

Meaningful Use of Electronic Health Record Sharing System (eHRSS) Allergy Record to Enhance Medication Safety in Private Healthcare Sectors in Hong Kong

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Drug Allergy



Allergic reactions to drugs can result in serious and life-threatening consequences.

12% Medication error due to lack of understanding of drug allergies¹

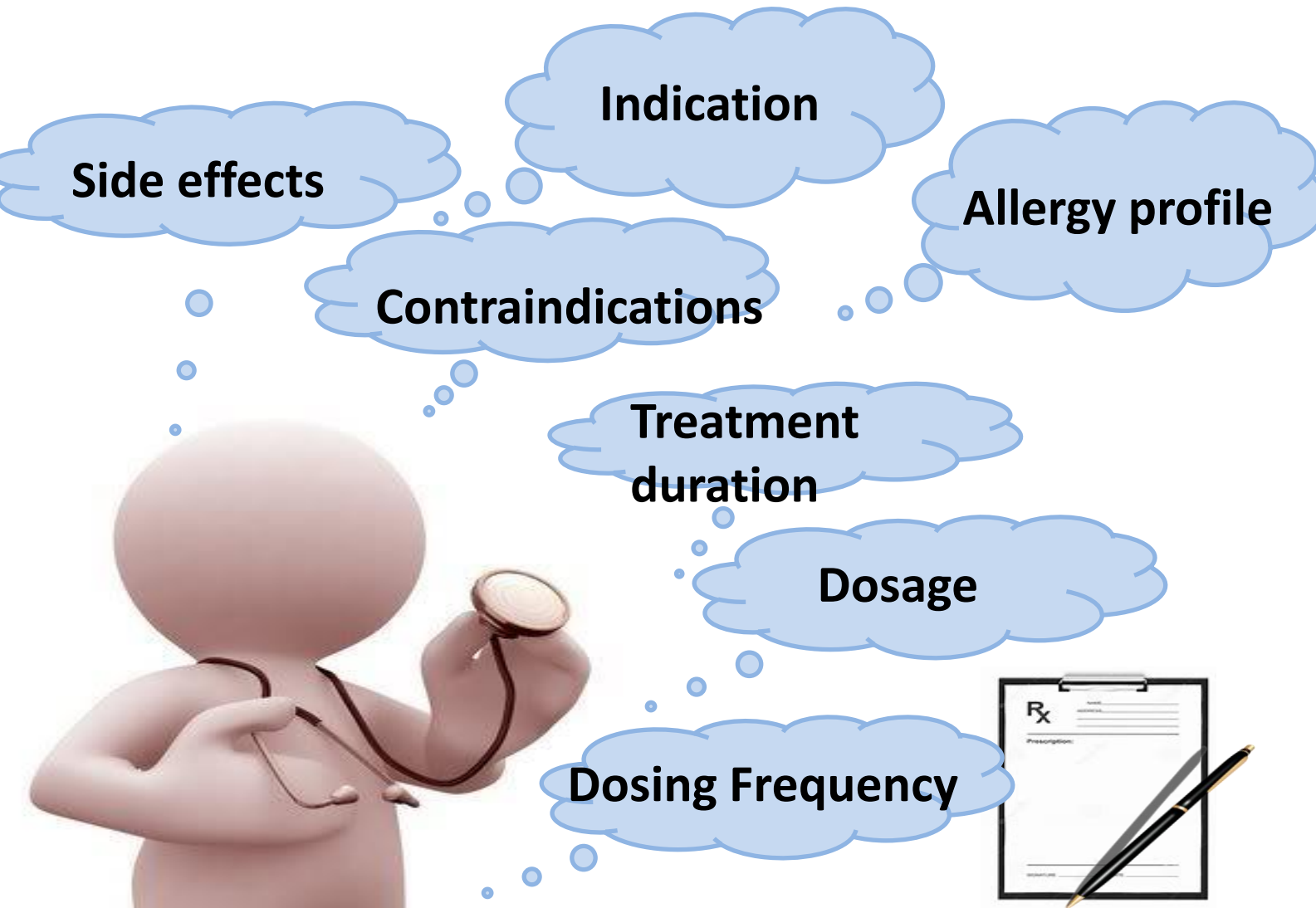
8-13% Medication errors preventable if allergy documented at the time of prescribing ²

Drug allergy information is important.

