

# Briefing on Standards Information Sharing Portal (SISP) and eHR Adaptor



Seminar on Preparation for eHR  
28 Jun, 2013

# Healthcare Providers may ask:

The scope of the eHR sharable dataset ?

The definition of the data will be shared ?

What is the code is used?

What is the data format?

How to prepare the interface?

Technical protocol?



Health Informatician



IT Professional

# Documentations

- Data Interoperability Standards
- Interface Specifications for each clinical data domain:
  - Data Requirement Specification
  - Technical Interface Specification (Message-based)
  - BLS Technical Interface Specification (Bulk-load)

**Total 56 interface documentations**



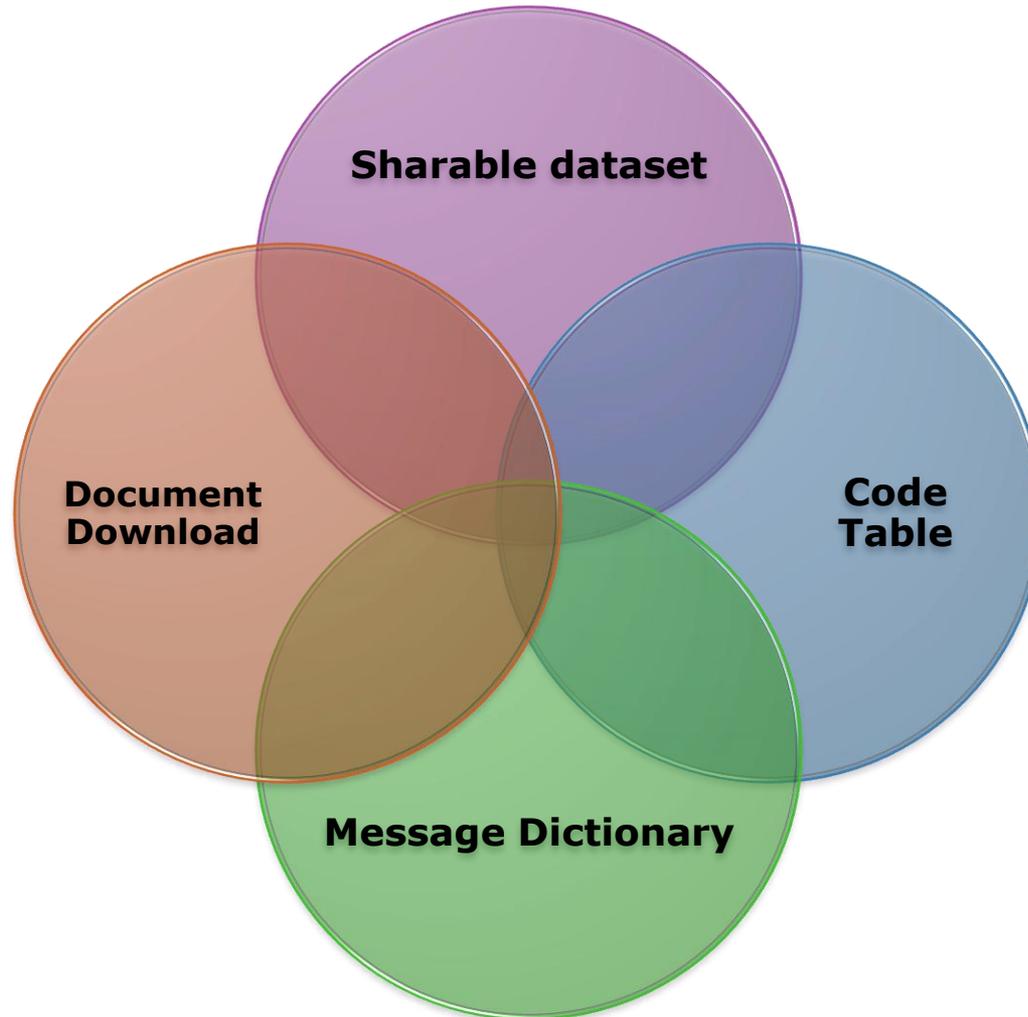


# Standards Information Sharable Portal (SISP)

- Provide both business and technical information
- Facilitate Healthcare Provider(HCP) to understand the eHR Sharable Data Requirements
- Facilitate HCP IT professional to develop interface for data sharing

