Technical Interface Specification
For
eHR Healthcare Recipient Index Record

[S54]

Version 1.3.1

Oct 2016

Intellectual Property Rights Notice

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DOCUMENT SUMMARY

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Document Title	Technical Interface Specification for eHR Healthcare Recipient Index Record
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Document Description	The paper explains the technical interface for implementing Health Level Seven (HL7) Version 2.5 standards messaging for "eHR Healthcare Recipient" record exchange. The document should be read in conjunction with other related documents suggested by the eHR Information Standards Office.
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AMENDMENT HISTORY

Version No.	Summary of Changes	Date
1.0.0	Original version	20 Jul 2012
1.1.0	Enhanced according to the -dataset as of Feb 2013 defined by eHR Information Standards Office	13 Mar 2013
1.2.0	• Add remarks in section 9.3 'Reply Major Keys Matched' to remind using the major keys provided by eHR for replying local PMI major key not match • New event to support 'Complete Registration of Newborns from DH' in section 9.4 • Update the template of cover page and descriptions in footer • Update the contents in section 'Intellectual Property Rights Notice' • Align the terms used in eHR Sharing System (eHRSS) Bill: o Participant -> Healthcare Recipient o Enroll -> Register o Rejoin -> Re-register o open-ended consent -> indefinite sharing consent o one-year rolling consent -> one-year sharing consent o consent -to-provider -> giving of sharing Consent o Withdraw from eHR -> Cancel registration from eHR • In section 10.5, update the terms of below data fields: o Update 'Incorrect Source Document ID / Old HKIC Number' to 'Obsoleted Document ID / HKIC Number' o Update 'Incorrect Source Type of Identity Document Number' to 'Obsoleted Type of Identity	30 Jun 2014

Version No.	Summary of Changes	Date
	Document Number'	
1.3.0	• In section 8.1.4 Data Interface – Table 8.1 o Update the cardinality checking of the data fields of 'English surname' and 'English given name' • Update message example in the following sections: o In section 13.2.4 'Example: Reply eHR Participant HCR Major Key Match' - Add HL7 segment <MSH.5> and <MSH.6> o In section 13.2.5 'Example: Complete registration of Newborns from DH' - Add HL7 segment <MSH.5> and <MSH.6> - Update the location if Old HCR English Surname, English Given Name and English Full Name • Add 2 items in section 7 ' Delivery Requirements' • Update the current event ST6 to support the expiration of emergency access/ sharing consent in section 8.5 • Add new event (ST8) to support 'Report Problem Flag to HCP' notification to HCP in section 8.7 • Add new event (ST9) to support 'HCR suspension' notification to HCP in section 8.8 • Add new event (ST10) to support 'Emergency Access' notification to HCP in section 8.9 • "Move Episode" wording is updated to "Report Problem Record"	15 Sep 2015

Version No.	Summary of Changes	Date
	wording in Section 9.2 • Add new event (SF6) to support 'Major Key Change at HCP' notification to eHR in section 9.5	
1.3.1	• Add the single name case in PID.5 in Section 10.3 PID	13 Oct 2016

1 PURPOSE

1.1 OBJECTIVE

This document describes the technical interface for implementing Health Level Seven (HL7) version 2.5 standards messaging for transferring eHR Healthcare Recipient (HCR) Index record from healthcare providers (HCP) to eHR system and vice versa.

The data exchange standards for transferring healthcare recipient records between HCP and eHR system include:

- HL7-HK Message Standards

HL7-HK Message Standards will be described in detail in this document.

1.2 INTENDED READERS

This document is intended for all parties involving the interface development of EMR and eHR of Hong Kong.

2 SCOPE

This reference defines the implementation of the HL7 Version 2.5 messaging, for communication of HL7 messages between EMR applications & eHR system. The structure of a message, the mechanism of creating a message and data exchange format for transferring "eHR Healthcare Recipient" records will be covered in this document. Specifically, this document contains:

- Structure of HL7 version 2.5 message
- Data definition and mapping
- Examples of HL7 version 2.5 message
- Implementation requirements

The specification provides interpretation and guidance to which HL7 trigger events would be applied and what data elements would be mandatory (required), optional, or conditional (required, based on a condition). Besides, this document gives relevant usage notes for interfacing to eHR system and provides consistent use of data definitions.

This document is referring to the health data defined in the eHR sharable dataset domain "eHR Healthcare Recipient" mentioned in **eHR Content Standards Guidebook** in eHR Office website. It provides interpretation and guidance to which HL7 trigger event and data elements are required for interfacing to eHR system.

To understand the communication protocol supported by eHR, please refer 'Communication Protocol Specification' for details.

3 REFERENCES

- Data Interface Requirement Specification
  - Data Requirement Specification for eHR Healthcare Recipient Index Record
  - Communication Protocol Specification

- eHR Information Standards Document
  - eHR Content Standards Guidebook
  - eHR Data Interoperability Standards
  - eHR Contents Code Set
  - eHR Codex List
  - eHR Registration Workflow

4 DOCUMENT MAP

The following table describes the reference documents related to the sharable data domain 'eHR Healthcare Recipient'.

	Document ID	Document Name	Description
Basic Information	N/A	eHR Content Standards Guidebook	It defines the initial set of content and information standards for Hong Kong eHR.
	S01	eHR Data Interoperability Standards	It defines the data requirements and messaging standards to support standards-compliant interoperability.
Data Requirement	N/A	eHR Contents Code Set	It defines the data requirements of each sharable dataset domain. The updated code set will be posted in eHR office website for reference.

	Document ID	Document Name	Description
	N/A	eHR Codex List	It defines a list of code tables which eHR data should be conformed to. The updated code tables will be posted in eHR office website for reference.
	S53	Data Requirement Specification for eHR Healthcare Recipient Index Record	It describes the data requirements for implementing Health Level Seven (HL7) Version 2.5 standards messaging for "eHR Healthcare Recipient" data exchange.
Technical Requirement	S54	Technical Interface Specification for eHR Healthcare Recipient Index Record	It describes the technical requirements for implementing Health Level Seven (HL7) Version 2.5 standards messaging for "eHR Healthcare Recipient" data exchange.
	S55	Communication Protocol Specification	It defines the communication protocols supported by eHR-HK clinical data exchanges. Related technical issues will be included.

5 DEFINITIONS AND CONVENTIONS

5.1 HL7 MESSAGE STANDARDS

Health Level Seven (HL7) version 2.5 message standards will be implemented for healthcare records exchange under eHR programme. HL7 provides a framework and related standards for the exchange, integration, sharing, and retrieval of electronic health-related information.

Information using the HL7 standards is sent as a collection of one or more messages. The HL7 messages are used to transfer electronic data between different healthcare systems. Each HL7 message sends information about a particular event such as patient admission and laboratory records.

To learn more about the HL7 organisation and standard, please refer to the official HL7 websites.

