Brufen (ibuprofen)  
Septrin   
Panadol (paracetamol)


**New Allergy Details**

Allergen / Allergen Group:  ☐ Multiple-Ing products



**Allergy / Adverse Drug Reaction / Alert**


**Allergy ?** Add

Brufen (ibuprofen)  
Septrin   
Panadol (paracetamol)

**New Allergy Details**

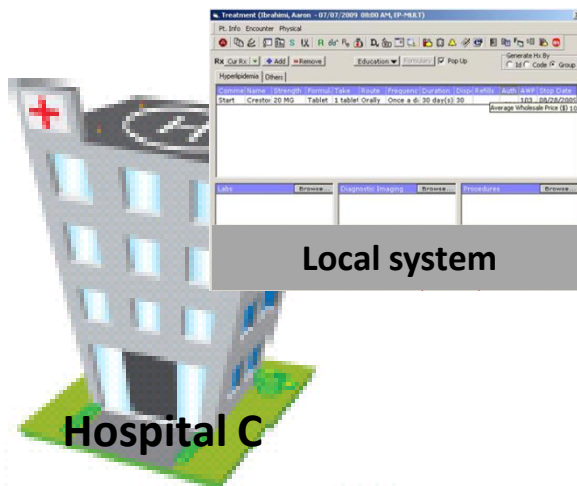
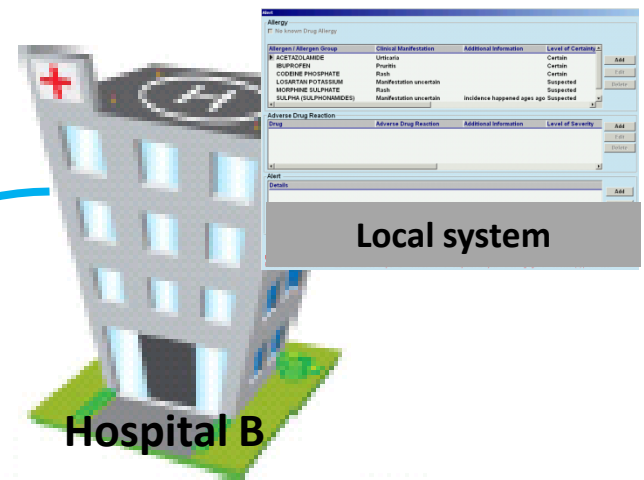
Allergen / Allergen Group:  ☐ Multiple-Ing products

**Warning**

 An Allergy Record "Panadol (paracetamol)" for this Allergen already exists.

Please consider updating the existing record as necessary.

Print Message OK

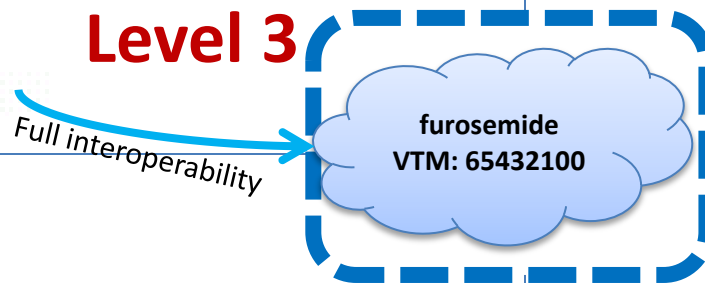
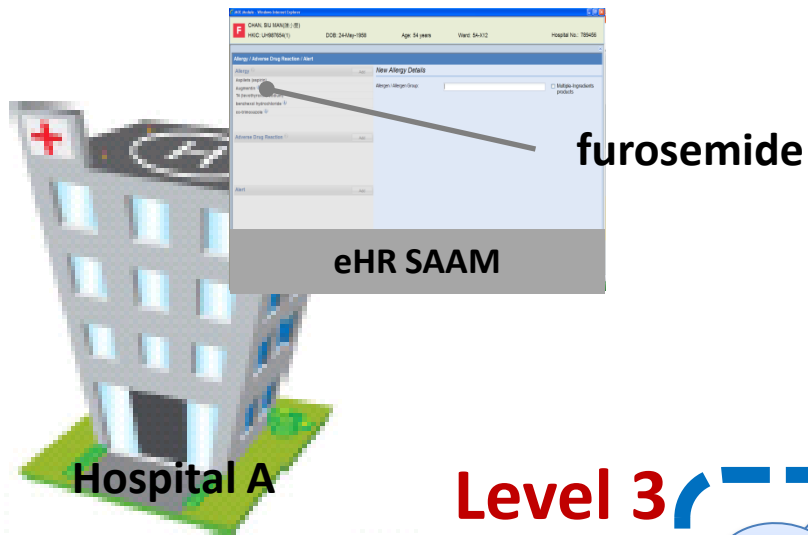