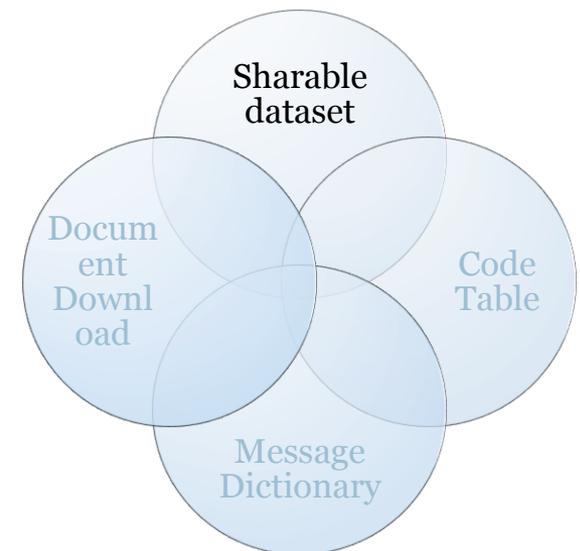


# What can help you ?



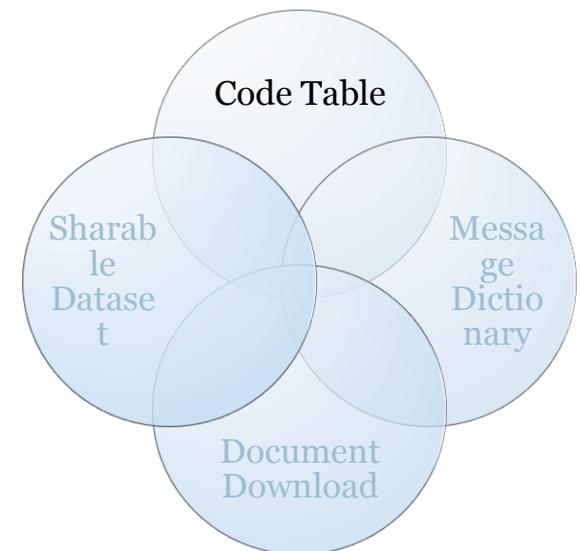
# eHR Sharable Dataset

- Scope
- Scenarios
- Mindmaps
- Data Requirements Specifications
- Interface specifications



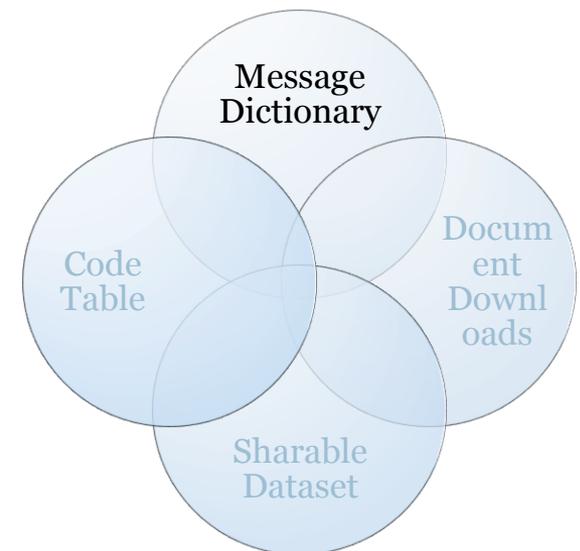
# Code Table

- By Sharable Dataset
- Code Table and value listing
- Search function



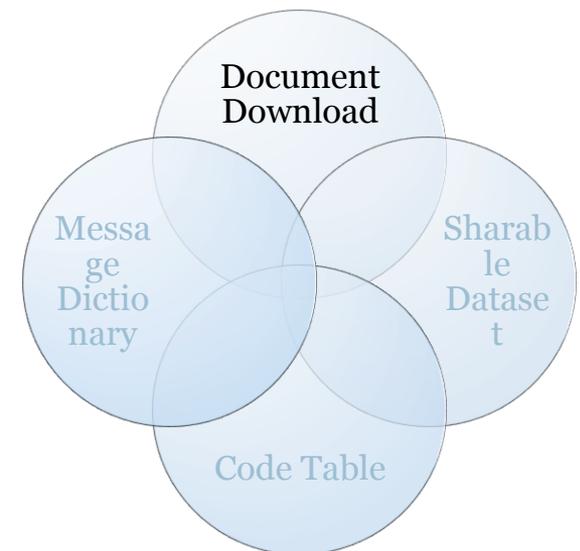
# Message Dictionary

- By Sharable Dataset
- Including two format
  - HL7-HK Message Standards
  - HL7-HK Localised Bulk Load Standards
- Blurred the not used segments
- Blurred the not used fields
- Search Function



# Document Download

- By eHR Sharable Dataset
- Specifications Document Download



# Front page of SISP

The screenshot shows the front page of the Standards Information Sharing Portal (SISP) accessed via a Windows Internet Explorer browser. The browser's address bar displays the URL <https://st.ehr.gov.hk/group/sisp/sisp>. The page features the logo for "醫健通 ehealth Standards Information Sharing Portal" and a navigation menu with the following items: Home, Introduction, About Standardisation, eHR Sharable Dataset, Documents Download, Code Table, and Message Dictionary. The main content area is divided into four sections: "News" with a bullet point "Standards Information Sharing Portal Pilot Launched" and a paragraph "It shares the scope of sharable dataset, the data upload interface format and code table value required"; "Current Projects" (empty); "Useful Link" with a list of links: "HL7 Website", "SNOMED Website", "LOINC Website", and "DICOM Website"; and an empty section at the bottom left.

