

Seminar on Recognised Terminology – Hong Kong
Clinical Terminology Table (HKCTT)

HKCTT Application for Problems & Procedures

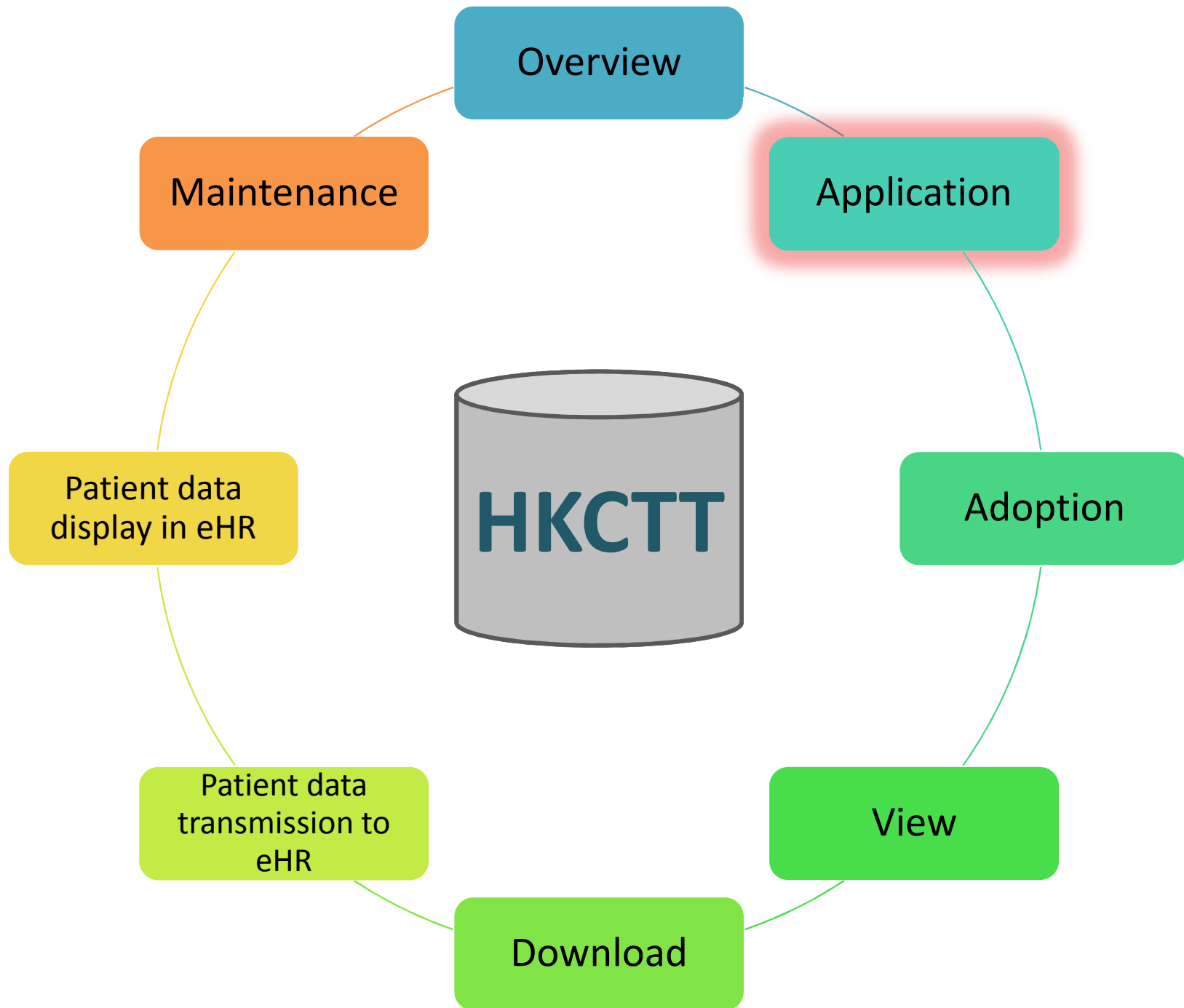
Edward TAM

Health Informatics Analyst

eHR Information Standards Office

16 April 2014

Terminology for eHR - HKCTT



Objectives

- To showcase the **benefits** of using HKCTT
- To outline the various **methods** of adopting HKCTT
- To highlight the **issues** on using HKCTT

Recognised Terminologies in eHR

- Hong Kong Clinical Terminology Table (HKCTT)
- International Classification of Diseases, 10th Revision (ICD 10)
 - International Classification of Diseases, 10th Revision (ICD 10), 2001 release
 - International Classification of Diseases, 10th Revision (ICD 10), 2010 release
 - International Classification of Diseases, 10th Revision (ICD 10), Mental Health & Behavioural Disorders (MBD)
- ^International Classification for Primary Care, 2nd Edition (ICPC2)
- Logical Observations, Identifiers Names and Codes (LOINC)
- Registered Pharmaceutical Products (RPP)
- Systematized Nomenclature of Medicine, Clinical Terms (SNOMED CT)

What is HKCTT?

HK Clinical Terminology Table

- based on:
 - HA Clinical Vocabulary Table
- concepts:
 - unique meaning
 - unique ID
 - mapped to Reference Terminologies
 - SNOMED CT, ICD10, ICPC2, ...