### Data submitted to eHR sharing platform

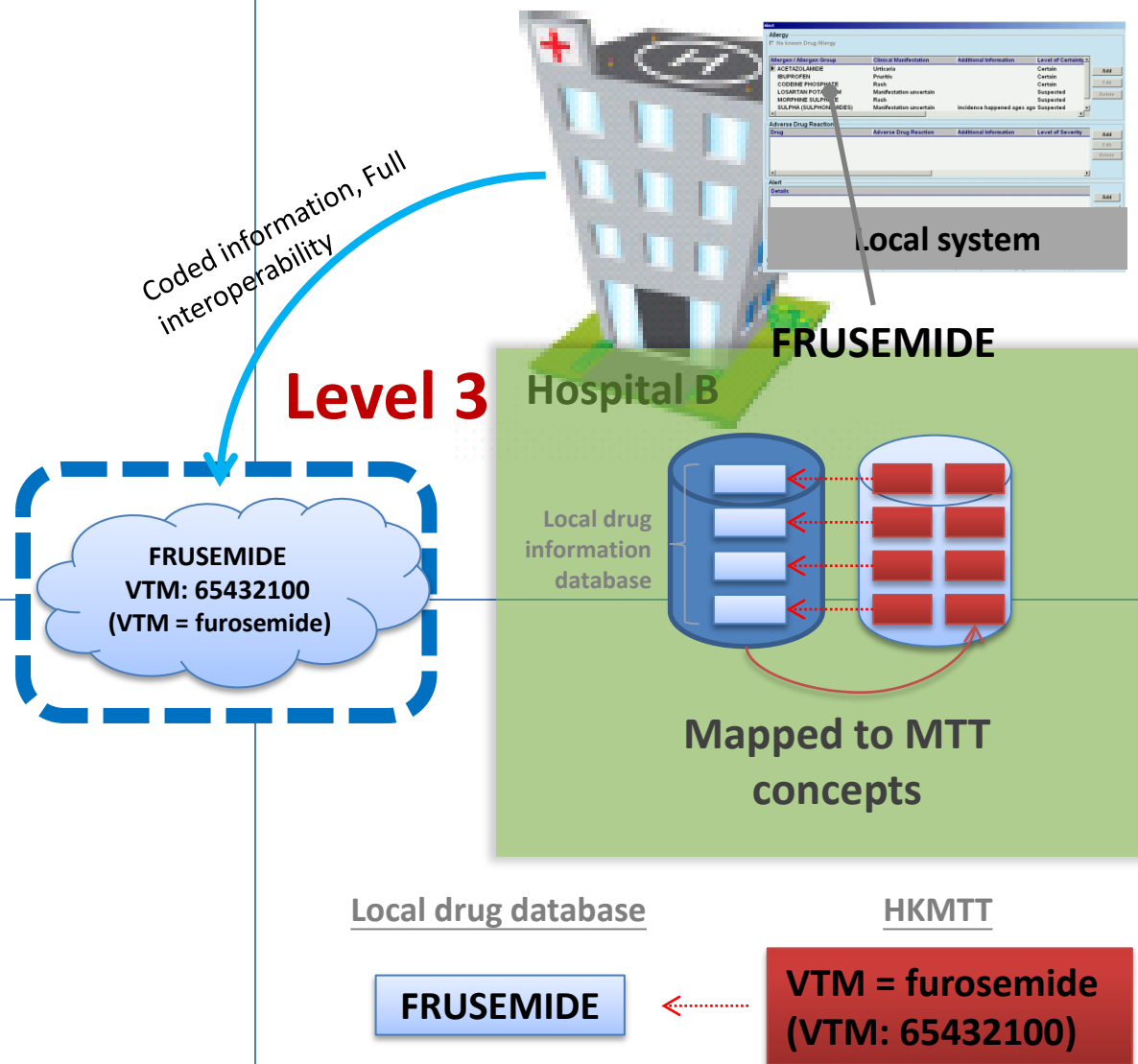
**Level 3:** Coded information with full  
HK and international interoperability

**Level 2:** Non-coded text information

**Patient allergy record is one of the sharable data in the eHR**



The allergy record is captured by the eHR Structured Alert Adaptation Module



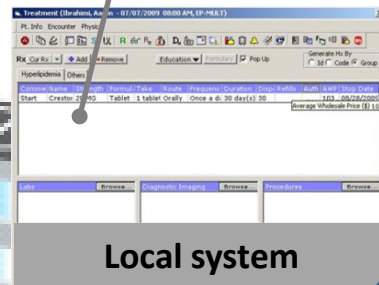
The allergy record is captured by the local developed system in which the drug database is mapped to HKMTT.