醫健通 ehealth Standards Information Sharing Portal

Home | Introduction | About Standardisation | eHR Sharable Dataset | Documents Download | Code Table | Message Dictionary

**News:**

- Standards Information Sharing Portal Pilot Launched

It shares the scope of sharable dataset, the data upload interface format and code table value required

**Current Projects:**

**Useful Link:**

- [HL7 Website](#)
- [SNOMED Website](#)
- [LOINC Website](#)
- [DICOM Website](#)

# Introduction

sisp - ehr.gov.hk - Windows Internet Explorer

https://st.ehr.gov.hk/group/sisp/sisp

Certificate Error ChatZum Search

File Edit View Favorites Tools Help

Favorites sisp - ehr.gov.hk

Others PORTAL USER ONE sign out

**醫健通 ehealth** Standards Information Sharing Portal

Home Introduction About Standardisation eHR Sharable Dataset Documents Download Code Table Message Dictionary

### eHR Project Background

Technology enables us to build a longitudinal womb-to-tomb health record. Electronic data can be exchanged amongst different systems and allow users of different sites and settings to view the record in an integrated fashion. If the shared clinical data is incorporated into the EMR (electronic medical record) systems of the practitioners, then the receiving systems can reuse the data for purposes such as clinical decision support. However an interoperable health information system cannot be realized without extensive standardization. IEEE (1990) defines interoperability as the ability of two or more systems or components to exchange information (functional interoperability) and to use the information that has been exchanged (From eHR content guidebook)

### Introduction to standards

Standardization forms the foundation for accurate and efficient communication of electronic data. The current healthcare environment demands a variety of information systems to support its operation, e.g. clinical information systems, laboratory systems, radiology systems, pharmacy systems, financial systems... Standardization allows systems to interface in a uniform way and relieves the developers of clinical software from building separate interfaces for every system their software needs to talk with, thus reducing the cost of technical integration. By using standard terminology, information is interpreted by all users with the same understanding. This supports reuse of data, improves the efficiency of healthcare services by reducing duplicate tests and avoids errors by reducing miscommunication and reducing data transcription and duplication. (From eHR content guidebook)

# About Standardisation

sisp - ehr.gov.hk - Windows Internet Explorer

https://st.ehr.gov.hk/group/sisp/sisp

ChatZum Search

Others

PORTAL USER ONE (Sign Out)

## 醫健通 ehealth Standards Information Sharing Portal

香港特別行政區政府 HKSAR GOVT

Home | Introduction | **About Standardisation** | eHR Sharable Dataset | Documents Download | Code Table | Message Dictionary

### What Standardization is used for eHR project?

#### HL7-HK Localised Bulk Load Standards

eHR-HK Bulk Load Standards provides HCP to upload clinical records of eHR participants with large transaction volume. There are 4 types of file upload mode: daily batch mode, materialisation mode and ad-hoc mode :

1. **Daily batch mode** is the format for HCP to upload sharable data in ONE batch.
2. **Materialisation mode** is the format for HCP to upload new enrolled participant and re-joined participant.
3. **Ad-hoc mode** is the format for HCP to upload a large volume data for special reason.

There are 3 major components used to carry the bulk clinical information when exchanging data in HL7 v2.5 standard. They are:

- HL7 Event Message : Unsolicited Observation Message (ORU^R01)
- ORU^R01 event include 3 mandatory segments
  - MSH – Message Header Segment
  - OBR – Observation Request Segment
  - OBX – Observation related to OBRs
- The batch file name will be assign to the fifth field of OBX. The detail will be described in following section.

# eHR Sharable Dataset

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Home | Introduction | About Standardisation | **eHR Sharable Dataset** | Documents Download | Code Table | Message Dictionary

### Sharable Dataset

There are different Business Event to trigger HL7 message for different domains. Each domain develops and maintains its own set of technical framework documents and activity diagrams. Each domain includes a working group committee, whose primary task is developing and documenting this solutions.