1. Lesar TS, Briceland L, Stein DS. Factors related to errors in medication prescribing. JAMA 1997;277:312–17.

2. Kuperman GJ, Marston E, Paterno M, et al. Creating an enterprise-wide allergy repository at Partners HealthCare System. AMIA Annu Symp Proc 2003:376–80.

Medication Decision Support



56% Reduction in medication errors

due to known allergies after implementing computerised provider order entry with clinical decision support (CDS) of allergy alerts³

Components of a Drug Allergy Checking System

1

Patient's allergy profile

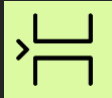
2

Medication orders
(e.g. CPOE applications)

3

Drug allergy checking system
(knowledge-based of semantic
links between ingredients)





Gap of a effective Drug Allergy Checking System



1

Patient's allergy profile

Complete

Accurate

Updated

Allergy Profile



3

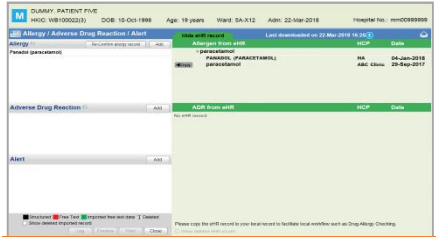
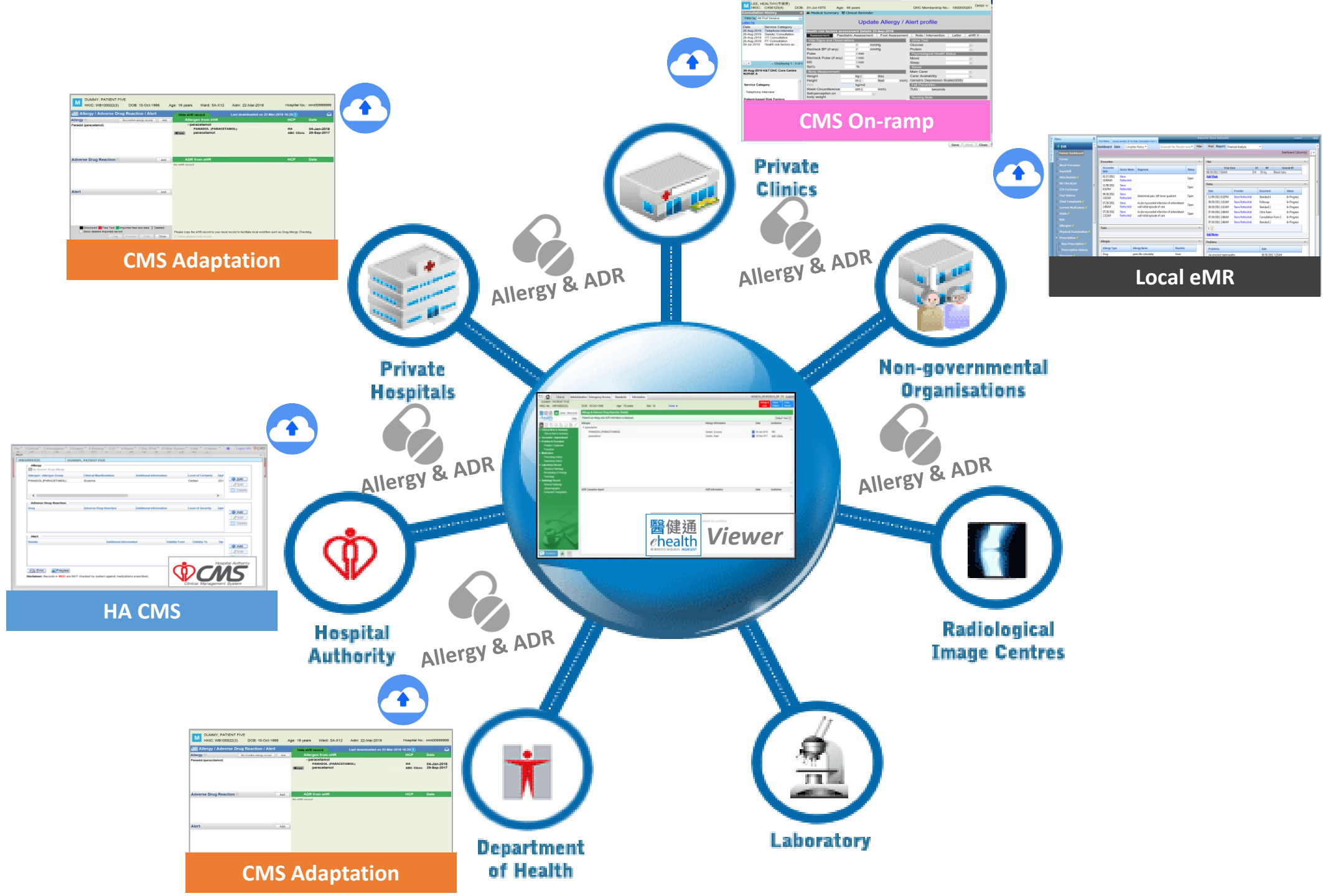
Drug allergy checking system
(knowledge-based of semantic
links between ingredients)