5.2 ABBREVIATIONS

Term	Description
CDR	Clinical Data Repository
DR	Death Registry
eHR	Electronic Health Record
eHRRO	eHR Registration Office
eHRRC	eHR Registration Centre
EMR	Electronic Medical Record
HA	Hospital Authority
HCP	Healthcare Provider
HCI	Healthcare Institution
PMI	Healthcare Recipient Index
ADT	HL7 message type of "Person Administration"
ImmD	Immigration Department of the Government of the Hong Kong Special Administrative Region
HCR	eHR Healthcare Recipient
PPI	Public-Private Interface

5.3 NOTATIONS

Value	Description
"quoted"	Fixed Value
#	HL7 Mandatory Field
✓	Required HL7 Segment
0..1	Zero to One occurrence
1..1	Exact One occurrence
0..*	Zero to Many occurrence

1..*	One to Many occurrence
N/A	Not Applicable
A01 - A99	HL7 event code of “eHR Healthcare Recipient”
ST1 – ST99	Scenario numbering – Message notification to HCP
SF1 – SF99	Scenario numbering – Message upload from HCP
RP/#	Repeatable Indicator [Y:Yes N: No] of HL7 element
TBL#	HL7 Table Reference Number
[]	Optional
{}	Repeatable
YYYY	Year
MM	Month
DD	Day
Hh	Hour (24-Hour)
Mm	Minute
Ss	Second
.sss	Millisecond

6 ASSUMPTIONS

- HCP is responsible for ensuring the integrity, accuracy and completeness of structured data when sending it to eHR.

- It is recommended that HCP should send the updated eHR Healthcare Recipient's record to eHR as soon as possible when there are any changes or new records of the eHR Healthcare Recipient.

- To ensure the integrity of the Birth record, the complete set of structured data should be sent for any amendment.

7 DELIVERY REQUIREMENTS

- HL7 version 2.5 message standards in XML format will be implemented for delivering "eHR Healthcare Recipient (HCR)" event messages defined by eHR.

- This specification only caters for the events and scenarios with data integration interface. For the completed set of scenarios, please refer to the workflows defined in 'eHR Operational Workflows'.

- The sharable dataset domain 'eHR Healthcare Recipient Index' supports eHR Data Compliance Level 3 only. Before sending HCR's record to eHR, Healthcare Provider (HCP) has to register which data compliance levels she can comply to.

- A complete set of updated 'eHR Healthcare Recipient' data is expected to be uploaded to eHR. eHR will use the healthcare recipient unique set of major keys for subsequence data amendments in eHR repository.

- HCP must ensure the data submitted to eHR is complied with the compliance levels she declared in the message. The detail definition of the Data Compliance Level is stated in eHR Content Standards Guidebook posted in eHR Office website.

- Since eHR may resend PMI message under circumstances, HCP is expected able to handle duplicated PMI message received.

- To facilitate business requirements change, new PMI message will be introduced by eHR. Since HCPs will have various system development schedule, HCP is expected able to handle new PMI message, which is not yet implement in HCP 's local EMR, delivered from eHR.

8 SCENARIO OF MESSAGE NOTIFICATION TO HCP

The following subsections will address the scenarios which will trigger a notification from eHR to HCP for related event messages which are ready to retrieve. Under each scenario, the corresponding system workflows and HL7 event message type used will be described. Details of data mappings of the message event will be discussed in 'Section 10 – Data Mapping'.

For the definitions of those data elements included in the HL7 event messages mentioned below, please refer to "Data Requirement Specification for eHR Healthcare Recipient Index Record".

Action	Scenario	HL7 Event Code	Message Structure
Update HCR Death Data	Mark Decease / Death of HCR from DR (ST1)	ADT^A08	ADT_A01
Register in eHR	Register as HCR(ST2)	ADT^A28	ADT_A05
	Re-register eHR after cancellation of registration (ST3)		
Give Sharing Consent to Healthcare Provider	Give sharing consent to HCP (ST4)	ADT^A28	ADT_A05
Cancel registration from eHR	Cancel registration if HCR – Immediate Action upon Withdrawal from eHR (ST5)	ADT^A29	ADT_A21
Revoke sharing consent to HCP	Revoke sharing consent to HCP (ST6)	ADT^A29	ADT_A21
Update HCR Identifier	Change eHR PMI Data – Major Keys (ST7)	ADT^A47	ADT_A30
Notify HCR Problem Record	Notify HCR's Problem Record (ST8)	ADT^A45	ADT_A45
Update HCR information	Update the HCR information such as HCR suspension status (ST9)	ADT^A31	ADT_A05
Grant Emergency Access to Healthcare Provider	Grant the emergency access to HCP (ST10)	ADT^A28	ADT_A05

8.1 UPDATE HCR DEATH

Purpose:

When eHR receives the death records from Death Registry (DR) and HCP, the identifications of related HCR will be validated. Once the death data from DR is verified, the clinical records of the HCR could not be accessed by any HCP in eHR portal.

8.1.1 Mark Decease / Death of eHR HCR from DR (ST1)

Description:

After identity validation of the death records from DR, the notification of HCR's death information will be sent to HCPs which have effective sharing consent with the HCR.

8.1.2 General Workflow

Figure 8-1 below depicts the workflow among EMR/eHR systems and DR when DR updates the death date