The active eHR domains are listed below with links to domain-specific pages:

Sharable Dataset	Mindmap	Data Requirement Specification	Technical Interface Specification	BLS Technical Interface Specification
eHR Participant				
Encounter				
<a href="#">Allergy</a>				
<a href="#">Adverse Drug Reaction</a>				
<a href="#">Birth Record</a>				
Problem				
Procedure				

# Code Table and table listing

The screenshot displays a web browser window with the following elements:

- Browser Title:** sisp - ehr.gov.hk - Windows Internet Explorer
- Address Bar:** https://st.ehr.gov.hk/group/sisp/sisp
- Navigation:** Home, Back, Forward, Stop, Refresh, Print, Page, Safety, Tgols, Help
- Page Header:** 醫健通 ehealth, 醫院管理局 HOSPITAL AUTHORITY, Code Table, HOME
- Menu:** EHR Used
- Search Form:** Code Table Search Form with fields for Sharable Dataset (Allergy) and Keyword, and a Submit button.
- Table:** A table with the following columns: Domain, Table Name, Item Name, Item Value, Item Desc.

Domain	Table Name	Item Name	Item Value	Item Desc.
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# Code Table search result

The screenshot shows a web browser window displaying the 'Code Table' search results page. The page header includes the '醫健通 ehealth' logo and the '醫院管理局 HOSPITAL AUTHORITY' name. The search criteria are 'LEVEL\_OF\_SEVERITY' with a keyword of 'severe'. The search results table shows one entry for 'Adverse Drug Reaction' with a severity level of 'S' and a description of 'Severe'.

醫健通 ehealth 醫院管理局 HOSPITAL AUTHORITY Code Table HOME

Menu

- EHR Used
- Allergy
- Adverse Drug Reaction
- Birth Record
- Clinical Note / Summary
- Immunisation
- Referral

Search LEVEL\_OF\_SEVERITY

Code Table Search Form

Sharable Dataset: Adverse Drug Reaction

Keyword: severe

Submit

Page 1 of 1 Displaying 1 - 1 of 1

	Domain	Table Name	Item Name	Item Value	Item Desc.
1	Adverse Drug Reaction	LEVEL_OF_SEVERITY	Level of severity code	S	Severe

# Code Table search result

The screenshot shows a web browser window with the address bar displaying <https://st.ehr.gov.hk/group/sisp/sisp>. The page title is "Code Table". The page content includes the "ehealth" logo and the Hospital Authority logo. A search bar contains the text "LEVEL\_OF\_SEVERITY". Below the search bar, a table displays the search results:

Value	Description
M	Mild
S	Severe

The left sidebar contains a menu with various code categories, including "LEVEL\_OF\_SEVERITY" which is currently selected.

# Message Dictionary tree structure

sisp - ehr.gov.hk - Windows Internet Explorer

https://st.ehr.gov.hk/group/sisp/sisp

ChatZum Search

Others

PORTAL USER ONE (Sign Out)

**醫健通 ehealth** 醫院管理局 HOSPITAL AUTHORITY

## Message Dictionary

HOME

**Menu**

- HL7-HK Message Standards
  - Allergy
  - Adverse Drug Reaction
  - Birth
  - Clinical Note / Summary
  - Immunisation
  - Referral

**Search**

### HL7-HK Message Standards Search Form

Filter:  Mapped Fields  All Fields

Sharable Dataset: Allergy

Keyword:

Submit

Page

Domain	Element	Structure Path	Remark	Definition
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# Message Dictionary search result

The screenshot shows a web browser window displaying the HL7-HK Message Standards Search Form. The search criteria are: Filter: Mapped Fields, Sharable Dataset: Adverse Drug Reaction, and Keyword: severity. The search results are displayed in a table with the following columns: Domain, Element, Structure Path, Remark, and Definition.

Domain	Element	Structure Path	Remark	Definition
Adverse Drug Reaction	level_of_severity	CDA>>clinicalDoc>>detail>>causative_agent>>level_of_severity	Parent Tag	
Adverse Drug Reaction	level_of_severity_code	CDA>>clinicalDoc>>detail>>causative_agent>>level_of_severity>>level_of_severity_code		eHR value of the "Adverse drug reaction severity table"
Adverse Drug Reaction	level_of_severity_desc	CDA>>clinicalDoc>>detail>>causative_agent>>level_of_severity>>level_of_severity_desc	M if [Level of severity code] is given NA if [Level of severity code] is blank	eHR description of the "Adverse drug reaction severity code, should match with [Level of severity code]"
Adverse Drug Reaction	level_of_severity_it_desc	CDA>>clinicalDoc>>detail>>causative_agent>>level_of_severity>>level_of_severity_it_desc	M if [Level of severity code] is given NA if [Level of severity code] is blank	Local description of the adverse drug reaction severity code