HK Clinical Terminology Table

- concepts
 - unique meaning

ID	meaning
3983	DM

ID	meaning
3987	Type 1 DM

ID	meaning
3985	Type 2 DM

HK Clinical Terminology Table

- concepts
 - unique meaning

ID	meaning
	Type 1 Type 2 DM

HK Clinical Terminology Table

- meaning
 - unique concepts

ID	meaning
3987	Type 1 DM

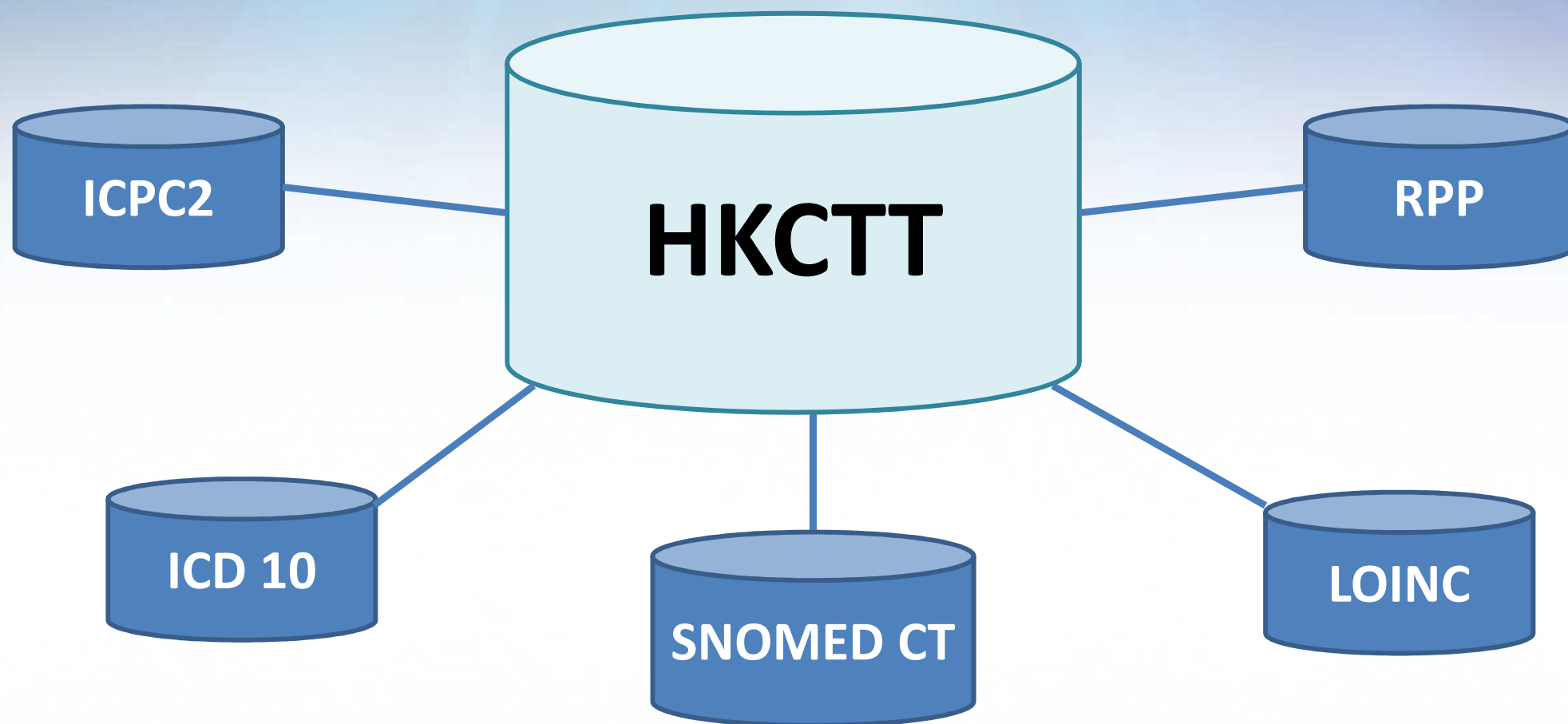
ID	meaning
	IDDM

HK Clinical Terminology Table

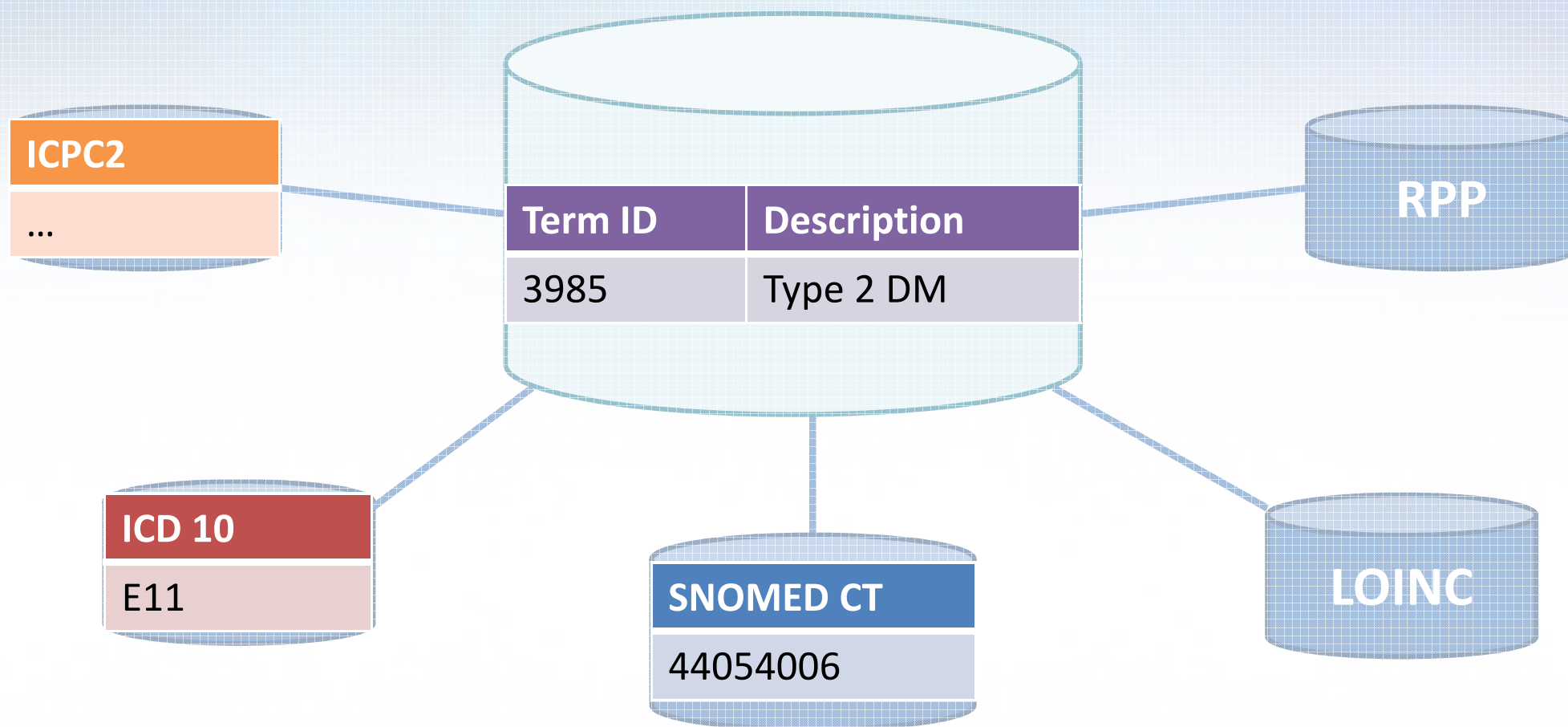
- meaning
 - unique concepts

ID	meaning