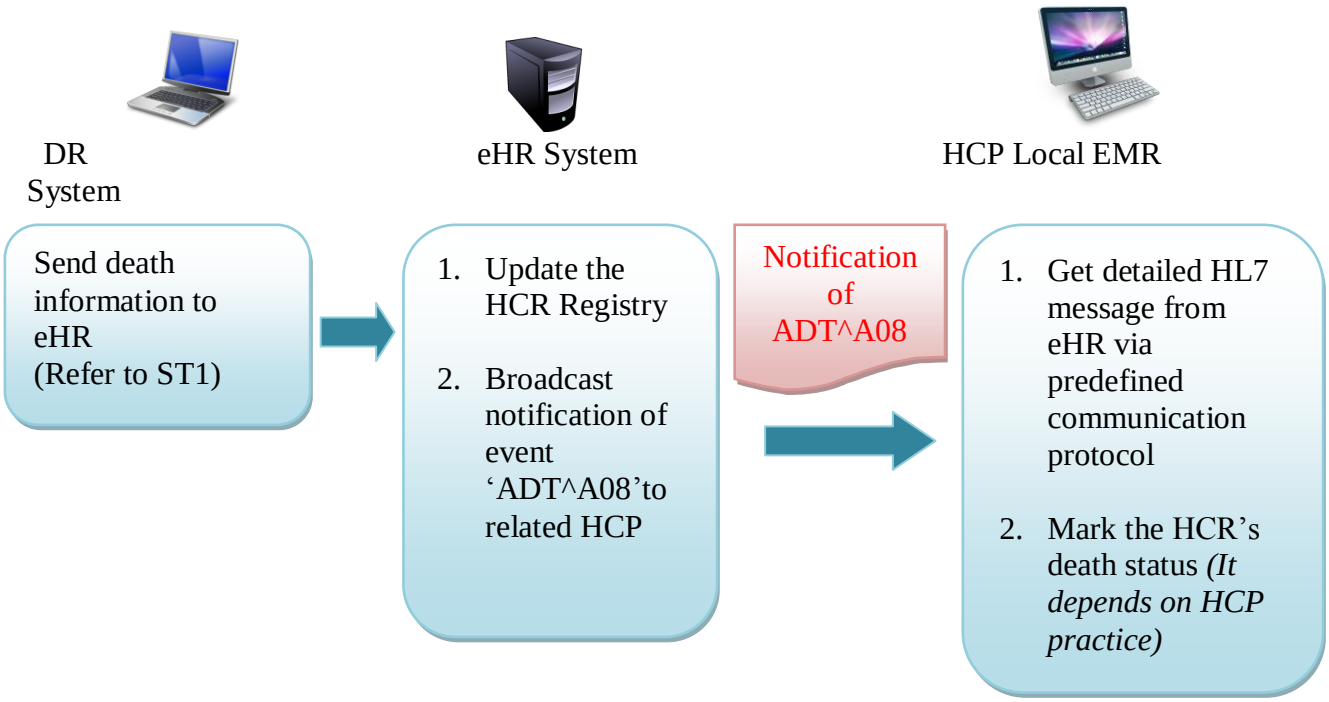

Figure 8-1 Workflow of Update HCR Death Data

8.1.3 Message Event Details

The following event information is referring to HL7 version 2.5 messaging standards. The details of HL7 segments can be found in the corresponding chapters in HL7 specification. For updated HL7 specifications, please visit the official HL7 websites.

Message Code:	ADT
Trigger Event:	A08
Event Name:	Update Patient Information
Usage:	Mark the death of HCR
HL7 Message Structure:	A01

Message Format

Required eHR Segment	ADT^A08	ADT Message	Chapter in HL7 Specification
✓	**MSH**	Message Header	2
	[{ SFT }]	Software Segment	2
✓	**EVN**	Event Type	3
✓	**PID**	Patient Identification	3
	[PD1]	Additional Demographics	3
	[{ ROL }]	Role	15
	[{ **NK1** }]	Next of Kin / Associated Parties	3
✓	**PV1**	Patient Visit	3
	[PV2]	Patient Visit - Additional Info.	3
	[{ ROL }]	Role	15
	[{ DB1 }]	Disability Information	3
	[{ OBX }]	Observation/Result	7
	[{ AL1 }]	Allergy Information	3
	[{ DG1 }]	Diagnosis Information	6
	[DRG]	Diagnosis Related Group	6
	[{	--- PROCEDURE begin	
	PR1	Procedures	6
	[{ ROL }]	Role	15
	}]	--- PROCEDURE end	
	[{ GT1 }]	Guarantor	6
	[{	--- INSURANCE begin	
	IN1	Insurance	6
	[IN2]	Insurance Additional Info.	6
	[{ IN3 }]	Insurance Additional Info - Cert.	6
	[{ ROL }]	Role	15
	}]	--- INSURANCE end	
	[ACC]	Accident Information	6
	[UB1]	Universal Bill Information	6
	[UB2]	Universal Bill 92 Information	6
	[PDA]	Patient Death and Autopsy	3
✓	[Signature]	XML Digital Signature	

8.1.4 Data Interface

In this section, the data elements embedded in the trigger event A08 will be described. The eHR number and major keys of the HCR will be included in the message.

Data Component Required:	HCR identity information and death date information

Purpose: To uniquely and accurately identify the HCR and update death date

Data Element Required: Refer to Table 8.1

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
HCR Identity	eHR number	M	
	HKIC number	M if [Identity document number] is blank O if [Identity document number] is not blank	
	Type of identity document	O if [Identity document number] is blank M if [Identity document number] is not blank	
	Identity document number	O if [HKIC number] is not blank M if [HKIC number] is blank	
	English surname	O if [English given name] is not blank M if [English given name] is blank	
	English given name	O if [English surname] is not blank M if [English surname] is blank	
	English full name	M	
	Date of birth	M	
	Exact date of birth indicator	M	
	Sex	M	
Death Date	Date of death	M	
	Exact date of death	M	Refer to code

	indicator		table “Exact Date” in eHR Office website
	Death time	O	
Transaction Data	Message number	M	
	Event code	M	
	Transaction datetime	M	

Table 8.1 Data elements in death data update message notification to HCP

8.1.5 Expected Action from HCP

The following actions are expected from HCP upon receiving the event message 'ADT^A08':

- Update the HCR's death status in the local EMR system of the HCP *(It depends on HCP practice)*
- HCPs should stop uploading deceased HCR's clinical record to eHR. Viewing of the HCR's record is no longer allowed.

8.2 REGISTER IN eHR

Purpose:

To allow a person's clinical records to be shared in Electronic Healthcare Record (eHR) system, he/her must register in eHR as HCR first. Once registered in eHR, a notification message will be sent to Hospital Authority (HA) and Department of Health (DH) for informing the sharing consent has been given to both HA and DH. This message will be delivered to HA and DH only.

8.2.1 Register as HCR (ST2)

Description:

An applicant can register as an eHR Healthcare Recipient (HCR) at eHR Registration Office (eHRRO). If the registration is successfully processed, the sharing consent between HCR and Hospital Authority (HA), and the sharing consent between HCR and Department of Health (DH) will be built. eHR registration can be done at eHRRC, the Department of Health (DH), Hospital Authority (HA), private HCPs and other locations as designated by eHRRC.
.

The registration of an individual to become a HCR represents his / her wish to allow his / her eHR to be shared by HCP / Healthcare Institute (HCI) with the express consent recorded in the eHR Sharing System. At the same time, the participation of HCP and her HCI will facilitate the sharing of HCRs' electronic health data via eHR Sharing System with the eHR HCRs' consent. The detail interface requirements for uploading clinical data should be referred to corresponding documents:

- Data Requirement Specification for <Related Dataset Domain>
- Technical Interface Specification for <Related Dataset Domain>

8.2.2 Re-register eHR after Cancellation of Registration (ST3)

Description:

A HCR is allowed to withdraw from eHR program at any time. If the HCR re-register eHR within the frozen period (3 years), eHR number will be reused. However, if the HCR re-registers her outside the frozen period, a new eHR number will be issued to that HCR.

Once the HCR re-registers eHR, no matter 'Previous eHR number' or 'New eHR number' is being used, an HCP is required to upload ALL clinical records of the HCR to eHR, no matter if the records have been sent before, as long as consent from the HCR s is still valid. This aims to ensure that the eHR system is keeping a complete set of clinical records of the right HCR.