# Message Dictionary search result

The screenshot shows a web browser window displaying the Message Dictionary search results for 'level\_of\_severity\_code'. The browser is Internet Explorer, and the page is from 'st.ehr.gov.hk'. The search results are displayed in a table format, showing the following details:

Detail		
Structure Name	Clinical Document	
Structure Path	CDA>>clinicalDoc>>detail>>causative_agent>>level_of_severity>>level_of_severity_code	
Notation	level_of_severity_code	
Element Name	Level of severity code	
Data Definition	eHR value of the "Adverse drug reaction severity level" code table	
Data Type	string	
Length	2	
Maximum Occurrence	1	
Optionality	Optional	
Table Name	LEVEL_OF_SEVERITY	
Possible Value	Purpose	To define the severity level of the adverse drug reaction
	Source	HA
Possible Value	Value	Description
	M	Mild
	S	Severe
Remarks	Data Requirement Specification for eHR Adverse Drug Reaction Record	

# Document Download

The screenshot shows a web browser window displaying the Standards Information Sharing Portal (SISP) at <https://st.ehr.gov.hk/group/sisp/sisp>. The page features a navigation menu with the following items: Home, Introduction, About Standardisation, eHR Sharable Dataset, Documents Download (highlighted), Code Table, and Message Dictionary. The main content area is titled "Document Download" and lists several document categories: eHR Participant, Encounter, Allergy, Adverse Drug Reaction, Birth Record, and Problem. Under the "Adverse Drug Reaction" category, there is a table of documents.

Documents	Details	Published Date
 Data Requirement Specification for eHR Adverse Drug Reaction Record		2012-09-03
 Technical Interface Specification for eHR Adverse Drug Reaction Record		2012-09-03
 BLS Technical Interface Specification for eHR Adverse Drug Reaction Record		2012-09-03

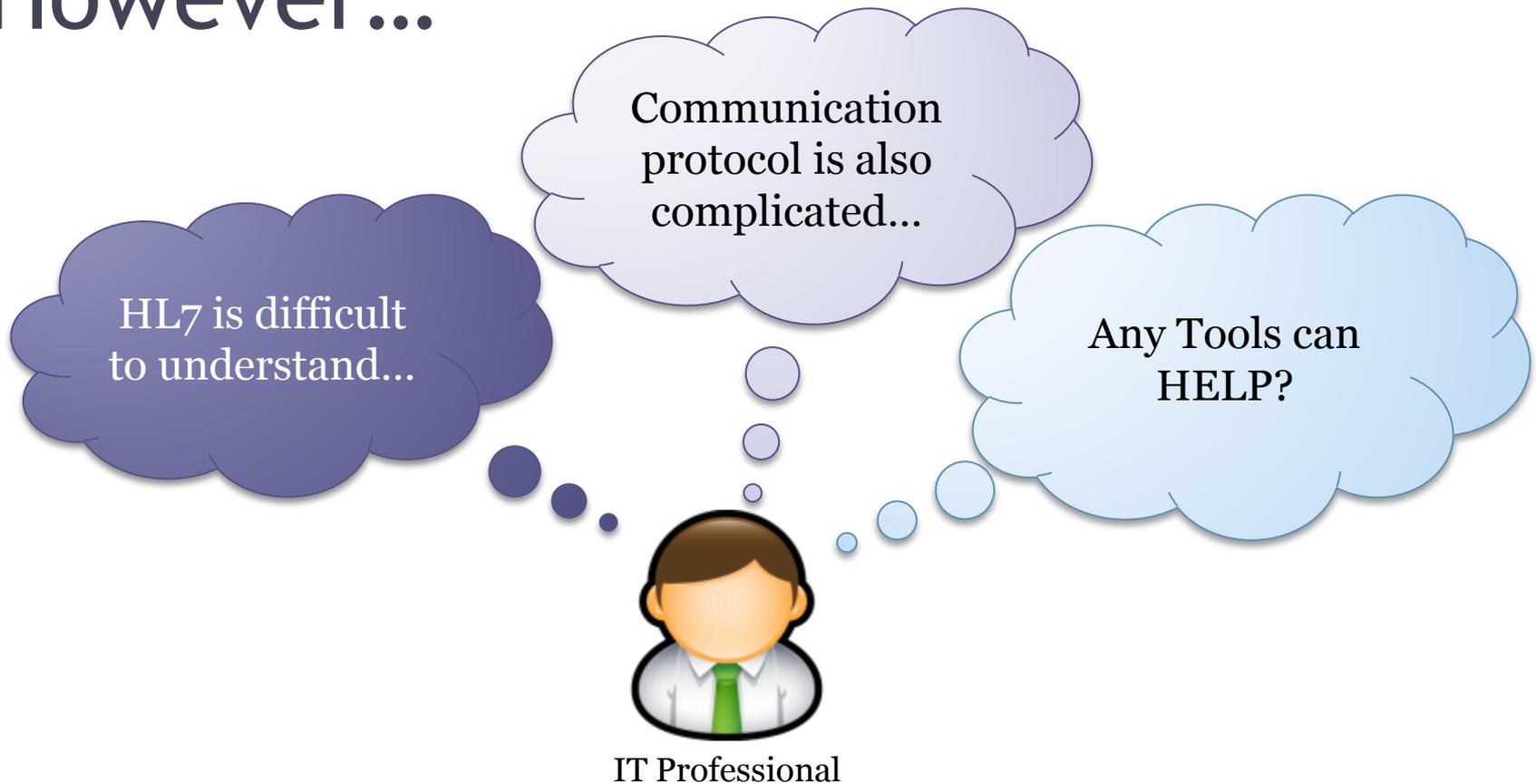
# Example :

