Management of eHR Data with Standards

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Discussion

- Introduction
- eHR information standards
  - Type
  - Role
- Management of data sharing

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eHR – Objectives

- Improve efficiency and quality of care
- Improve continuity and integration of care
- Enhance disease surveillance
- Redress public-private imbalance

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eHR Data Sharing

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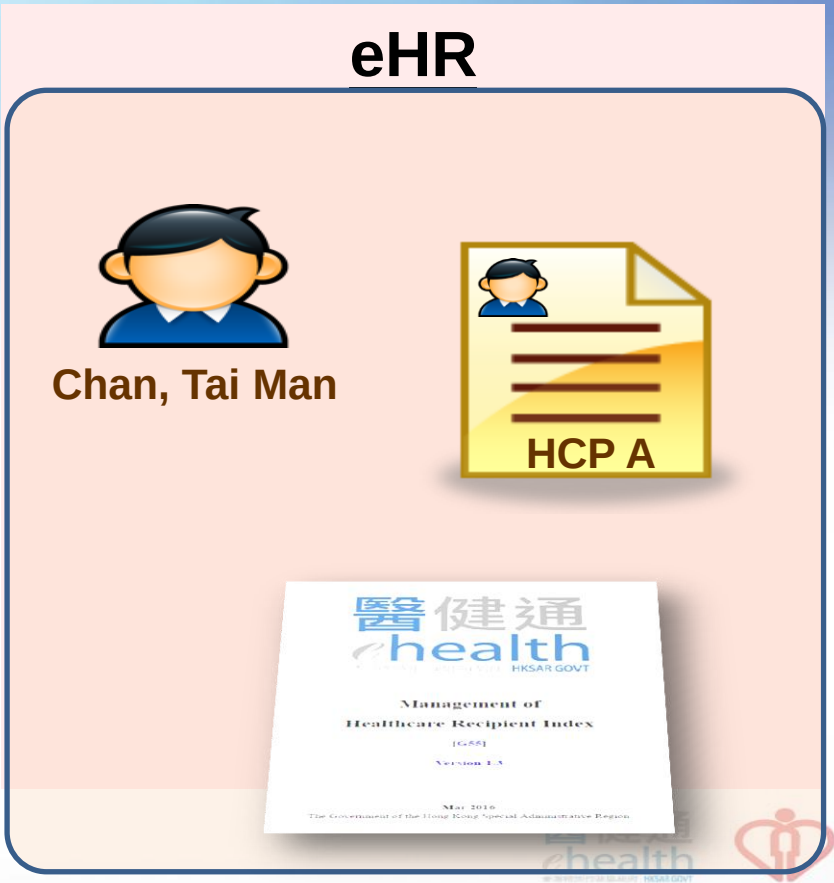
PMI – Impact to eHR



eHR PMI

Major Keys

For identifying a particular person

Data Item	Hong Kong Identity Card Holder	Non-Hong Kong Identity Card Holder
Hong Kong Identity Card number	Y	
English name	Y	Y
Sex	Y	Y
Date of birth	Y	Y
Type of identity document		Y
Identity document number		Y

Management of eHR Data

Patient Safety Data Privacy

Valid HCR registration status

Valid HCR-HCP consent status

Matched eHR-HCP PMI records

Correct patient record at HCP

Preparation at HCP

PLEASE UPDATE

Consented HCR list

1) HCP major keys
2) eHR major keys + eHR no.
3) Registration status
4) Consent status
5) Problem record status

Right Patients

- Registration using SmartID
- Vetting by Registration Office
  - eHR registration unmatched with that of Hospital Authority (HA)
  - Non-HA patients
- Management of problem records