8.2.3 General Workflow

Figure 8-2 Workflow of Registration in eHR below depicts the workflow among EMR/eHR systems when HCR register in eHR,

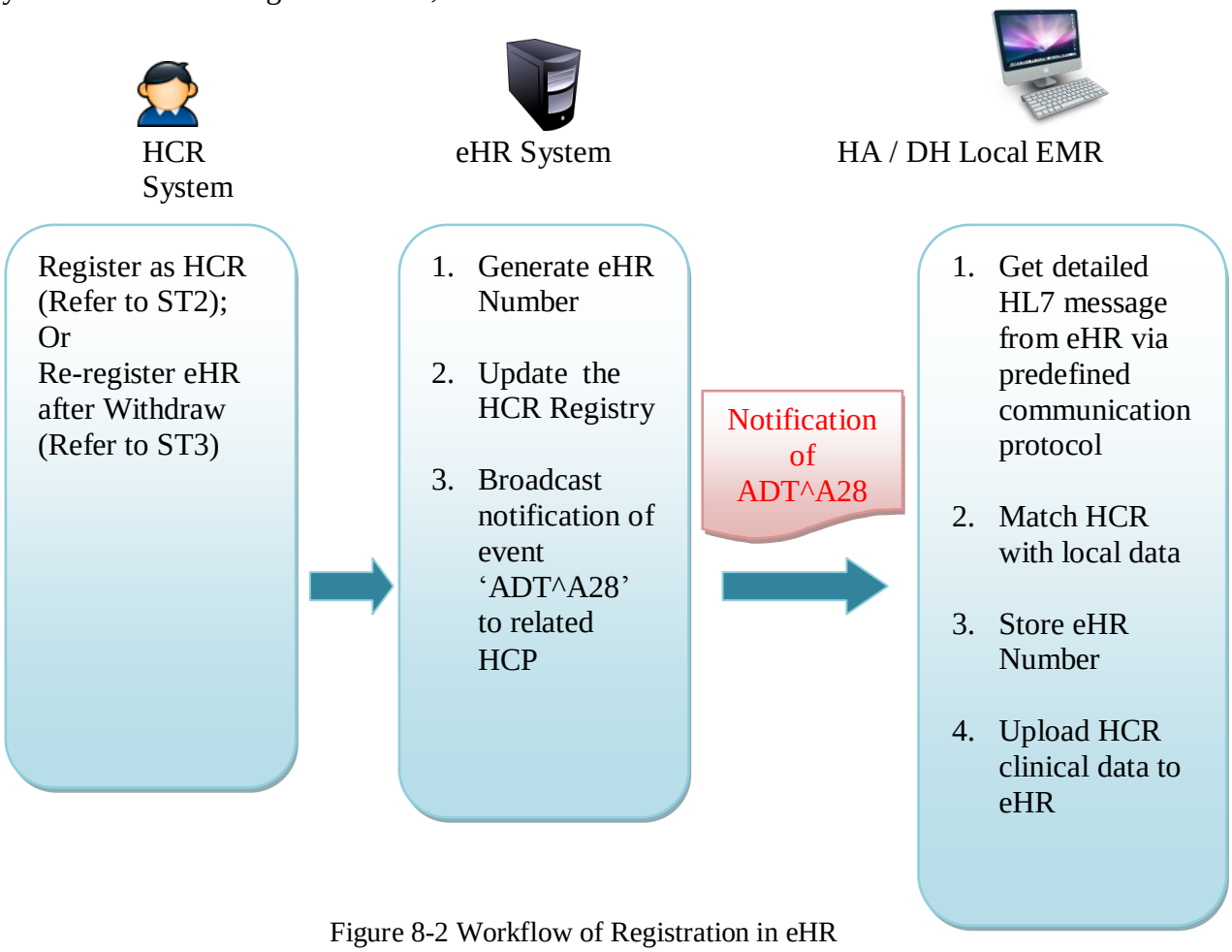

Figure 8-2 Workflow of Registration in eHR

8.2.4 Message Event Details

The following event information is referring to HL7 version 2.5 messaging standards. The details of HL7 segments can be found in the corresponding chapters in HL7 specification. For updated HL7 specifications, please visit the official HL7 websites.

Message Code:	ADT
Trigger Event:	A28
Event Name:	Add Person or Patient Information
Usage:	1. New registration in eHR 2. Re-registration eHR After Cancellation of Registration
HL7 Message Structure:	A05

Message Format

Required eHR Segment	ADT^A28	ADT Message	Chapter in HL7 Specification
✓	**MSH**	Message Header	2
	[{ SFT }]	Software Segment	2
✓	**EVN**	Event Type	3
✓	**PID**	Patient Identification	3
	[PD1]	Additional Demographics	3
	[{ ROL }]	Role	15
	[{ **NK1** }]	Next of Kin / Associated Parties	3
✓	**PV1**	Patient Visit	3
	[PV2]	Patient Visit - Additional Info.	3
	[{ ROL }]	Role	15
	[{ DB1 }]	Disability Information	3
	[{ OBX }]	Observation/Result	7
	[{ AL1 }]	Allergy Information	3
	[{ DG1 }]	Diagnosis Information	6
	[DRG]	Diagnosis Related Group	6
	[{	--- PROCEDURE begin	
	PR1	Procedures	6
	[{ ROL }]	Role	15
	}]	--- PROCEDURE end	
	[{ GT1 }]	Guarantor	6
	[{	--- INSURANCE begin	
	IN1	Insurance	6
	[IN2]	Insurance Additional Info.	6
	[{ IN3 }]	Insurance Additional Info - Cert.	6
	[{ ROL }]	Role	15
	}]	--- INSURANCE end	
	[ACC]	Accident Information	6
✓	[Signature]	XML Digital Signature	

8.2.5 Data Interface

In this section, the data elements embedded in the trigger event A28 will be described. The eHR number and major keys of the HCR will be included in the message to HA and DH.

Data Component Required:	HCR identity information
Purpose:	To uniquely and accurately identify the HCR
Data Element Required:	Refer to Table 8.2

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
HCR Identity	*(Refer to Table 8.1 in section 8.1.4 - Data Interface)*		
eHR Registration	eHR enrolment start date	M	In format: YYYYMMDD
Transaction Data	*(Refer to Table 8.1 in section 8.1.4 - Data Interface)*		

Table 8.2 Data elements in Registration in eHR message notification to HA and DH

8.2.6 Expected Action from HA and DH

The following actions are expected from HA and DH upon receiving the event message 'ADT^A28':

- Match HCR with local data
- Store eHR number in local EMR system
- Upload ALL HCR clinical data from local EMR system to eHR

8.3 GIVE SHARING CONSENT TO HCP

Purpose:

To allow Healthcare Provider (HCP) to upload and access HCR's clinical records to or from Electronic Healthcare Record (eHR) system, the sharing consents between an HCR and HCPs must be built in advance. The sharing consent can be built only if HCR can be linked to the registered patient record in local Electronic Medical Record (EMR) / Electronic Patient Record (ePR) system uniquely and accurately.

8.3.1 Give Sharing Consent to HCP (ST4)

Description:

HCR can give consent to any HCP accessing his/her records in eHR at anytime. The HCP will be notified once the sharing consent between the HCP and HCR has been built. Then, the HCP will be granted the privilege to access eHR for HCR's clinical data. The HCP is required to upload ALL clinical records of the HCR to eHR.

Besides, if HCR updates the sharing consent type either from 'One-year sharing consent' to 'Indefinite sharing consent' and vice versa, eHR will deliver the 'Give sharing consent' message to HCP as well. Also, the message will also be delivered if the consent is extended.