- What dataset can be shared (e.g. Immunisation)?
  - Answer : Sharable dataset
- What data compliance level for Immunization?
  - Answer : Sharable dataset
- What fields can be shared (e.g. HKIC , Vaccine code, etc) ?
  - Answer : Message Dictionary
- Any codex ?
  - Answer : Code Table
- How to share?
  - Answer : Message Dictionary , Specification Download
- Any sample?
  - Answer : Message Dictionary , Specification Download

# Apart from Data Content, what is the “Technical Protocol” ?

- EHR Development Guiding Principle – “Adopt Open Standards”
  - Health Level 7 (HL7)
  - X.509 E-cert (for encryption, authentication, non-reputation)
  - ebMS – ebXML Message Service
    - OGCIO Interoperability Framework (S18) for reliable messaging
  - HTTPs / SFTP – commonly used for secure communication on Internet

# However...



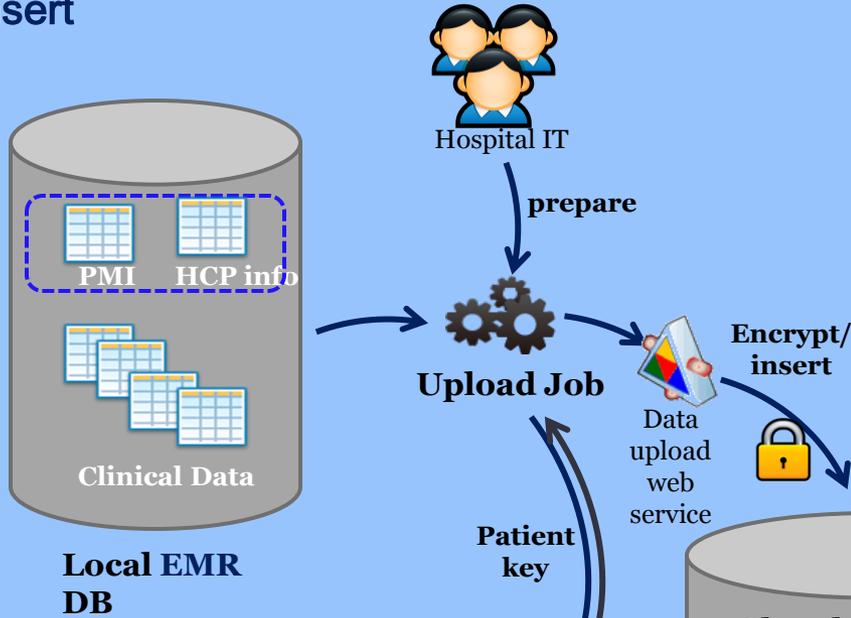
# eHR Adaptor Framework

- A set of extensible APIs that enable EMR systems to leverage relevant shared services to communicate with the eHR Core
- Built-in compliance to eHR data sharing standard