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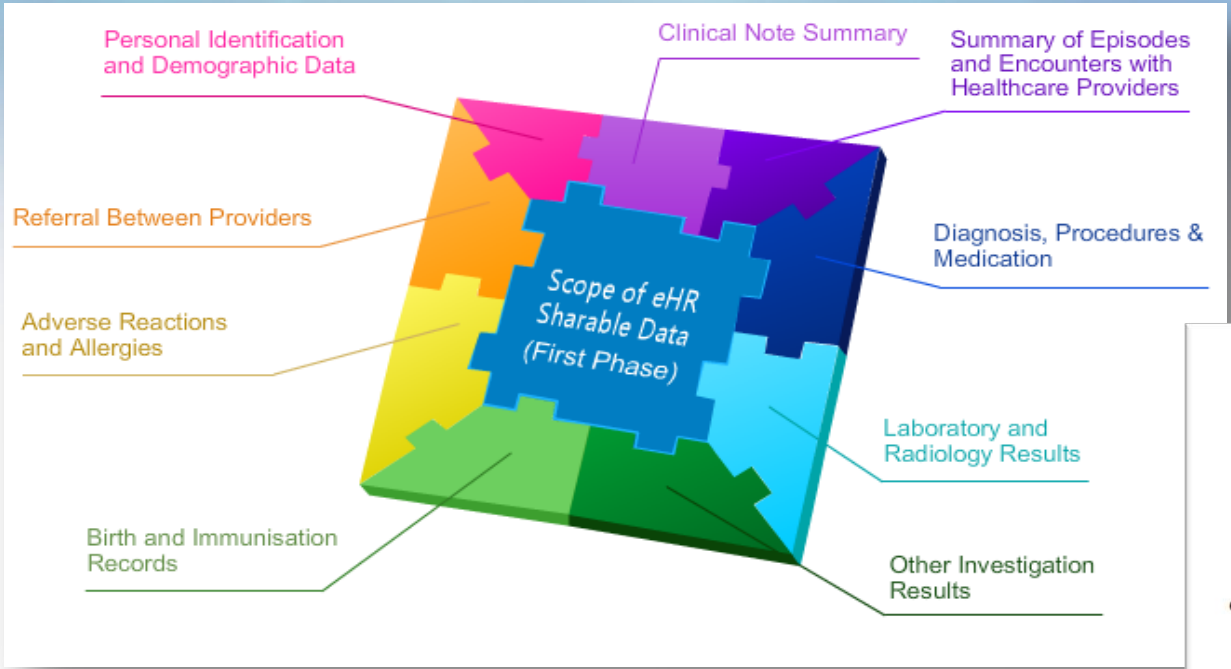
eHR Sharable Scope



Influenza Vaccine

Automated paper

1

Immunisa-tion Record in PDF

Vaccine	
6089348	Influenza vaccine

3

Fully Interoperable eHR

2

Vaccine
Flu

Structured data (local terms)

eHR Content Standards Guidebook

HKCTT	
6089347	Hepatitis vaccine
6089348	Influenza vaccine

Standard vs Local

Hospital Code	TMH	NDH	PWH	AHN	PYN	KWH	NDH
Collect Date	15/01/2011	16/02/2011	18/04/2011	13/05/2011	16/07/2011	11/09/2011	15/11/2011

Presented with Standard Terminology

Bilirubin, Total	6	---	6	4	---	6	13

Without Standardisation

	TMH	NDH	PWH	AHN	PYN	KWH	NDH
BIL	6						
BIL							13
TB				4			
TBIL			6			6	

Laboratory Tests in eHR

Clinical | Administration | Standards | Information

UPPPDOCTOR022 UPPPDOCTOR022 (Logou

BUS CASE, ABC
ID Doc No. : BS0ABCDEF DOB : 25-Feb-1956 Age : 60 years Sex : M Details ►

Allergy & ADR | Select Patient | Close Record

醫健通 ehealth | All | Local | Non-Local | Help

- Medication
  - Dispensing History
- Laboratory Record
  - Chemical Pathology
  - Haematology
  - Immunology
  - Microbiology & Virology
  - Anatomical Pathology
  - Toxicology
  - Transplantation & Immunogenetics
  - General & Other
- Radiology Record
  - General Radiology
  - Ultrasonography
  - Computed Tomography
  - Breast Imaging
  - Magnetic Resonance Imaging