3987	Type 1 DM
	IDDM

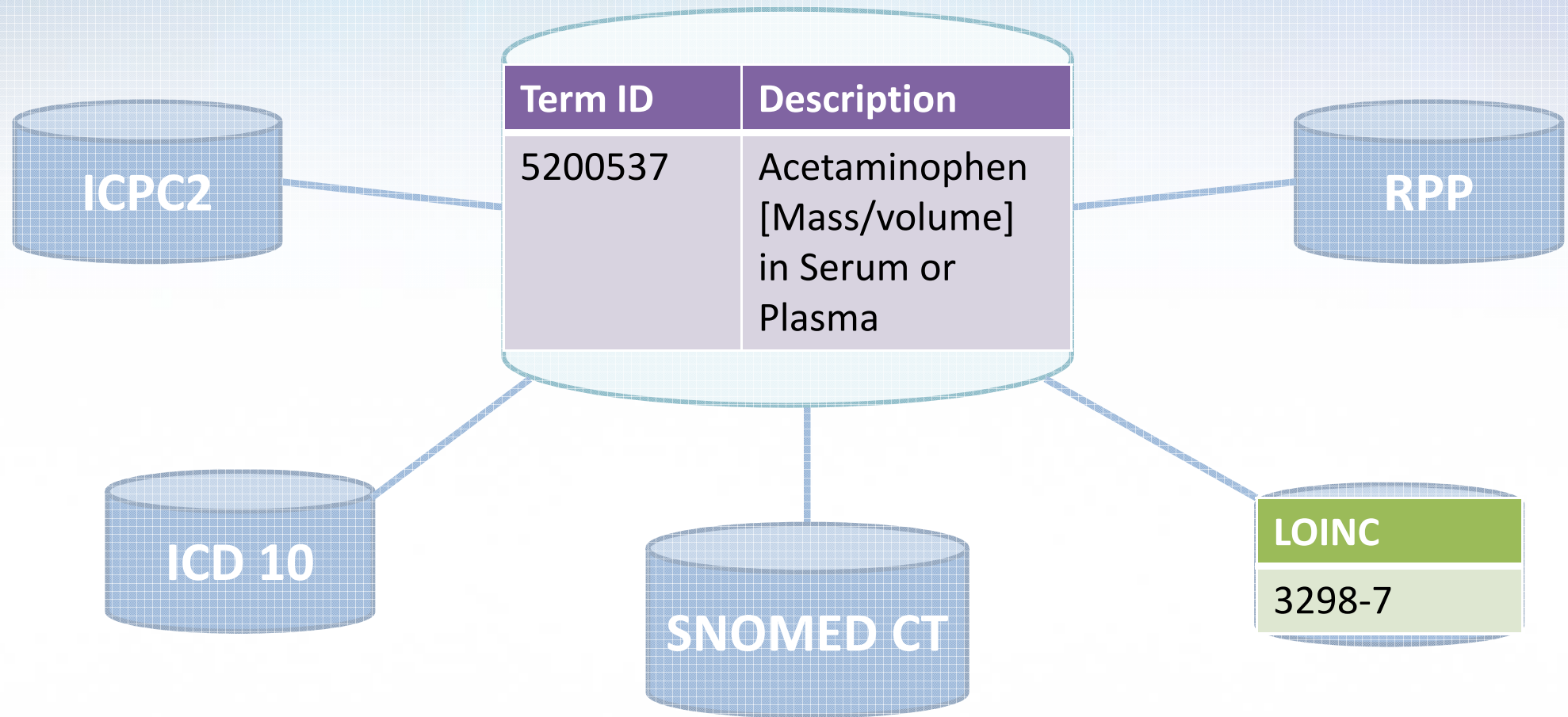
Design of HKCTT



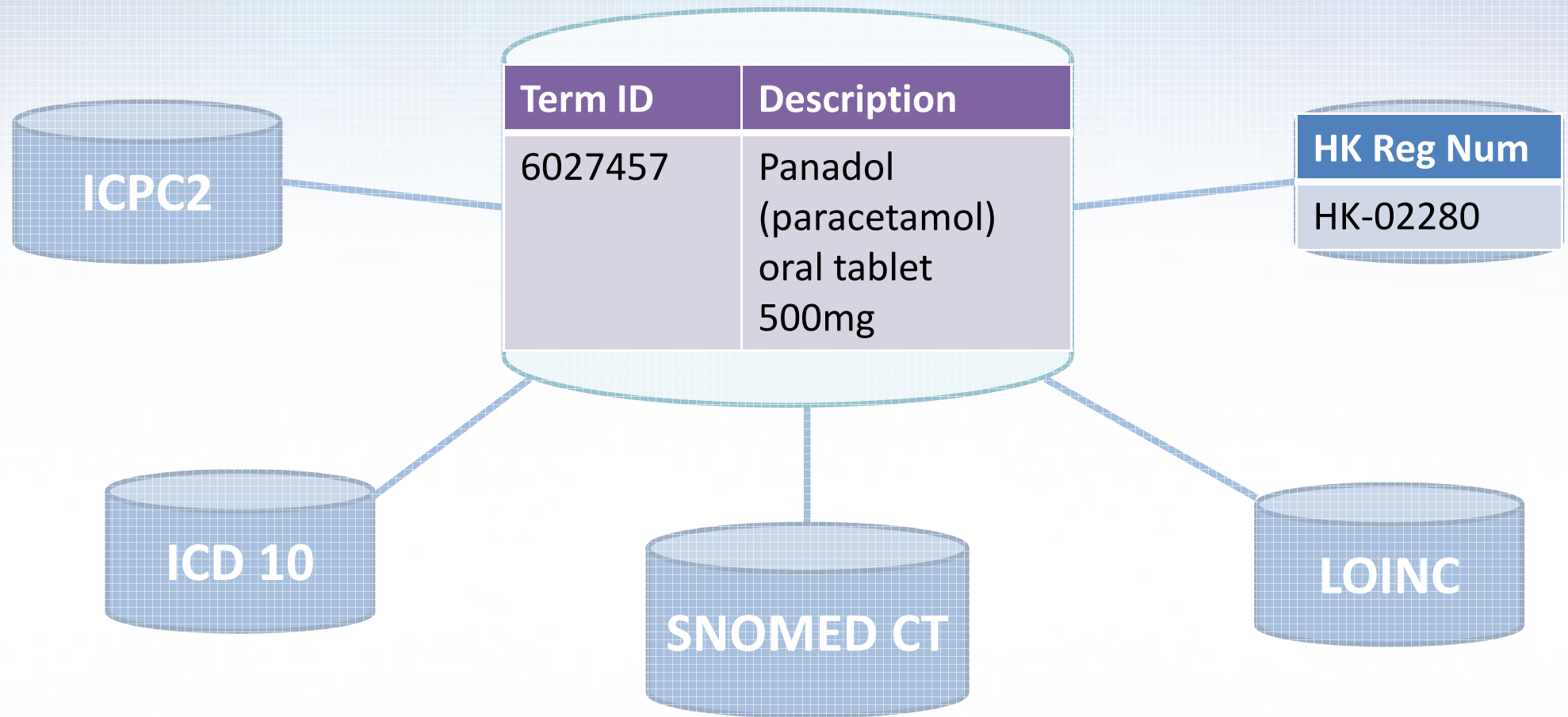
Design of HKCTT



Design of HKCTT



Design of HKCTT



HKCTT schema

- Term ID
- Descriptions
 - Descriptions / Aliases
- Reference Terminology Mappings
 - SNOMED CT / ICD10 / ICPC2 / ...
- Status
 - Active / Inactive

Why use HKCTT?

Why not use ICD10 in eHR?

- Using ICD10 in eHR:
 - Low granularity
 - Single names
 - Single hierarchy

Why not use ICD10 in eHR?