How to acquire a
complete allergy
profile for an effective
drug allergy checking
system?

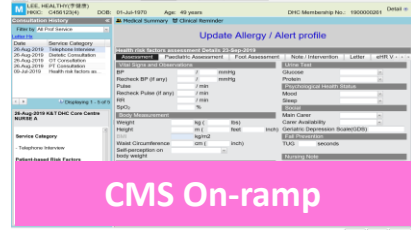


eHRSS is filling
the Gap.

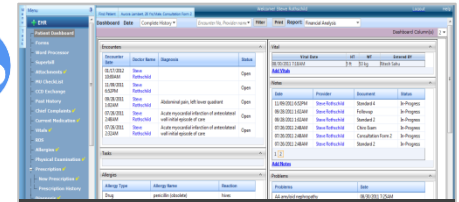




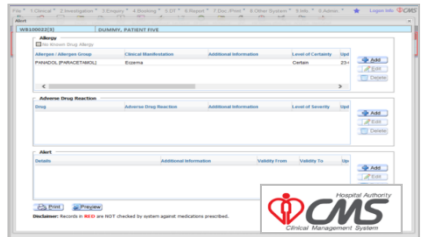
CMS Adaptation



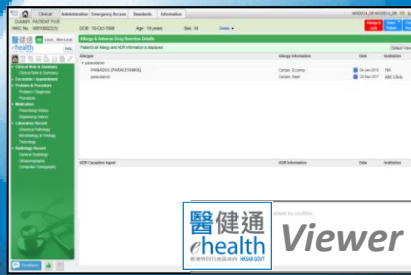
CMS On-ramp



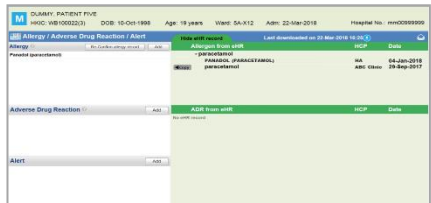
Local eMR



HA CMS



醫健通 health Viewer



CMS Adaptation



Private Hospitals



Private Clinics



Non-governmental Organisations



Radiological Image Centres



Laboratory



Department of Health

Hospital Authority



Allergy & ADR



Allergy & ADR



Allergy & ADR



Allergy & ADR

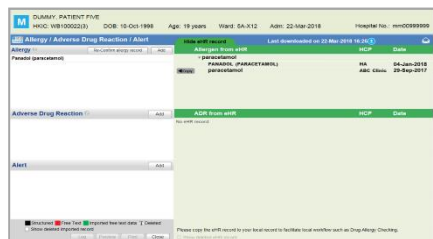


Allergy & ADR

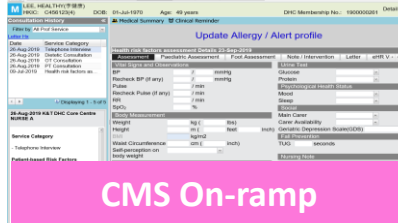
 Allergy

 ADR

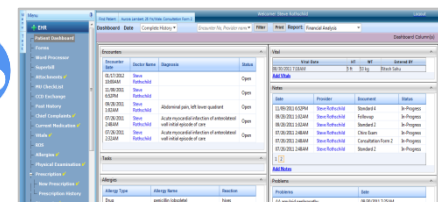
[>>>More](#)