8.3.2 General Workflow

Figure 8-3 below depicts the workflow among EMR/eHR systems when HCR gives sharing consent with HCP in eHR registration.

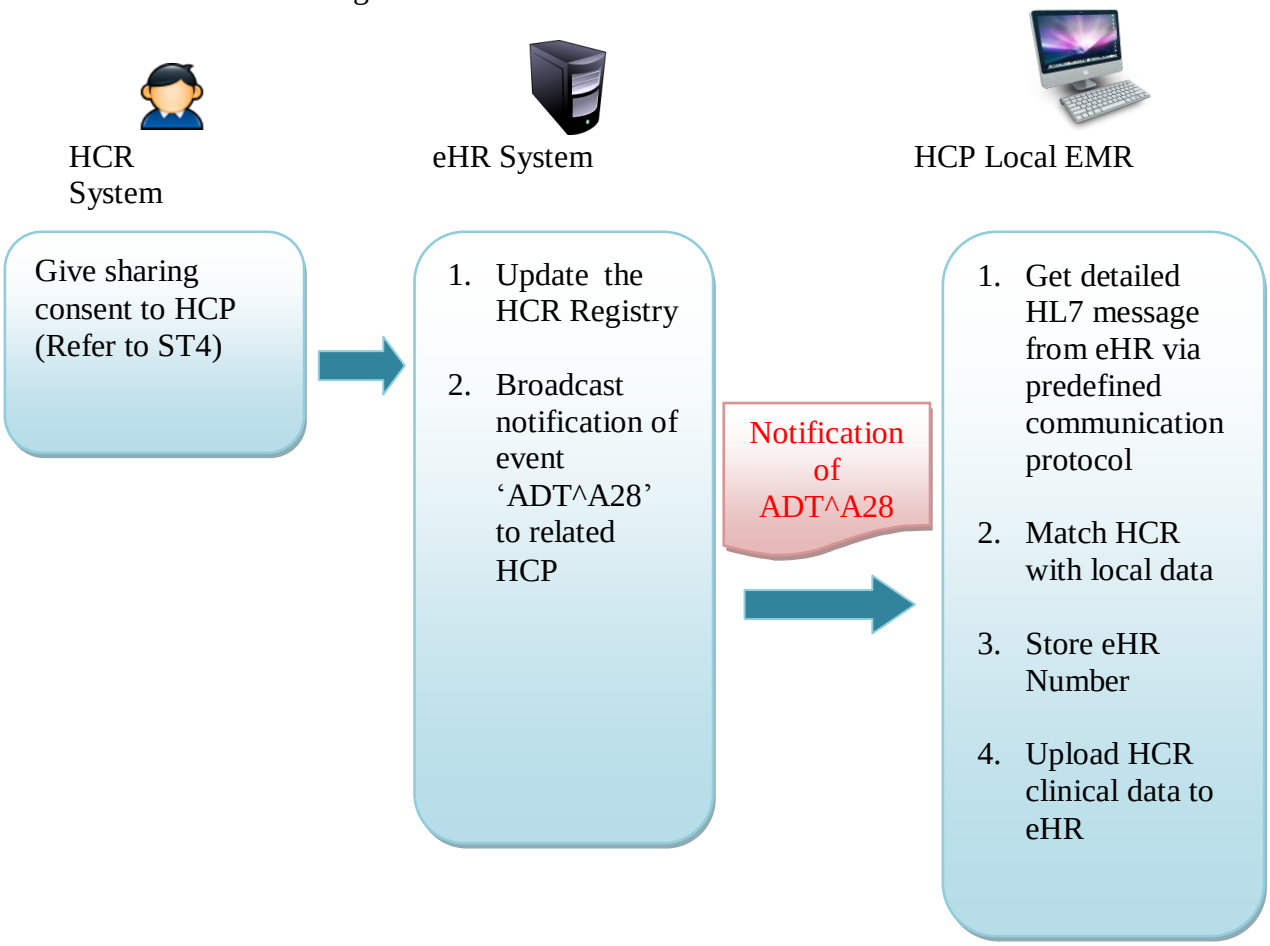

Figure 8-3 Workflow of Giving Sharing Consent to HCP

8.3.3 Message Event Details

The following event information is referring to HL7 version 2.5 messaging standards. The details of HL7 segments can be found in the corresponding chapters in HL7 specification. For updated HL7 specifications, please visit the official HL7 websites.

Message Code:	ADT
Trigger Event:	A28
Event Name:	Add Person or Patient Information
Usage:	Give Sharing Consent to HCP
HL7 Message Structure:	A05

Message Format

Required eHR Segment	ADT^A28	ADT Message	Chapter in HL7 Specification
✓	**MSH**	Message Header	2
	[{ SFT }]	Software Segment	2
✓	**EVN**	Event Type	3
✓	**PID**	Patient Identification	3
	[PD1]	Additional Demographics	3
	[{ ROL }]	Role	15
	[{ **NK1** }]	Next of Kin / Associated Parties	3
✓	**PV1**	Patient Visit	3
	[PV2]	Patient Visit - Additional Info.	3
	[{ ROL }]	Role	15
	[{ DB1 }]	Disability Information	3
	[{ OBX }]	Observation/Result	7
	[{ AL1 }]	Allergy Information	3
	[{ DG1 }]	Diagnosis Information	6
	[DRG]	Diagnosis Related Group	6
	[{	--- PROCEDURE begin	
	PR1	Procedures	6
	[{ ROL }]	Role	15
	}]	--- PROCEDURE end	
	[{ GT1 }]	Guarantor	6
	[{	--- INSURANCE begin	
	IN1	Insurance	6
	[IN2]	Insurance Additional Info.	6
	[{ IN3 }]	Insurance Additional Info - Cert.	6
	[{ ROL }]	Role	15
	}]	--- INSURANCE end	
	[ACC]	Accident Information	6
✓	[Signature]	XML Digital Signature	

8.3.4 Data Interface

In this section, the data elements embedded in the trigger event A28 will be described. The eHR number and major keys of the HCR will be included in the message to related HCPs who have effective sharing consent with the HCR.

Data Component Required:	HCR identity information
Purpose:	To uniquely and accurately identify the HCR
Data Element Required:	Refer to Table 8.3

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
HCR Identity	*(Refer to Table 8.1 in section 8.1.4 - Data Interface)*		
Consent Information	Type of sharing consent	M	Possible value: 0: Indefinite sharing consent 1: One-year sharing consent
	Date of giving sharing consent	M	In format: YYYYMMDD
Transaction Data	*(Refer to Table 8.1 in section 8.1.4 - Data Interface)*		

Table 8.3 Data elements in Giving Sharing Consent message notification to HCP

8.3.5 Expected Action from HCP

The following actions are expected from HCP upon receiving the event message 'ADT^A28':

- Match HCR with local data
- Store eHR number in local EMR system
- Upload ALL HCR clinical data from local EMR system to eHR

8.4 CANCEL REGISTRATION FROM eHR

Purpose:

Once the HCR has cancelled registration from eHR, all HCPs must stop uploading and accessing the HCR's clinical records to and from eHR. It is an immediate action for cancellation of registration in order to protect the security of a person's eHR record. This message will be delivered to HA and DH only.