- Using ICD10 in eHR:
 - Low granularity

Patient	Actual Diagnosis	Diagnosis in EMR
001	Influenza	J11
002	Influenza A (H3)	J10.1
003	Influenza A (H2)	J10.1
004	Influenza A (H9)	J09
005	Influenza A (H7)	J09
006	Influenza A (H5) (avian influenza)	J09
007	Influenza A (H1) (swine flu)	J09

Why not use ICD10 in eHR?

- Using ICD10 in eHR:
 - Low granularity

Patient	Diagnosis in EMR
001	J11
002	J10.1
003	J10.1
004	J09
005	J09
006	J09
007	J09

Why not use ICD10 in eHR?

- Using ICD10 in eHR:
 - Single names

Patient	Actual Diagnosis	Diagnosis in EMR
001	Insulin-dependent diabetes mellitus	E10
002	Non-insulin-dependent diabetes mellitus	E11
003	IDDM	
004	NIDDM	
005	Type 1 DM	
006	Type 2 DM	

Why not use ICD10 in eHR?

- Using ICD10 in eHR:
 - Single names

Patient	Actual Diagnosis	Diagnosis in EMR
001	Insulin-dependent diabetes mellitus	E10
002	Non-insulin-dependent diabetes mellitus	E11
003	IDDM	
004	NIDDM	
005	Type 1 DM	
006	Type 2 DM	

Why not use ICD10 in eHR?

- Using ICD10 in eHR:
 - Single hierarchy

Patient	Actual Diagnosis	Diagnosis in EMR
001	Viral pneumonia	J12
002	Pneumonia	J13 - J18
003	TB pneumonia	
004	Influenza with pneumonia	
005	Aspiration pneumonia	
006	Abscess of lung with pneumonia	
007	Congenital pneumonia	

Why not use ICD10 in eHR?

- Using ICD10 in eHR:
 - Single hierarchy

Patient	Actual Diagnosis	Diagnosis in EMR
001	Viral pneumonia	J12
002	Pneumonia	J13 - J18
003	TB pneumonia	A16.0 , A16.2
004	Influenza with pneumonia	J10.0 , J11.0
005	Aspiration pneumonia	J69.0 , J69.1
006	Abscess of lung with pneumonia	J85.1
007	Congenital pneumonia	P23

Why use HKCTT in eHR?

- Using HKCTT in eHR for data capture:
 - Keyword search
 - Reference Terminology Code search

Why use HKCTT in eHR?

- Using HKCTT in eHR for data capture:
 - Keyword search

Description / Alias
Insulin-dependent diabetes mellitus
IDDM
Type 1 DM
Non-insulin-dependent diabetes mellitus
NIDDM
Type 2 DM

Why use HKCTT in eHR?

- Using HKCTT in eHR for data capture:
 - Keyword search

Description / Alias	HKCTT
Insulin-dependent diabetes mellitus	3987
IDDM	3987
Type 1 DM	3987
Non-insulin-dependent diabetes mellitus	3985
NIDDM	3985
Type 2 DM	3985

Why use HKCTT in eHR?

- Using HKCTT in eHR for data capture:
 - Keyword search

Description / Alias	HKCTT	ICD10
Insulin-dependent diabetes mellitus	3987	E10
IDDM	3987	E10
Type 1 DM	3987	E10
Non-insulin-dependent diabetes mellitus	3985	E11
NIDDM	3985	E11
Type 2 DM	3985	E11

Why use HKCTT in eHR?

- Using HKCTT in eHR for data capture:
 - Keyword search

Description / Alias
Influenza
Influenza A (H3)
Influenza A (H2)
Influenza A (H9)
Influenza A (H7)
Influenza A (H5) (avian influenza)
Influenza A (H1) (swine flu)

Why use HKCTT in eHR?

- Using HKCTT in eHR for data capture:
 - Keyword search

Description / Alias	HKCTT
Influenza	8477
Influenza A (H3)	31667
Influenza A (H2)	33272
Influenza A (H9)	31665
Influenza A (H7)	31664
Influenza A (H5) (avian influenza)	31181
Influenza A (H1) (swine flu)	34759

Why use HKCTT in eHR?

- Using HKCTT in eHR for data capture:
 - Keyword search

Description / Alias	HKCTT	ICD10
Influenza	8477	J11
Influenza A (H3)	31667	J10.1
Influenza A (H2)	33272	J10.1
Influenza A (H9)	31665	J09
Influenza A (H7)	31664	J09
Influenza A (H5) (avian influenza)	31181	J09
Influenza A (H1) (swine flu)	34759	J09

Why use HKCTT in eHR?

- Using HKCTT in eHR for data capture:
 - Ref. Term. (ICD10) Code search

ICD10

J09

Why use HKCTT in eHR?

- Using HKCTT in eHR for data capture:
 - Ref. Term. (ICD10) Code search

ICD10	Description / Alias	HKCTT
J09	Influenza A (H9)	31665
J09	Influenza A (H7)	31664
J09	Influenza A (H5) (avian influenza)	31181
J09	Influenza A (H1) (swine flu)	34759

Why use HKCTT in eHR?

- Using HKCTT in eHR for data capture:
 - Ref. Term. (SNOMED CT) Keyword search

Description

Pneumonia

Why use HKCTT in eHR?

- Using HKCTT in eHR for data capture:
 - Ref. Term. (SNOMED CT) Keyword search

Description	SNOMED CT
Pneumonia	233604007

Why use HKCTT in eHR?

- Using HKCTT in eHR for data capture:
 - Ref. Term. (SNOMED CT) Keyword search

Description	SNOMED CT	SNOMED CT	Description / Alias
Pneumonia	233604007	75570004	Viral pneumonia
		233604007	Pneumonia
		80003002	TB pneumonia
		195878008	Influenza with pneumonia
		422588002	Aspiration pneumonia
		196112005	Abscess of lung with pneumonia
		78895009	Congenital pneumonia

Why use HKCTT in eHR?

- Using HKCTT in eHR for data capture:
 - Ref. Term. (SNOMED CT) Keyword search

SNOMED CT	Description / Alias
75570004	Viral pneumonia
233604007	Pneumonia
80003002	TB pneumonia
195878008	Influenza with pneumonia
422588002	Aspiration pneumonia
196112005	Abscess of lung with pneumonia
78895009	Congenital pneumonia

Why use HKCTT in eHR?

- Using HKCTT in eHR for data capture:
 - Ref. Term. (SNOMED CT) Keyword search

SNOMED CT	Description / Alias	HKCTT
75570004	Viral pneumonia	8440
233604007	Pneumonia	8471
80003002	TB pneumonia	189
195878008	Influenza with pneumonia	8475
422588002	Aspiration pneumonia	8540
196112005	Abscess of lung with pneumonia	38981
78895009	Congenital pneumonia	15560

Why use HKCTT in eHR?