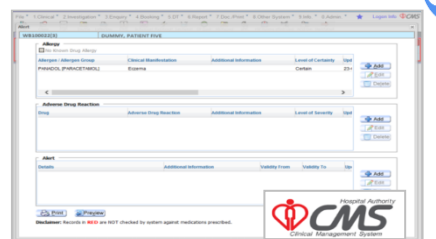
CMS Adaptation



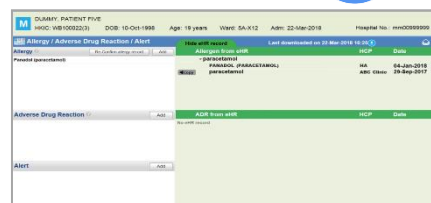
CMS On-ramp



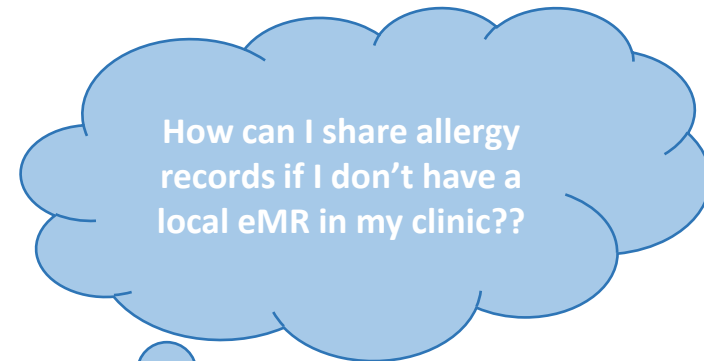
Local eMR



HA CMS



CMS Adaptation



No local electronic medical record (eMR) System



醫健通 health

Home Clinical Administration Emergency Access Standards Information

PPP, TESTER SIX
HKIC No. : TM000182(4) DOB : 31-Dec-1990 Age : 27 years Sex : M Details ▶

View / Add Allergy & ADR Select Patient Close Record

醫健通 health All Local Non-Local Help

Home Documents Reports Lab Tests Medication Allergy & ADR Encounter / Appointment

Allergy & Adverse Drug Reaction Details

Patient's all Allergy and ADR information is displayed. [Default View](#)

Allergen	Allergy Information	Date	Institution
No record, please verify with patient to confirm.			

[+ Allergy](#)

ADR Causative Agent	ADR Information	Date	Institution
No record, please verify with patient to confirm.			

[+ ADR](#) [Close](#)

Encounter / Appointment

Start Date	Specialty	Institution
No Record		

[Feedback](#) [Like](#) [Dislike](#)



Allergy and ADR Input Module

New Allergy Details

Allergen / Allergen Group: ☐ Multiple-Ingredients

- aspirin
- Aspi-Cor (aspirin)
- Aspilets (aspirin)
- Aspirin Protect 100 (aspirin)
- Bayer Aspirin (aspirin)
- Caspin (aspirin)
- Cortal Child Non-Asp
- Non-Aspirin Pain Re
- Vaspitor (atorvastatin)

1

Search by keyword

Allergy and ADR Input Module

Allergen / Allergen Group:

Level of Certainty

☒ Certain ☐ Suspected

Clinical Manifestation

Rash	
Lip swelling	x
Allergic dermatitis	x
<input type="text" value="Search here..."/>	

Quick list:

- ☐ Angioedema
- ☐ Dyspnoea (SOB)
- ☐ Eyelid swelling
- ☐ Other swelling
- ☐ Pruritus (Itching)
- ☒ Rash
- ☐ Urticaria
- ☐ Manifestation uncertain

Additional Information of the Allergy Record

Save Undo Close

2

Input details and [Save]





Built-in-smart search



Efficient documentation



Able to update and delete

Home

Clinical

Administration

Emergency Access

Standards

Information

PPP, TESTER SIX

HKIC No. : TM000182(4)

DOB : 31-Dec-1990

Age : 27 years

Sex : M

Details ▶

醫健通
ehealth

All Local Non-Local

Help

Home

Documents

Calendar

Dx

Prescriptions

Lab Tests

Immunizations

Referrals

Prescriptions

Referrals

Allergy & Adverse Drug Reaction Details

Patient's all Allergy and ADR information is displayed. Default View

Allergen	Allergy Information	Date	Institution
▼ aspirin			
aspirin	Certain, Allergic dermatitis, Lip swelling, Rash	29-Jun-2018	VUC4_A

+ Allergy

ADR Causative Agent

ADR Information

Date

Institution

No record, please verify with patient to confirm.