8.4.1 Cancel Registration – Immediate Action upon Withdrawal from eHR (ST5)

Description:

If HCR requests to withdraw from eHR, he/she is required to provide identity document with the completed eHR form of cancellation of registration and send to eHRRO for the withdrawal from eHR. A cancellation of registration notification will be sent to HA, DH and the notification of revoke sharing consent will be delivered to HCP which has effective sharing consent with the HCR. Once the cancellation of registration from eHR is effective, the HCR's clinical records should not be uploaded from his/her consented HCP to eHR and the HCR's clinical record cannot be accessed from eHR.

8.4.2 General Workflow

Figure 8-4 below depicts the workflow among EMR/eHR systems when HCR withdraws from eHR.

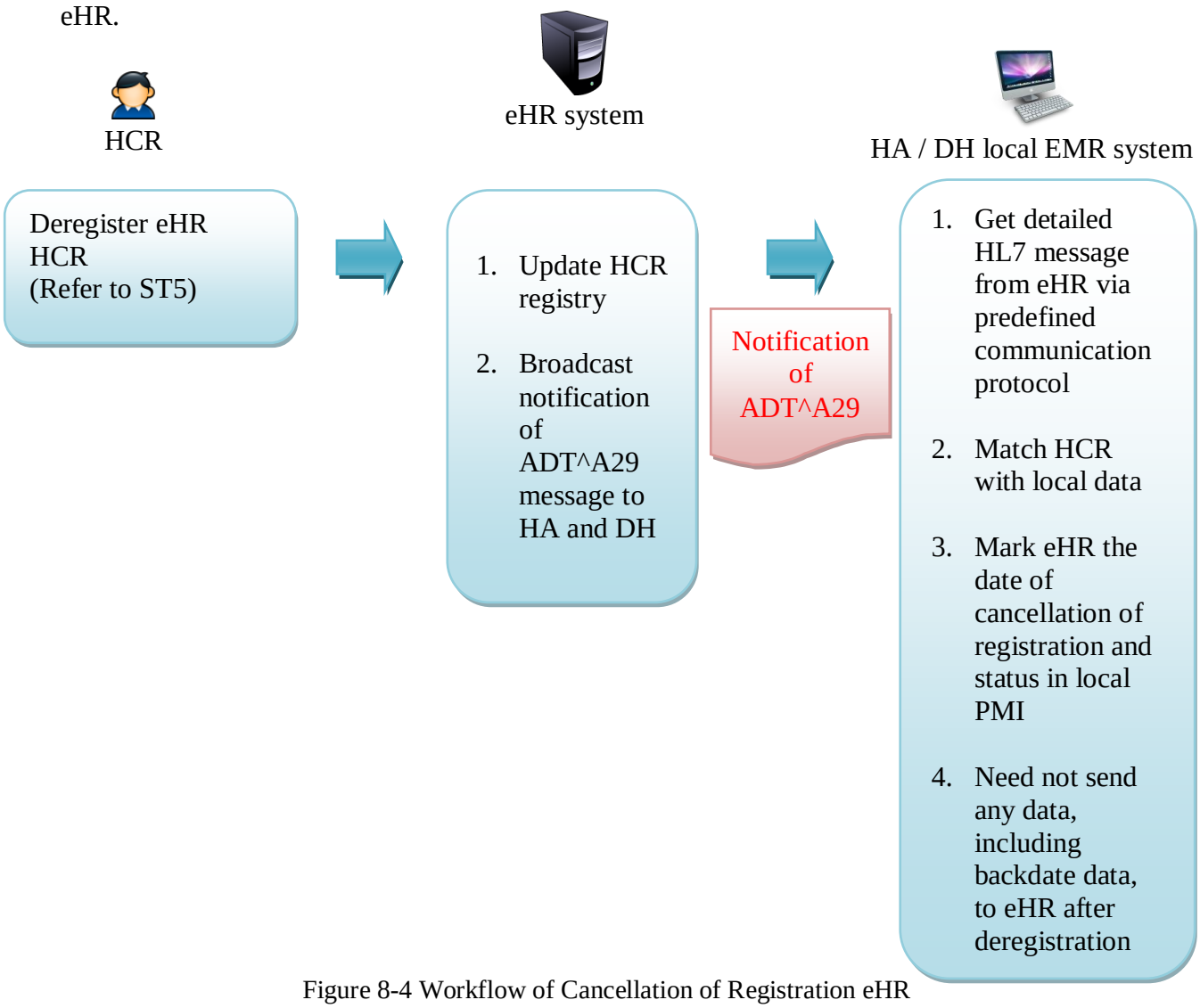

Figure 8-4 Workflow of Cancellation of Registration eHR

8.4.3 Message Event Details

The following event information is referring to HL7 version 2.5 messaging standards. The details of HL7 segments can be found in the corresponding chapters in HL7 specification. For updated HL7 specifications, please visit the official HL7 websites.

Message Code:	ADT
Trigger Event:	A29
Event Name:	Delete Personal Information
Usage:	Cancel registration of HCR from the HCR Registry
HL7 Message Structure:	A21

Message Format

Required eHR Segment	ADT^A29	ADT Message	Chapter in HL7 Specification
✓	**MSH**	Message Header	2
	[{ SFT }]	Software Segment	2
✓	**EVN**	Event Type	3
✓	**PID**	Patient Identification	3
	[PD1]	Additional Demographics	3
✓	**PV1**	Patient Visit	3
	[PV2]	Patient Visit - Additional Info.	3
	[{ DB1 }]	Disability Information	3
	[{ OBX }]	Observation/Result	7
✓	[Signature]	XML Digital Signature	

8.4.4 Data Interface

In this section, the data elements included in the trigger event A29 will be described. The eHR number and major keys of the HCR will be included in the message to HA and DH.

Data Component Required:	HCR identity information
Purpose:	To uniquely and accurately identify the HCR
Data Element Required:	Refer to Table 8.4

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
HCRIdentity	*(Refer to Table 8.1 in section 8.1.4 - Data Interface)*		
eHR Registration	eHR registration end date	M	In format: YYYYMMDD
Transaction Data	*(Refer to Table 8.1 in section 8.1.4 - Data Interface)*		

Table 8.4 Data elements in cancellation of registration from eHR notification to HA and DH

8.4.5 Expected Action from HA and DH

The following actions are expected from HA and DH upon receiving the event message 'ADT^A29':

- Match eHR HCR with local data
- Mark eHR deregistration date and status in local PMI
- Stop to send any data, including backdate data, to eHR after deregistration date

8.5 REVOKE SHARING CONSENT TO HEALTHCARE PROVIDER

Purpose:

Once the HCR revokes the sharing consent to HCP, the sharing consent between HCR and HCP will be cancelled. The HCP should stop uploading and accessing the HCR's clinical records to and from eHR. If the emergency access / the sharing consent to HCP is expired, the same notification will also be delivered to such HCP.