- Using HKCTT in eHR for data capture:
 - Ref. Term. (SNOMED CT) Keyword search

SNOMED CT	Description / Alias	HKCTT	ICD10
75570004	Viral pneumonia	8440	J12
233604007	Pneumonia	8471	J18
80003002	TB pneumonia	189	A16.2
195878008	Influenza with pneumonia	8475	J11.0
422588002	Aspiration pneumonia	8540	J69.0
196112005	Abscess of lung with pneumonia	38981	J85.1
78895009	Congenital pneumonia	15560	P23

Further use of HKCTT in eHR

- HKCTT enabling secondary use of eHR data:
 - Reporting to Department of Health
 - Statistical analysis

Further use of HKCTT in eHR

- HKCTT enabling secondary use of eHR data:
 - Reporting to Department of Health

Patient	Actual Diagnosis	HKCTT in EMR
001	Type 1 DM	3987
002	Type 2 DM	3985
003	Pneumonia	8471
004	TB pneumonia	189
005	Influenza A (H3)	31667
006	Influenza A (H2)	33272
007	Influenza A (H5) (avian influenza)	31181
008	Influenza A (H1) (swine flu)	34759

Further use of HKCTT in eHR

- HKCTT enabling secondary use of eHR data:
 - Reporting to Department of Health

Patient	Actual Diagnosis	HKCTT in EMR	ICD 10
001	Type 1 DM	3987	E10
002	Type 2 DM	3985	E11
003	Pneumonia	8471	J18
004	TB pneumonia	189	A16.2
005	Influenza A (H3)	31667	J10.1
006	Influenza A (H2)	33272	J10.1
007	Influenza A (H5) (avian influenza)	31181	J09
008	Influenza A (H1) (swine flu)	34759	J09

Further use of HKCTT in eHR

- HKCTT enabling secondary use of eHR data:
 - Statistical analysis

Patient	Actual Diagnosis	HKCTT in EMR
001	Type 1 DM	3987
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003	Pneumonia	8471
004	TB pneumonia	189
005	Influenza with pneumonia	8475
006	Aspiration pneumonia	8540
007	Abscess of lung with pneumonia	38981
008	Influenza	8477

Further use of HKCTT in eHR

- HKCTT enabling secondary use of eHR data:
 - Statistical analysis

Patient	Actual Diagnosis	HKCTT in EMR	SNOMED CT
001	Type 1 DM	3987	46635009
002	Type 2 DM	3985	44054006
003	Pneumonia	8471	233604007
004	TB pneumonia	189	80003002
005	Influenza with pneumonia	8475	195878008
006	Aspiration pneumonia	8540	422588002
007	Abscess of lung with pneumonia	38981	196112005
008	Influenza	8477	6142004

How to do data capture?

Data capture

- Keyword search
 - by Aliases
- RT Code search
 - by ICD10
 - by SNOMED CT
- (with on-Ramp as example)

Entering diagnosis

F CHAN, MAN MAN
HKIC: A123456(3) DOB: 01-Feb-1970 Age: 43 years Medical Record No.: PN13090 [Detail](#)

Consultation History << [Charts and Trends](#) [Immunisation Record](#) [Social History](#) [Clinical Reminder \[1\]](#)

Filter by: All
☐ Prescription [Attachment Hx](#) [Letter Hx](#)
☐ Tag

Date	Attending Reason
23-Jul-2013	Upper respiratory tract...
23-Jul-2013	Mechanical low back ...

Displaying 1 - 2 of 2

23-Jul-2013

Attending Reason [Copy](#)
- Upper respiratory tract infection

Clinical Notes [Copy](#)
RN, C, ST, HA, Fever x 3 days
No SOB / rash
Travel hx
Fam members well
No clustering in school
P/E: temp normal, no rash/ LN

Update Allergy / Alert profile

Consultation Details 24-Jul-2013

Tag:

Assessment **Diagnosis / Notes / Prescription** **Billing** **Letter** **Attachment**

☒ **Diagnosis**

Attending Reason

☐ **Diagnosis**

No items to show.

Chronic Problem

DX Date	Diagnosis	Status
No items to show.		

☒ **Procedure**

Procedure

☐ **Procedure**

Input diagnosis here

☒ **Prescription**

Save Prescription Re-edit Prescription

Drug Favourite Save as New Drug Set

Prescription History Delete Order

Drug Name

Adult

Drug	Price
No items to show.	

Save SignOff UnSign Print Close

Entering diagnosis

Diagnosis

Attending Reason **URTI** ▼

☐ **Diagnosis**

- Upper respiratory tract infection
- Acute Upper respiratory tract infection
- Angioedema
- Urticaria
- Allergic urticaria
- Idiopathic urticaria
- Cholinergic urticaria
- Dermatographic urticaria
- Pruritus urticarial papules and plaques fo...

Procedure

Procedure **Se**

☐ **Procedure**

1.
Enter
keywords

2.
Select from
retrieval result

How to make secondary use of data?

Secondary use of data

- Reporting to Department of Health
 - with ICD10 mapping
- Statistical analysis
 - with ICD10 mapping
 - with SNOMED CT mapping



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Number of notifications for notifiable infectious diseases in 2014

Disease	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Acute poliomyelitis	0	0											0
Amoebic dysentery	0	4											4
Anthrax	0	0											0
Bacillary dysentery	6	1											7
Botulism	0	0											0
Chickenpox	1084	746											1830
Chikungunya fever	0	0											0
Cholera	0	0											0
Community-associated methicillin-resistant <i>Staphylococcus aureus</i> infection	68	69											137
Creutzfeldt-Jakob disease	0	0											0
Dengue fever	1	6											7
Diphtheria	0	0											0
Enterovirus 71 infection	0	4											4
Food poisoning	Outbreaks	39	10										49
	Persons affected	200	28										228
<i>Haemophilus influenzae</i> type b infection (invasive)	1	0											1
Hantavirus infection	0	0											0
Japanese encephalitis	0	0											0



Department of Health

The Centre for Health
Protection is a
professional arm of the
Department of Health for
disease prevention and
control



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Statistics on dengue fever, 2014

Month	Imported Cases	Local Cases	Total
Jan	1	0	1
Feb	6	0	6
Mar			
Apr			
May			
Jun			
Jul			
Aug			
Sep			
Oct			
Nov			
Dec			
Total	7	0	7

Remark :

Figures in February are provisional figures.