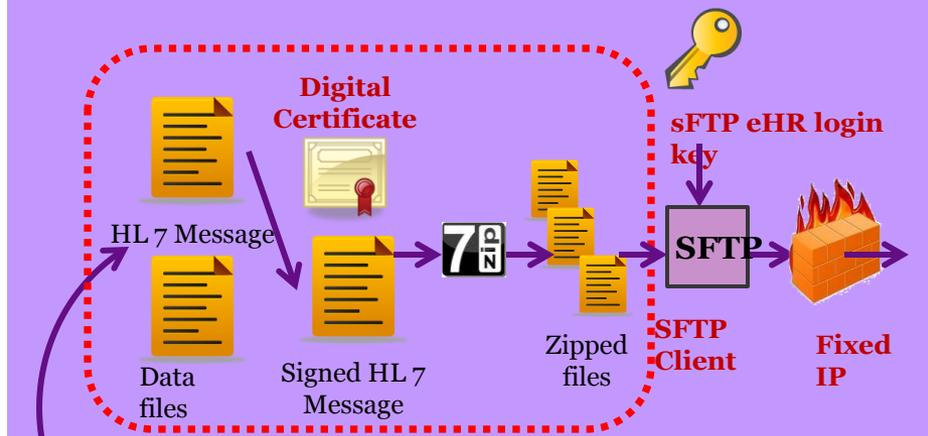
# Tools: Hospital ePR + Local adaptor

- One of EHR Adaptation module
- Private Hospital can adopt the module which contains a hospital ePR
- Include functionality for data upload to eHR
  - Format the data in Bulk-load format, generate HL7 message and send via SFTP
  - Handle all security requirements

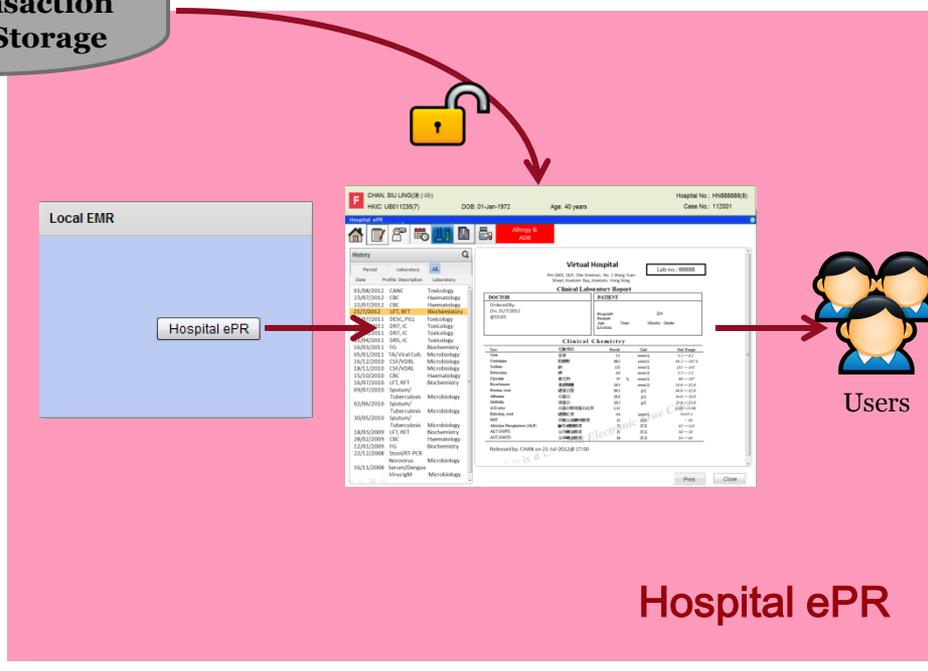
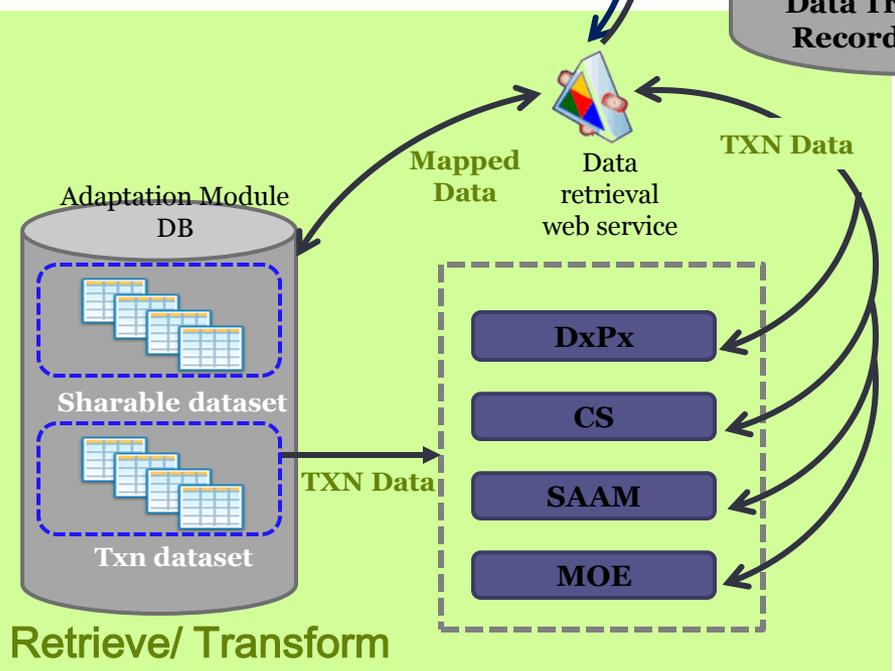
# Insert