8.5.1 Revoke Sharing Consent to HCP (ST6)

Description:

A HCR can stop a HCP from accessing his/her eHR data by revoking the sharing consent with that HCP. Upon the revocation of sharing consent, the HCP will receive the notification of revoking sharing consent and it should no longer access or upload the HCR's record from/to eHR.

8.5.2 General Workflow

Figure 8-5 below depicts the workflow among EMR/eHR systems when HCR revokes sharing consent to HCP.

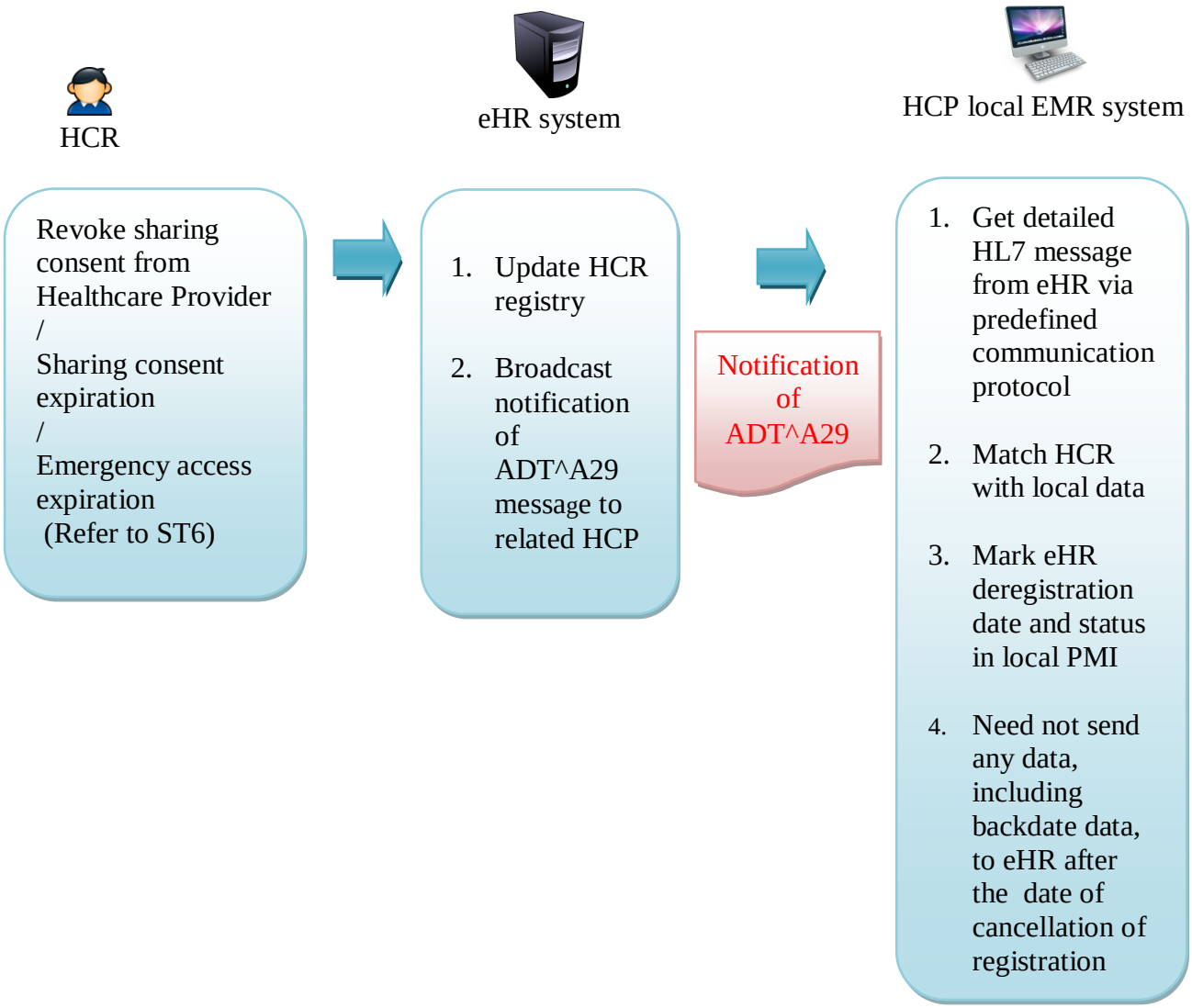

Figure 8-5 Workflow of Revoke Sharing Consent

8.5.3 Message Event Details

The following event information is referring to HL7 version 2.5 messaging standards. The details of HL7 segments can be found in the corresponding chapters in HL7 specification. For updated HL7 specifications, please visit the official HL7 websites.

Message Code:	ADT
Trigger Event:	A29
Event Name:	Delete Personal Information
Usage:	Revoke sharing consent to HCP / Sharing consent to HCP is expired / Emergency access to HCP is expired
HL7 Message Structure:	A21

Message Format

Required eHR Segment	ADT^A29	ADT Message	Chapter in HL7 Specification
✓	**MSH**	Message Header	2
	[{ SFT }]	Software Segment	2
✓	**EVN**	Event Type	3
✓	**PID**	Patient Identification	3
	[PD1]	Additional Demographics	3
✓	**PV1**	Patient Visit	3
	[PV2]	Patient Visit - Additional Info.	3
	[{ DB1 }]	Disability Information	3
	[{ OBX }]	Observation/Result	7

8.5.4 Data Interface

In this section, the data elements included in the trigger event A29 will be described. The eHR number and major keys of the HCR will be included in the message to related HCPs who have effective sharing consent with the HCR.

Data Component Required:	HCR identity information
Purpose:	To uniquely and accurately identify the HCR
Data Element Required:	Refer to Table 8.5

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
HCR Identity	*(Refer to Table 8.1 in section 8.1.4 - Data Interface)*		
Consent Information	Date of revoking sharing consent	M	In format: YYYYMMDD
Transaction Data	*(Refer to Table 8.1 in section 8.1.4 - Data Interface)*		

Table 8.5 Data elements in Revoking Sharing Consent message notification to HCP

8.5.5 Expected Action from HCP

The following actions are expected from HCP upon receiving the event message 'ADT^A29':

- Match HCR with local data
- Mark 'Revoke sharing consent' date and status in local PMI
- Stop to send any data, including backdate data, to eHR after the date of revoking sharing consent
- Stop to download any data from eHR after the date of revoking sharing consent
- Disable the button to the eHR viewer

8.6 UPDATE HCR IDENTIFIER

Purpose:

HCR is requested to notify eHR for any change of his/her personal information. It aims to ensure the local eMR/eHR records are linking to the right HCR at the eHR.

8.6.1 Change eHR PMI Data – Major Keys (ST7)

Description:

If there is any change in major keys of a HCR, the HCR should request for updating the changes at the eHR Registration Office (eHRRO).