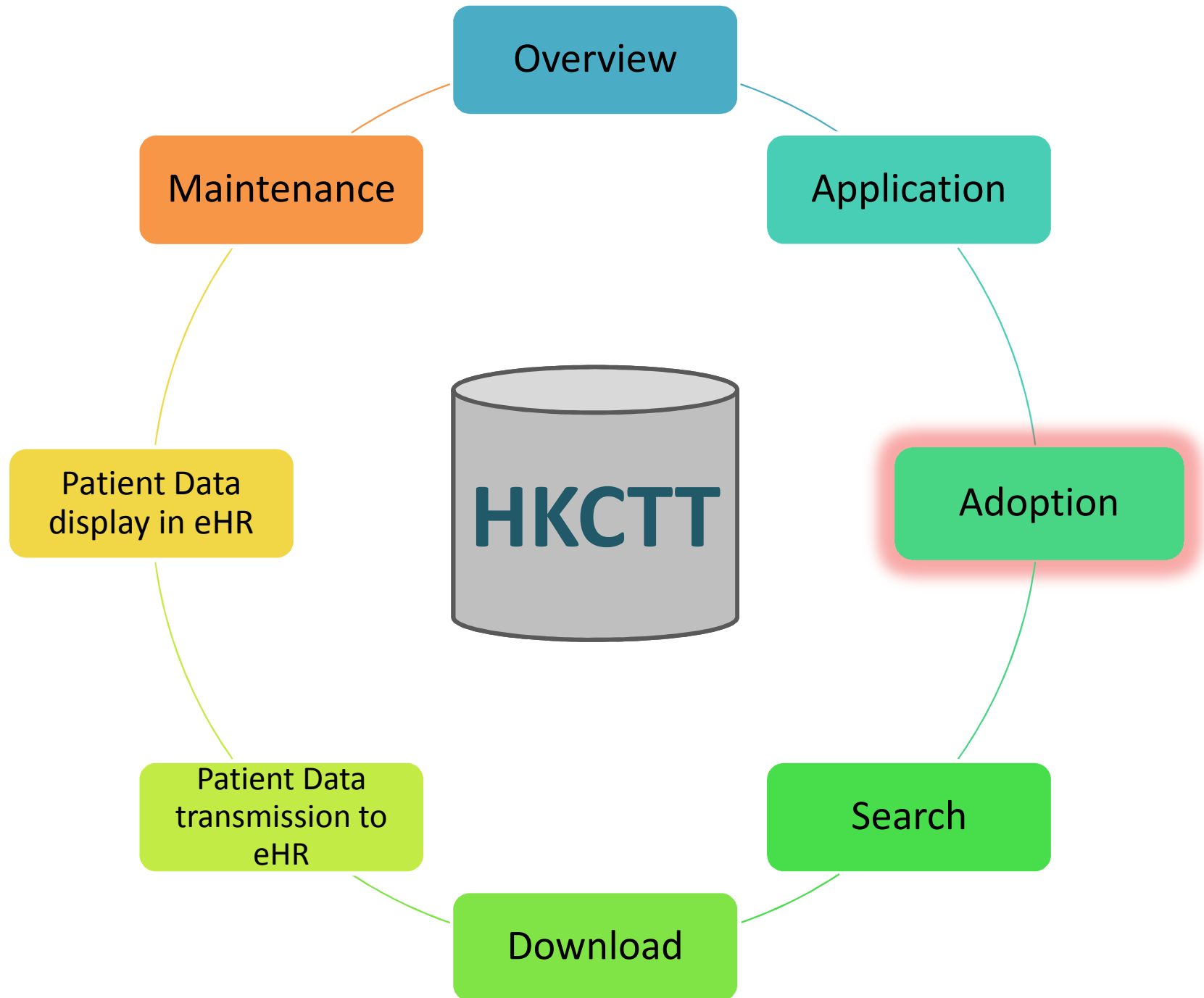
Department of Health

*The Centre for Health
Protection is a
professional arm of the
Department of Health for
disease prevention and
control*

Hong Kong Clinical Terminology Table Modes of Adoption

Edward TAM
Health Informatics Analyst
eHR Information Standards Office
16 April 2014