Laboratory Record

Date View | Document View | Laboratory: All | Period: All | Default View

Date	Profile Description	Institution
04-May-2016	LFT A	ADV TEST
04-May-2016	CBC, Differential	TWADV TEST
04-May-2016	Liver Funct. T, Renal Funct. T, eGFR	TWADV TEST

Laboratory Cumulative Result(s)

Last 1 year | Page 1 of 187

Institution	TWADV TEST	ADV TEST	TWADV TEST	ADV TEST	TWADV TEST	TWADV TEST
Date	04-May-2016 09:57	04-May-2016 09:31	04-May-2016 09:15	04-May-2016 09:08	04-May-2016 08:55	04-May-2016 08:51
PDF Report						
Sodium, Serum or Plasma	142	135		139	138	
Potassium, Serum or Plasma	3.8	4.0		4.5	4.1	
Chloride, Serum or Plasma	103	100		106	100	
Bicarbonate, Serum		27		30		
Urea, Serum or Plasma		5.0		8.1		
Creatinine, Serum or Plasma	52	96		123 ↑	77	
Glomerular filtration rate/1.73 sq M.predicted, Creatinine-based formula (MDRD)		≥60		52 ↓		
Protein, Serum or Plasma	67					
Albumin, Serum or Plasma	45					
Globulin, Serum, Calculated						

Creatinine, Serum or Plasma 123 μmol/L
Reference Range: 71 - 115

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Interface Specification

Data Requirement Specification

Technical Interface Specifications (Message & Bulk-load)

5	Laboratory test general result data							
5.1	Laboratory test name - recognised terminology name	Name of the recognised terminology set for general laboratory test name.	string(20)	• HKCTT • LOINC	N/A	N/A	N/A	N/A
5.2	Laboratory test name identifier - recognised terminology	Unique identifier of general laboratory test name in the recognised terminology.	string(50)		N/A	N/A	N/A	N/A
5.3	Laboratory test name description - recognised terminology	Description of General Laboratory Test Name in the recognised terminology. It should be the corresponding description of the [Laboratory test name identifier - recognised terminology].	string(255)	For HKCTT, use "eHR Description" For LOINC, use "Long Common Name"	N/A	N/A	N/A	N/A
5.4	Laboratory test name local code	Local code for the general laboratory test name issued by the performing laboratory.	string(50)		N/A	N/A	O	N/A
5.5	Laboratory test name local description	Local description for the general laboratory test name issued by the performing laboratory.	string(255)		N/A	N/A	M	N/A

Inter-
operable
Data

Hong Kong Clinical Terminolgy Table

SNOMED CT

HKCTT

Diagnosis

Drug

Laboratory

Others

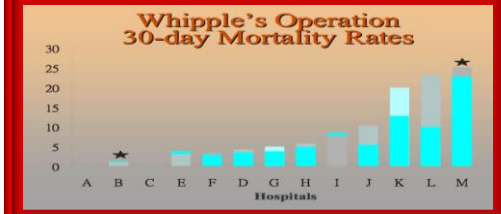
ICPC2

ICD 10

Registered Pharma Products

LOINC®

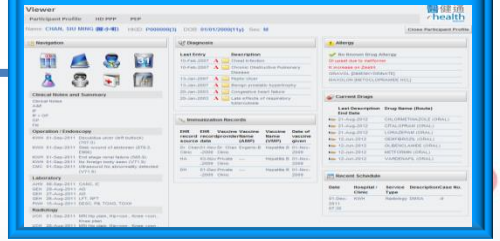
Secondary Use



Clinical Data Repository

eHR

eHR



HKCTT in CMS On-ramp

Discharge Diagnosis (new) History Favourite

P	?	Description
		Pneumonia
		Gastritis
		fever

Fever
Pyrexia of unknown origin
Fever >38C after first 24 hours, post-operation
Fever >38C for 48 hours, postoperative
Fever >38C in first 24 hours, post-operation
Fever, drug related

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Medicati

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Problem in eHR Viewer

黃刑瑞 WONG, ING SHEU
HKIC : UH9773127 DOB : 04-Jan-1887 Age : 126 years Sex : M Details ► Allergy & ADR