# Adaptor



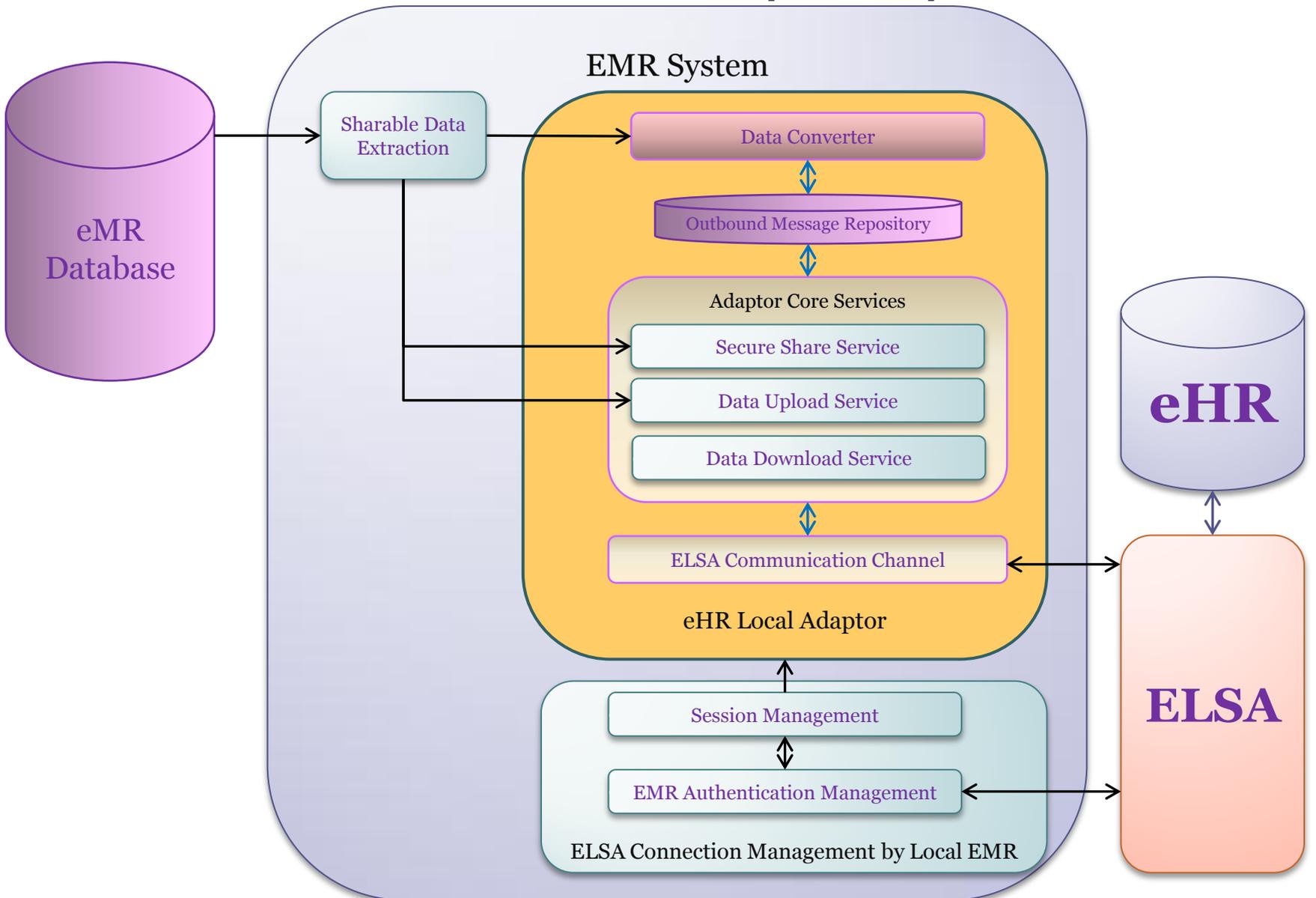
# Upload



# Tools: ELSA + On-ramp Local adaptor

- ELSA
  - Encapsulated Linkage Security Application
  - Embedded ebMS 2.0 Client
  - Embedded e-Cert and security functionalities which fulfill the data upload security requirements
- On-ramp adaptor
  - A set of API Interface
  - Transform the data into HL7
  - Communicate with ELSA for data upload

# Architecture of eHR On-ramp Adaptor & ELSA



# Thank you

- Question?