+ ADR

Close

Encounter / Appointment

Details ▶

Start Date	Specialty	Institution
No Record		

View / Add Allergy & ADR

Select Patient

Close Record

Allergy Information

Certain, Allergic dermatitis,...

ADR Information

th patient to confirm.

Feedback

MICKEY FOO

(Logout)

No

Doctor Avatar

Record reflected in eHR Viewer immediately



284

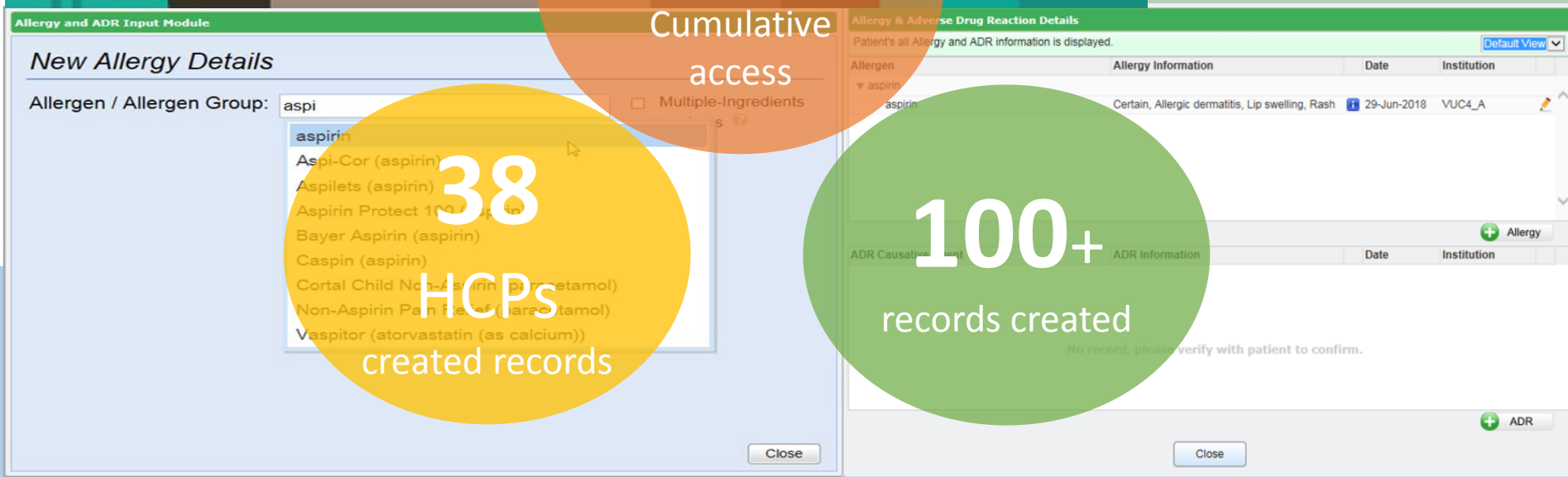
Cumulative
access

38

HCPs
created records

100+

records created

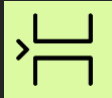


Mar 2016

Oct 2018

May 2019

Today



Gap of a effective Drug Allergy Checking System



Complete, accurate and update allergy profile

1

Patient's allergy profile

Records in eHRSS



Records in local eMR



?

3

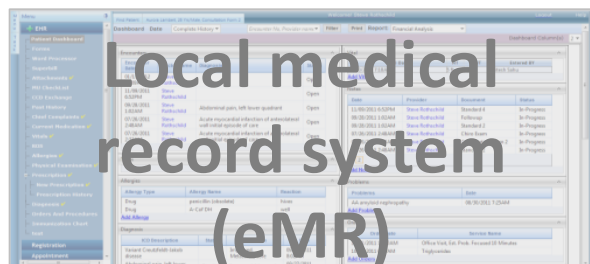
Drug allergy checking system
(knowledge-based of semantic links between ingredients)

How to make use of complete eHRSS allergy profile in a drug allergy checking system?