Terminology for eHR - HKCTT

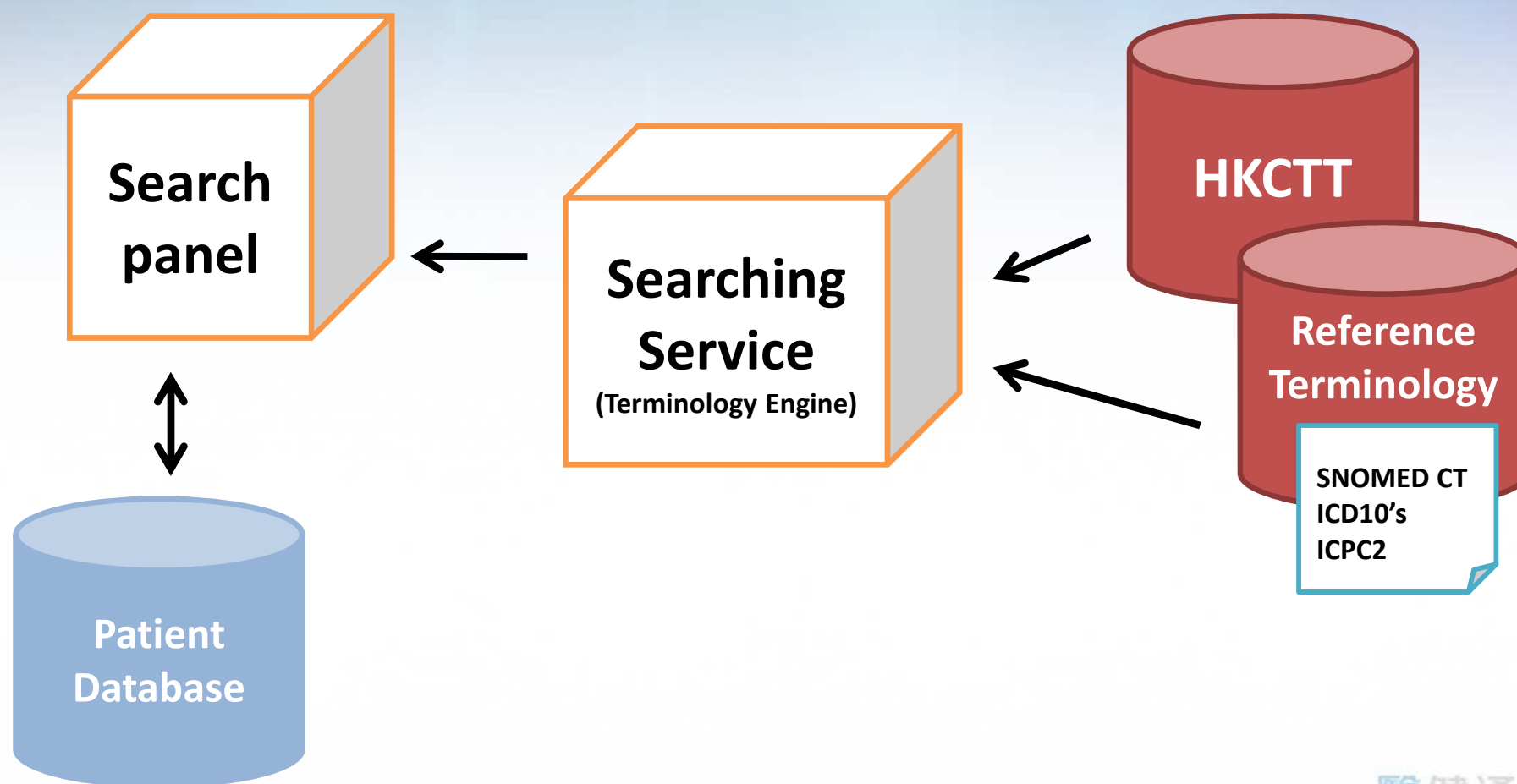


Modes of Adoption

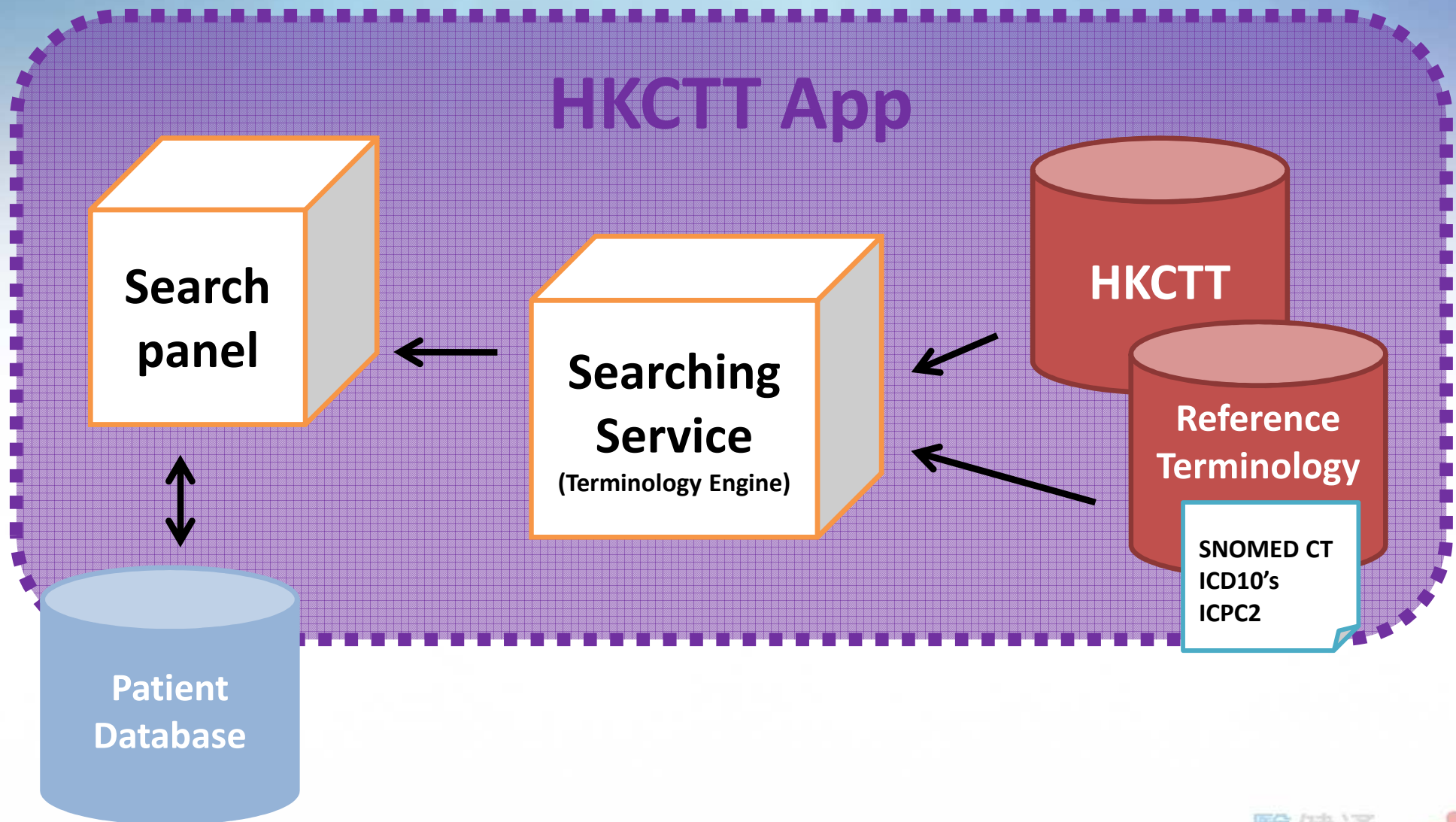
HKCTT - 3 modes of adoption

	HKCTT App	HKCTT Offline	HKCTT Core
Serving	On-Ramp / Adaptation	HC Provider's system	All HCPs
HKCTT Content	Y	Y	Y (view ± download)
Searching Service (Terminology Engine)	Y	Y	
Search Panel	Y		