Lasix



Level 2

non-coded text information



Local system

Local drug  
information  
database



No mapping

The allergy record is captured by the local developed system.



**Hospital A**

**eHR SAAM**

CHAM SU MANDE (E)  
HSC (United Kingdom) DOB 24/09/1988 Age 14 years Weight 54.412 Hospital No. 789456

Adverse Drug Reaction - Start

New Allergy Details

Drug:  Allergy (Allergy/Drug)

Severity:  Status:  Onset:  End:

Adverse Drug Reaction - End

Coded information, Full interoperability

**Level 3**

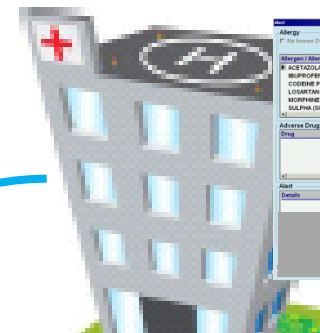
**Level 3**

Full interoperability

**Level 2**

non-coded text information

furosemide 65432100  
Lasix



**Hospital B**

**Local system**

Allergy


Adverse Drug Reaction	Clinical Modification	Additional Information	Level of Containment
ACEZOLAMIDE	Units	Certain	Ad
BUPIROPION	Pain	Certain	Ad
CODEINE PHOSPHATE	Risk	Certain	Ad
LOXAPROPRYLOL	Manifestation uncertain	Suspected	Ad
MORPHINE SULPHATE	Risk	Manifestation uncertain	Suspected
SULFIN (SULFINAMIDES)	Incidence happened again	Suspected	Ad

Adverse Drug Reaction

Adverse Drug Reaction	Additional Information	Level of Severity
		Ad
		Ad
		Ad
		Ad

Local drug information database

Mapped to MTT concepts



**Hospital C**

**Local system**

Treatment (Darabach, Adram - 07/07/2009 08:09 AM, GP-H&A)

PL Info Encounter Physical

Rx On Rx (S) U R dr P S Add Adverse Education Pop Up

Hypertension Others

Current Name: Furosemide Tablet 40mg Tablet 40mg Duration: 10 days Start: 07/07/2009 End: 17/07/2009

Start: 07/07/2009 End: 17/07/2009

Local drug information database

No mapping

The eHR sharing platform is able to group the level 3 allergy record.



CHAN YIM MAN (陳永文)

HKIC: UH987654(1)

DOB: 24-May-1958

Age: 54 years

Ward: 5A-X12

Hospital No.: 456789

# Who are the users of the Structured Alert Adaptation Module developed by eHR Office?

Allergy / Adverse Drug Reaction / Alert

Allergy

Add

New Allergy Details

☐ No Known Drug Allergy

Allergen / Allergen Group:

☐ Multiple-Ingredients products**Currently,**

**Evangel Hospital, Precious Blood Hospital and St. Teresa's Hospital**  
**are applying the SAAM in their own eMR system.**

**More is coming.....****Canossa Hospital****Department of Health****Hong Kong Adventist Hospital****Tsuen Wan Adventist Hospital****Union Hospital**

Adverse

Alert

Structured Text Match found

Log

Print

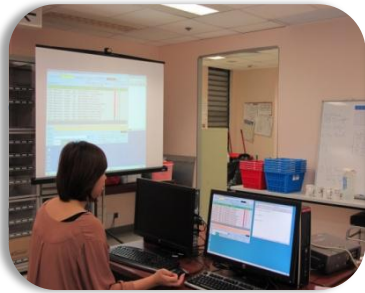
Close

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Cancel

# Implementation of the Structured Alert Adaptation Module

1. Work out the implementation plan that fits for local hospital
2. On-site training



3. On-site support



# Summary

- **What's** Structured Alert Adaptation Module?
  - Developed by eHR Office
  - To **capture electronic allergy record** and **share** these records with the future eHR system
- **How's** Structured Alert Adaptation Module?
  - **HKMTT** data is applied
  - **User-friendly** and **smart searching function**
- **Approach** of allergy record sharing
  - **Level 3**: Structured Alert Adaptation Module/ mapping with HKMTT
  - **Level 2**: local developed recording system

**Thank you.**