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All | HA | Non-HA | Legend

- Clinical Note & Summary
  - Clinical Note & Summary
  - Referral
  - Birth Record
- Encounter
- Problem & Procedure
  - Problem / Diagnosis
  - Procedure
  - Investigation Report
- Medication
  - Prescribing History
  - Dispensing History
- Radiology Record
  - Fluroscopy
  - Computed Tomography
  - PET / CT Fusion Imaging
- Immunisation Record

Problem

Date	Description	Institution
10-Feb-2012	Diabetes Mellitus	AHN
10-Feb-2012	Type II DM with background retinopathy	AHN
10-Feb-2012	Type II DM with over nephropathy	AHN
04-Jan-2004	Hepatitis	Hospital A
04-Jan-2004	Portal hypertension	Hospital A
04-Jan-2003	Acute upper respiratory infection	Hospital A
01-Feb-1999	Viral hepatitis	Dr Wong

Hepatitis

04-Jan-2004	Chronic viral hepatitis B infection	Hospital A
04-Jan-2004	Portal hypertension	Hospital A
09-Sep-2002	Chronic type B viral hepatitis	Dr Ho
09-Sep-2002	Ascites	Dr Ho
04-Dec-2000	Alcoholic hepatitis	Hospital C
03-Mar-1999	Chronic viral hepatitis B infection	Hospital B
03-Mar-1999	Portal hypertension	Hospital B
04-Feb-1999	Viral hepatitis	Dr Chan

ICD 10
SNOMED CT
ICD 10
HKCTT
ICPC2

Allergy Checking

Cloxacillin vs Amoxicillin

Medication order entry…

Drug Allergy Checking

This patient has **CERTAIN** drug allergy to amoxicillin (as trihydrate). The clinical manifestation was **angioedema**.

cloxacillin (as sodium) (Vickmans) may result in **ALLERGIC REACTION**.

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

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

Remarks

Prescribe with reason | Do not Prescribe

lergic to…

beta lactam antibiotics

CMS Adaptation Downloaded Allergen

eHRSS Allergy/ ADR Information

HCP's local eMR Information

F

CHAN, SIU LING(陳小玲)

HKIC: A123456(7) DOB: 01-Jan-2000 Age: 16 years Ward: 5A-X12

Adm: 01-Jan-2016 Hospital No.: Z1234567

Last Download on: 28-May-2014 16:28

Allergen from eHR	HCP	Date
paracetamol		
paracetamol	STH	03-Sep-2013
Panadol (paracetamol)	EH	01-Aug-2013
paracetamol	HKAH	05-Jul-2013
Augmentin	STH	04-Jul-2013
Panadol	SPH	02-Jan-2012
Ponstan	STH	03-Sep-2011
penilin	EH	03-Mar-2010

Local Allergen	Date
penicillin-->rash	28-May-2014
ponstan	28-May-2014
egg	28-May-2014