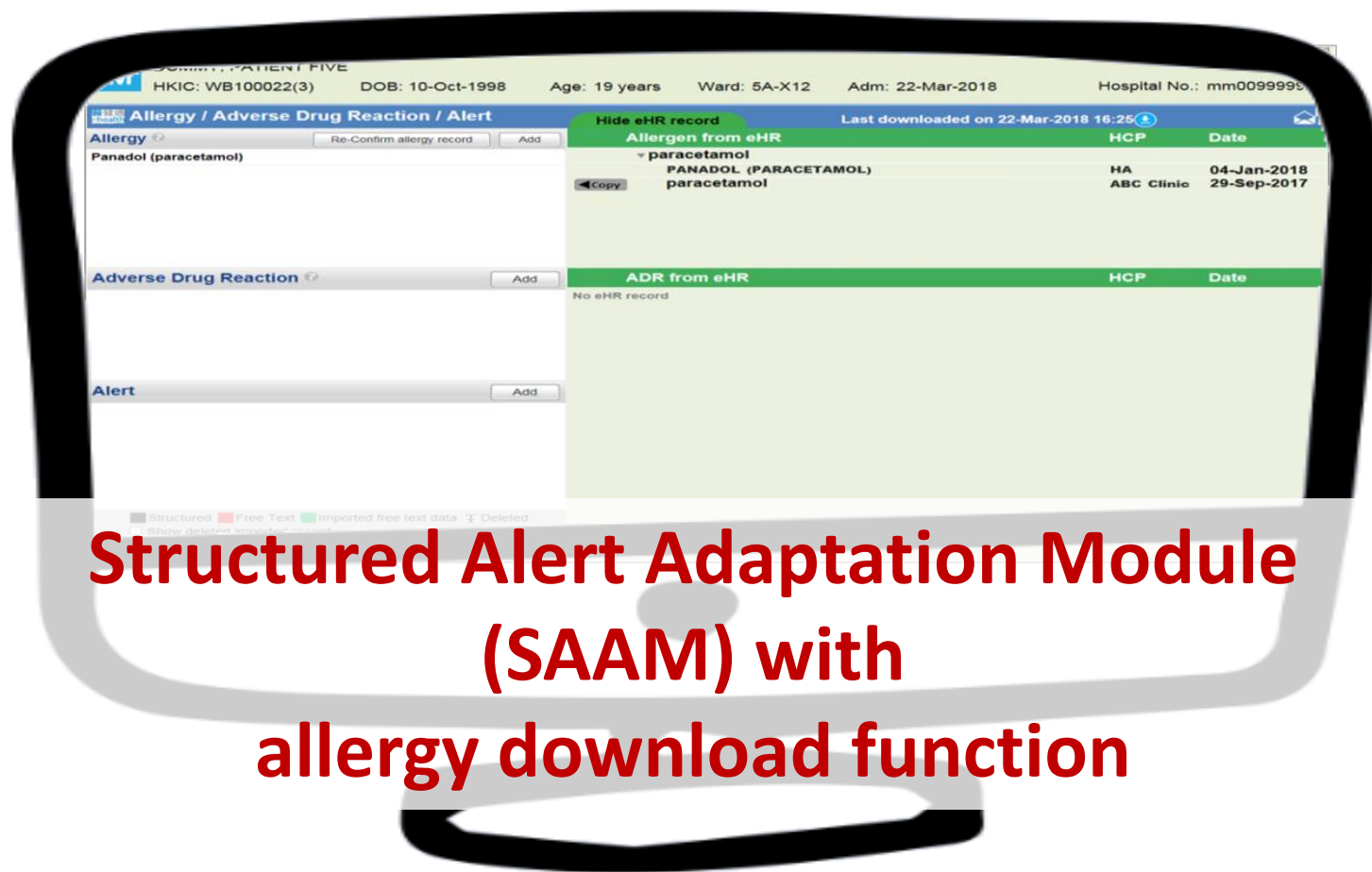


eHRSS is filling the Gap.