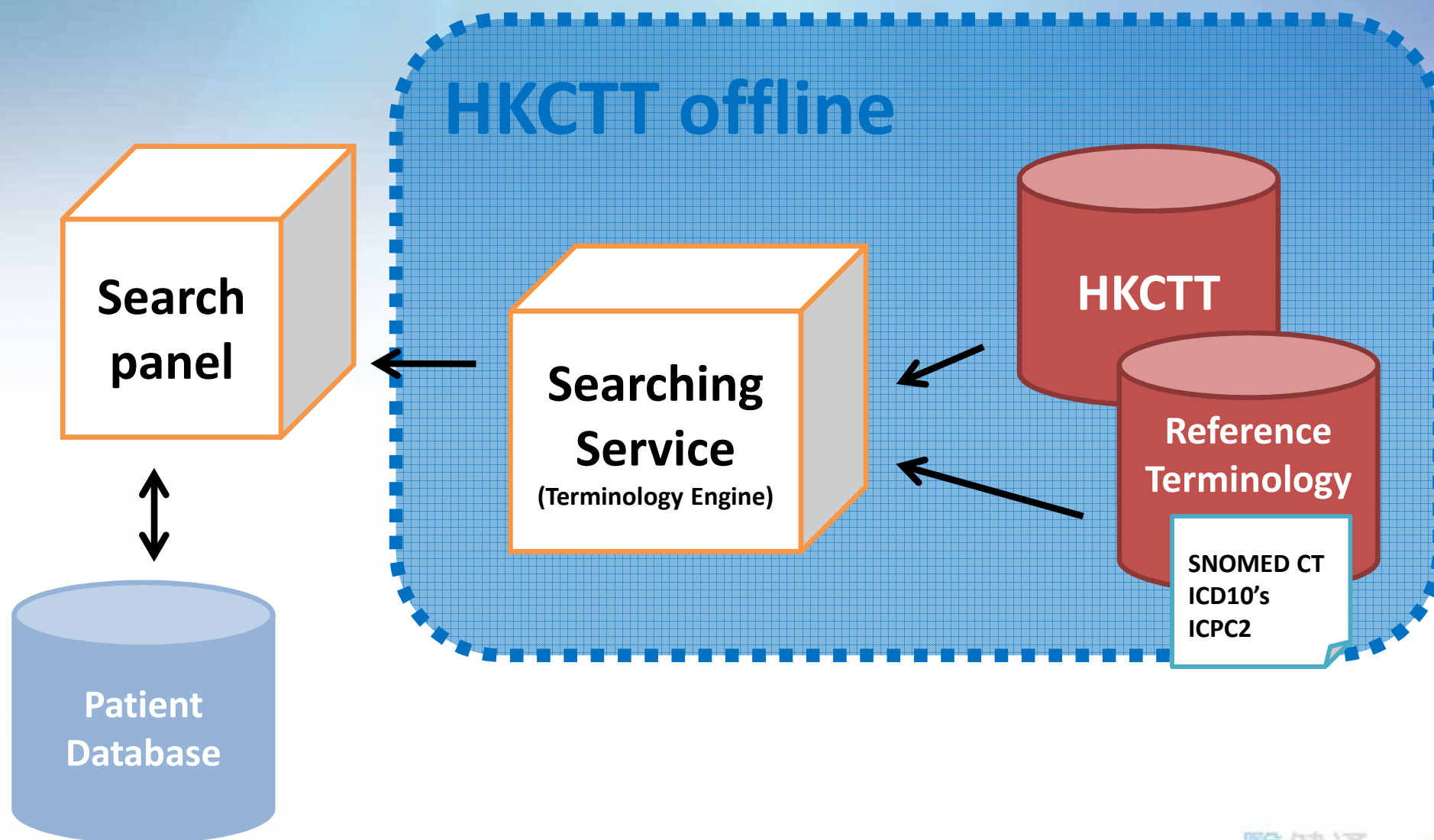
HKCTT - 3 modes of adoption



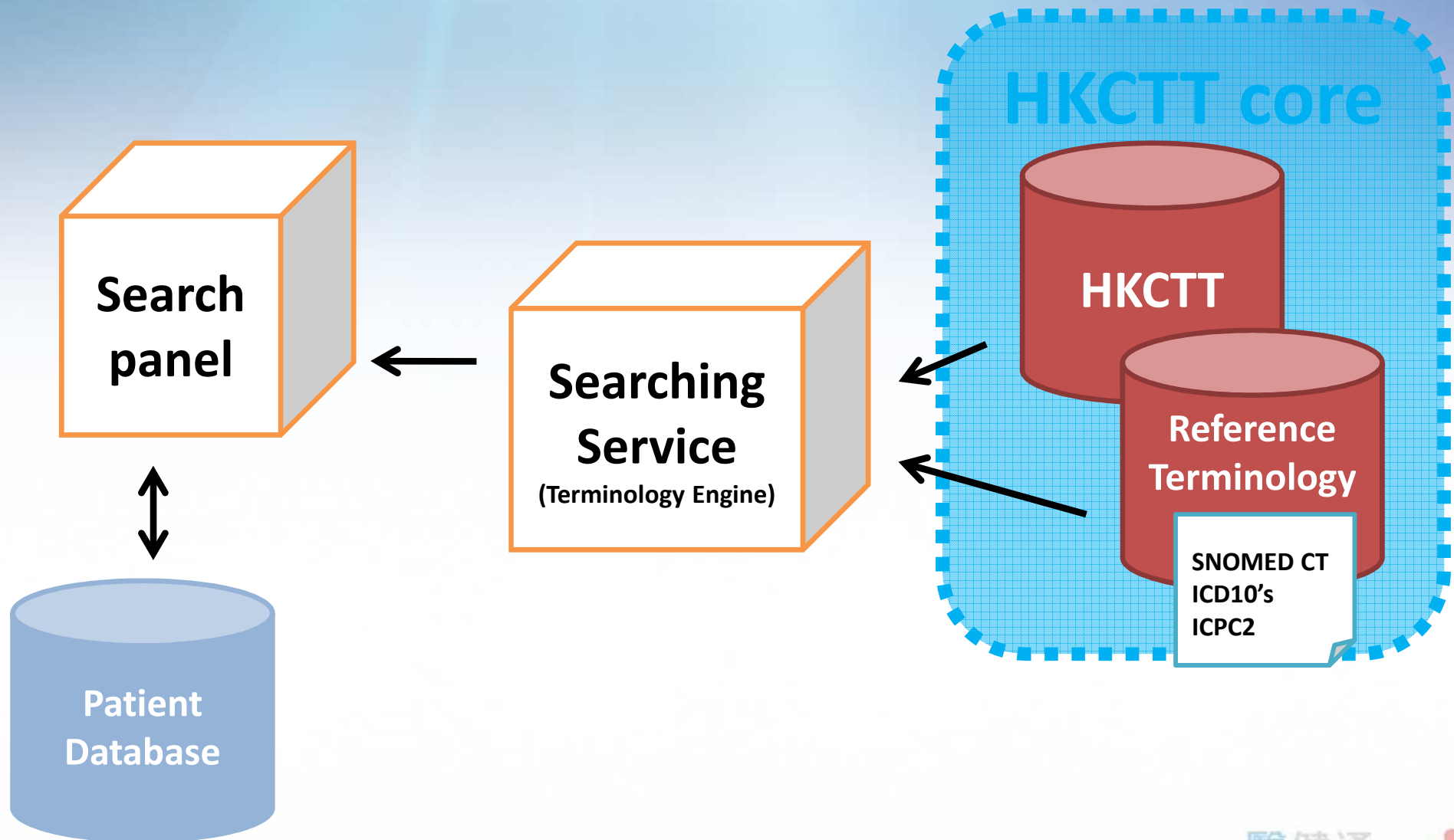
HKCTT App



HKCTT Offline



HKCTT Core



How to choose?

How to choose?

- Considerations
 - Difference in package details
 - Efforts in development & maintenance
 - Local needs

HKCTT - 3 modes of adoption

	HKCTT App	HKCTT Offline	HKCTT Core
Package Details	HKCTT Content + Searching Service + Search Panel	HKCTT Content + Searching Service	HKCTT Content Only
Target Users	- Total system replacement - Complete solution	HKCTT search ability added to provider's EMR application	HCP to build own eMR to adopt HKCTT
Effort by HCP	+	++	+++
Development Efforts		HCP to design/develop: - connection with terminology engine - DIY search panel	HCP to design/develop: DIY searching method
Maintenance Efforts			HCP to download: HKCTT updates

HKCTT - 3 modes of adoption

	HKCTT APP		HKCTT Offline	HKCTT Core
Provision	HKCTT Content Searching Service Search Panel		HKCTT Content Searching Service	HKCTT Content
Application	On-Ramp	Adaptation	Vendor System	Vendor System Prepare for mapping
ELSA (HKCTT automatic update)	<i>Join eHRSS</i> Yes (Mode B)	-----	Yes (Mode B)	-----
ELSA Lite (HKCTT no automatic update)	<i>Not join eHRSS</i> Yes HKCTT update by Service Provider	Yes HKCTT update by HCP	-----	-----
No ELSA	-----	-----	-----	Yes

* HKCTT automatic update is subject to user confirmation in the front end

Thank You!