ADR from eHR	HCP	Date
No Record		

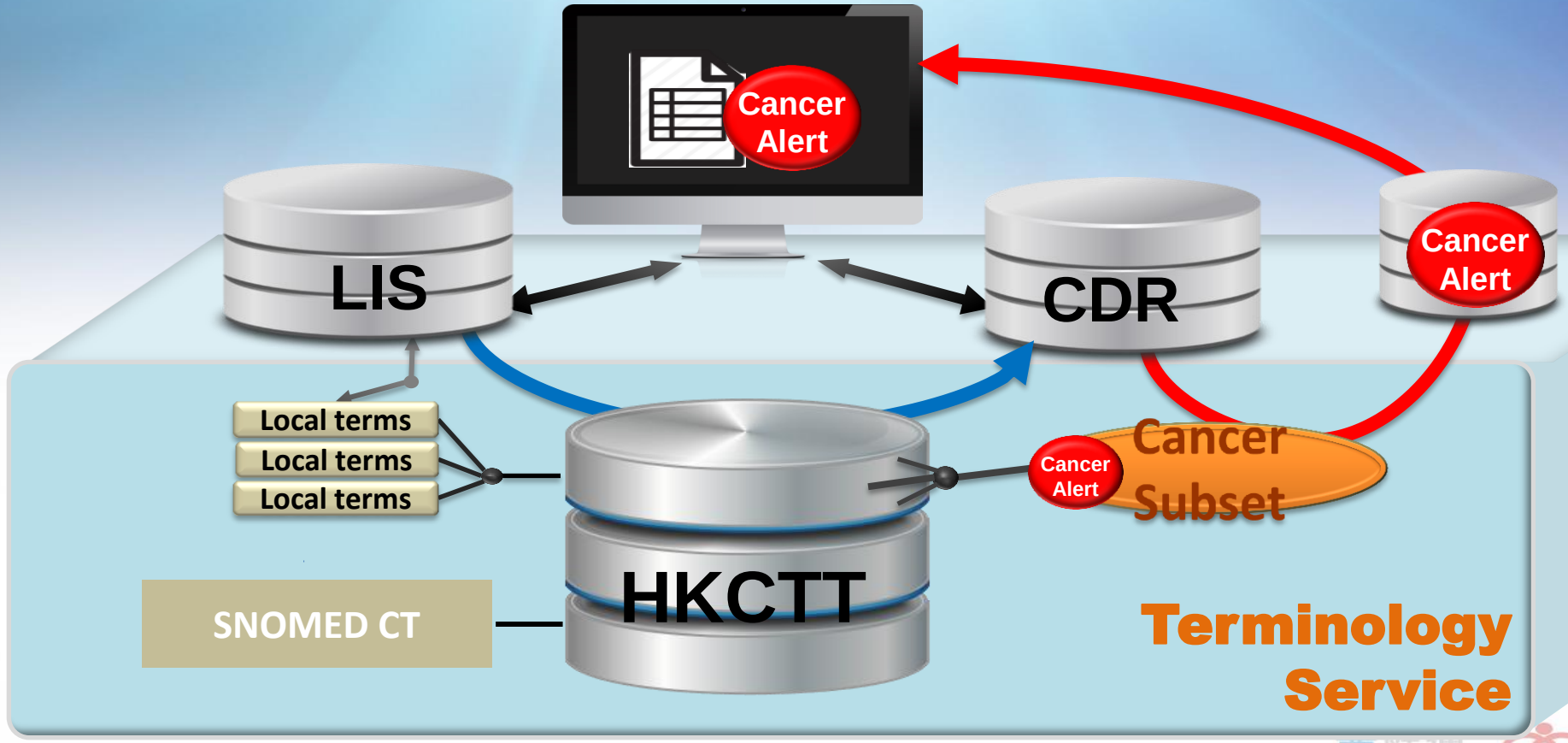
Local ADR	Date
No Record	

Show deleted record Structured Free Text Imported free text data

Remind me later

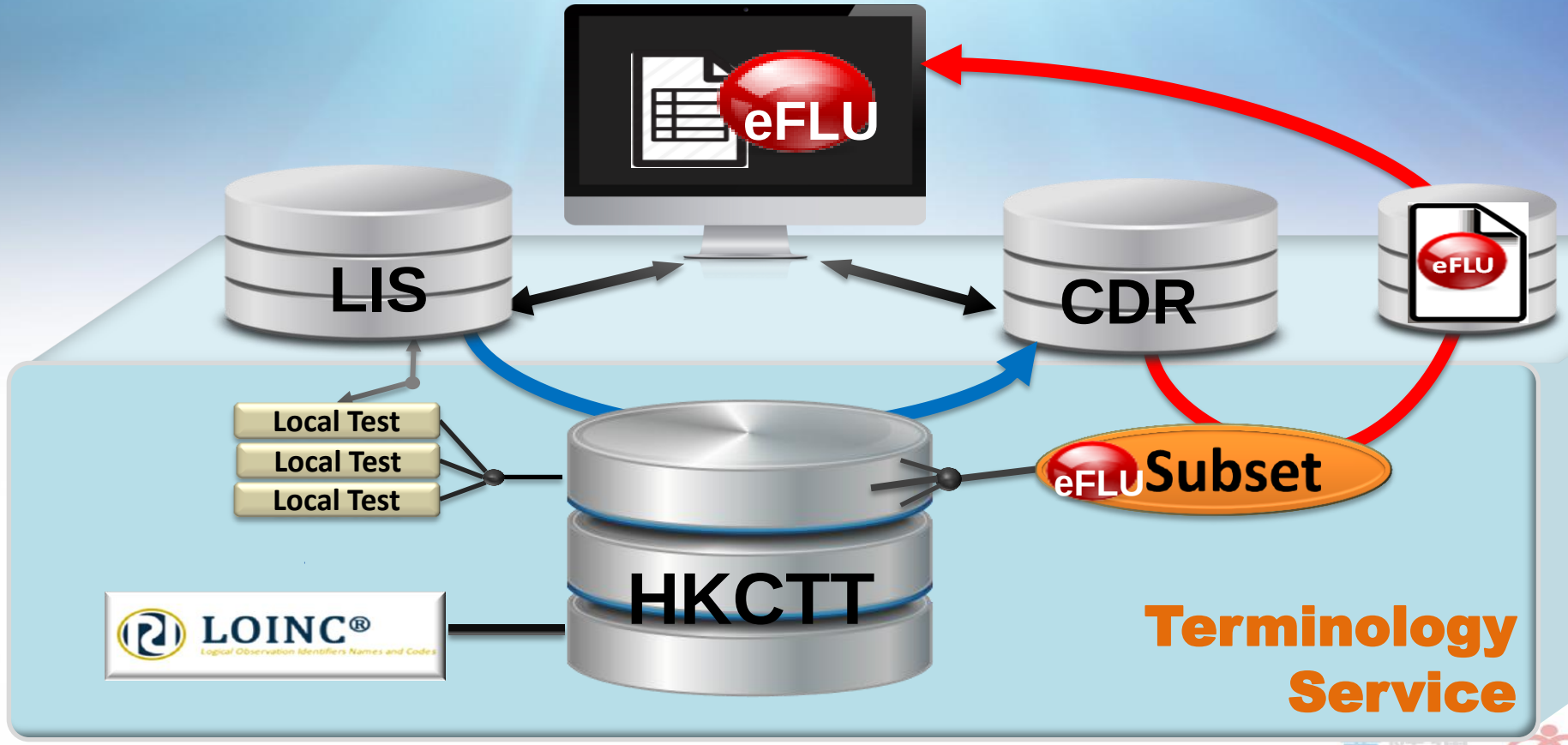
ehealth

Alert on Cancer Cases in Hospital Authority



HKCTT	Hong Kong Clinical Terminology Table
LIS	Laboratory Information System
CDR	Clinical Data Repository

Using LOINC in Supporting eFLU in Hospital Authority



HKCTT	Hong Kong Clinical Terminology Table
LIS	Laboratory Information System
CDR	Clinical Data Repository

Adoption of HKCTT

- Encourage early adoption
- Keep up-to-date
- Caution on mapping
  - eHRISO can provide training and advice
  - HCP be responsible for mapping quality

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Sharing Data to eHRSS
Preparation of Healthcare Providers

- Gap analysis
  - Compare the eHR defined dataset with local dataset
    - Correct interpretation of the eHR standards
  - Review the terminology to be shared
- Interface testing
  - Technical
- Experience eHR data sharing
  - Masked production data
  - Business scenarios

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Monitoring

- Data regraded
  - Non-compliance to the claimed standards
    - Level 3 → Level 2 / 1
    - Level 2 → Level 1
- Data rejection
  - Unmatched patient identifier
  - Non-compliance to standards

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Acknowledgement

- Working Group on eHR Content & Information Standards
- eHR Content & Information Standards Coordinating Group
- eHR Content & Information Standards Domain Groups
- CMS Adaptation Task Force
- Hospital Authority
- Department of Health

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Thank You