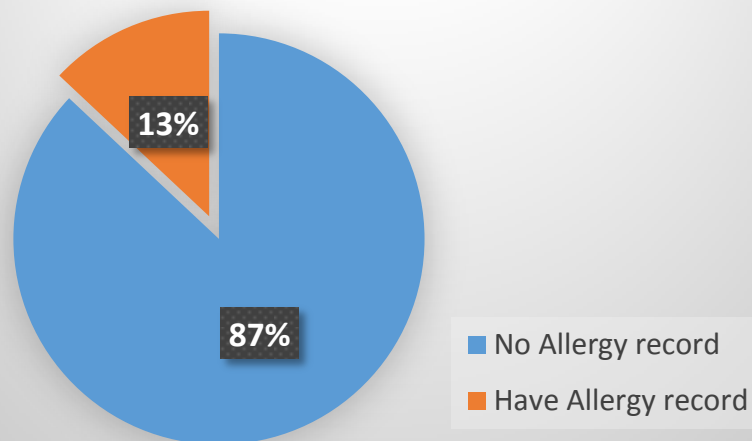


+





Allergy record distribution



Allergy & ADR Record in eHR Viewer

Allergy & Adverse Drug Reaction Details

Patient's all Allergy and ADR information is displayed. Default View

Allergen	Allergy Information	Date	Institution
▼ aspirin			
aspirin	Certain, Allergic dermatitis, Lip swelling, Rash	29-Jun-2018	VUC4_A

ADR Causative Agent	ADR Information	Institution

Read and recognized by system directly

197,389
72%
Allergy records in eHRSS
Allergy records are structured and encoded



M DUMMY, PATIENT FIVE
HKIC: WB100022(3) DOB: 10-Oct-1998 Age: 19 years Ward: 5A-X12 Adm: 22-Mar-2018

Hide eHR record Last downloaded on 22-Mar-2018 16:26

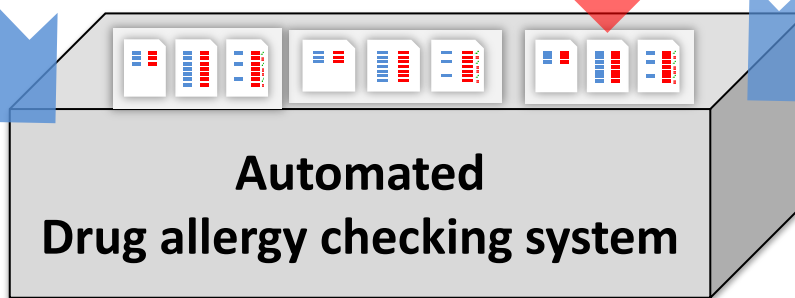
Allergy / Adverse Drug Reaction / Alert	
Alleg	ADR
Paracetamol (paracetamol)	
No eHR record	

Allergen from eHR	
HA	Date
PARADOL (PARACETAMOL)	04-Jan-2018
paracetamol	29-Sep-2017

ADR from eHR	
HCP	Date
No eHR record	

Structured Alert Adaptation Module (SAAM)

Allergy information



Automated Drug allergy checking system

Drug Allergy Checking

This patient has **CERTAIN** drug allergy to **aspirin** reported in **eHR Sharing System**. The clinical manifestation was **rash**.

Cartia (aspirin) gastro-resistant tablet may result in **ALLERGIC REACTION**.

If you wish to prescribe anyway, you must provide the reason(s) for overriding this alert:

- ☐ Patient is administering this drug without allergy reaction
- ☐ No other alternative available
- ☐ Desensitizing the patient with this drug
- ☐ Doubts about the reported history of drug allergy
- ☐ Patient can tolerate the drug at lower dose
- ☐ Others (Please specify reason below)

Remark

DAC prompt

Medication

Point to note

Non-structured record (28%) are not covered.

Measures have to be considered for a clear checking scope to users.



Conclusion: Meaningful Use of Allergy Record



04 || Meaningful use of data

Apply in Medication Decision Support



03 || Access to the
shared record

Allergy Download



02 || Data sharing in eHRSS

eHR Sharing
System



01 || Structural documentation
of Allergy record

Directly input allergy
records in eHR Viewer