Moreover, HCR has to provide the identity document proof for the major keys' changes at eHRRO. eHR system will broadcast the notification of 'Major keys' change to related HCPs who have effective sharing consent with the HCR.

8.6.2 General Workflow

Figure 8-6 below depicts the workflow among EMR/eHR systems when HCR updates his/her identifier.

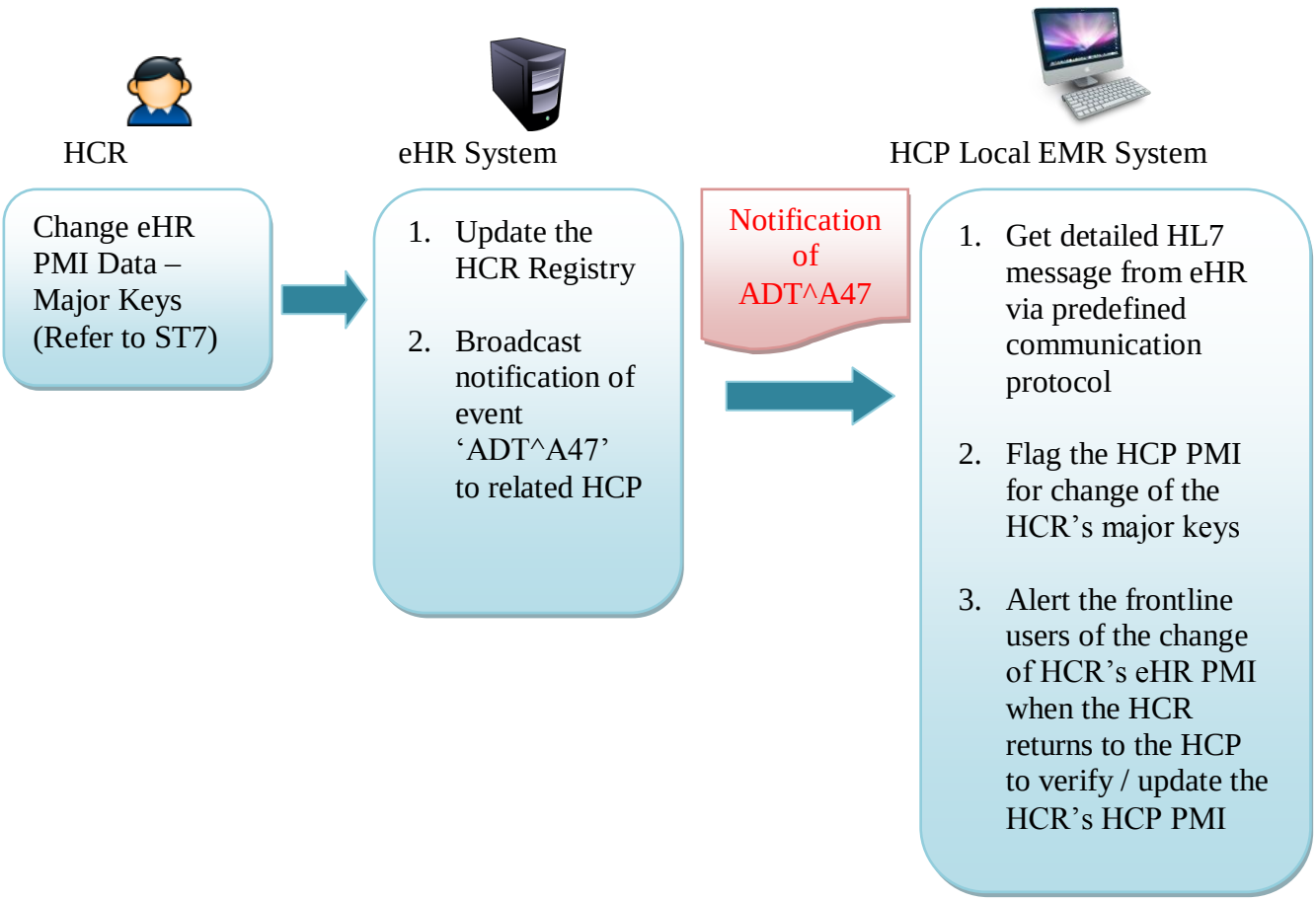

Figure 8-6 Workflow of Update HCR Identifier

8.6.3 Message Event Details

The following event information is referring to HL7 version 2.5 messaging standards. The details of HL7 segments can be found in the corresponding chapters in HL7 specification. For updated HL7 specifications, please visit the official HL7 websites.

Message Code:	ADT
Trigger Event:	A47
Event Name:	Change Patient Identifier List
Usage:	Update major keys in eHR PMI
HL7 Message Structure:	A30

Message Format

Required eHR Segment	ADT^A47	ADT Message	Chapter in HL7 Specification
✓	**MSH**	Message Header	2
	[{ SFT }]	Software Segment	2
✓	**EVN**	Event Type	3
✓	**PID**	Patient Identification	3
	[PD1]	Additional Demographics	3
✓	**MRG**	Merge Information	3
✓	[Signature]	XML Digital Signature	

8.6.4 Data Interface

In this section, the data elements included in the trigger event A47 will be described. The eHR number and major keys of the HCR will be included in the message to related HCPs who have effective sharing consent with the HCR.

Data Component Required: HCRidentity information

Purpose: To uniquely and accurately identify the HCR and update HCR's major keys

Data Element Required: Refer to Table 8.6

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
HCR Identity	*(Refer to Table 8.1 in section 8.1.4 - Data Interface)*		HCR Identity information from both the old and new sets of data will be included in the detailed message. *Remarks:* • *HL7 elements <PID> stores the new set of data* • *HL7 elements <MRG> stores the old set of data* • *Refer to section 10 for data mapping details*
Transaction Data	*(Refer to Table 8.1 in section 8.1.4 - Data Interface)*		

Table 8.6 Data elements in major keys change message notification to HCP

8.6.5 Expected Action from HCP

The following actions are expected from HCP upon receiving the event message 'ADT^A47':

- Flag the HCP PMI for change of the HCR's major keys.
- Alert the frontline users of the change of eHR HCR's eHR PMI when the person returns to the HCP to verify / update the eHR HCR's HCP PMI.

8.7 NOTIFICATION OF HCR'S PROBLEM RECORD REPORTING

Purpose:

After the eHR is notified that one HCP discovers the problem on HCR episode, eHR will notify other consented HCP(s) and the concerned HCP itself.

8.7.1 Notification to Report HCR's problem record status(ST8)

Description:

- When eHR receives the first problem record reporting notification from one HCP, the notification of the HCR problem record reporting will be delivered to all HCP which has effective sharing consent with the HCR.

- When eHR receives the deletion of problem record notification from the concerned HCP and there is no other problem record from other HCP, the notification of problem record with cancellation status will be delivered to all HCP which has effective sharing consent with the HCR.

Remarks:

- *The status (Mark/Cancel) of problem record is indicated with an indicator in the notification message to be sent to HCP..*

8.7.2 General Workflow

Figure 8-7 below depicts the workflow among EMR/eHR systems when eHR turns on problem record indicator for the HCR

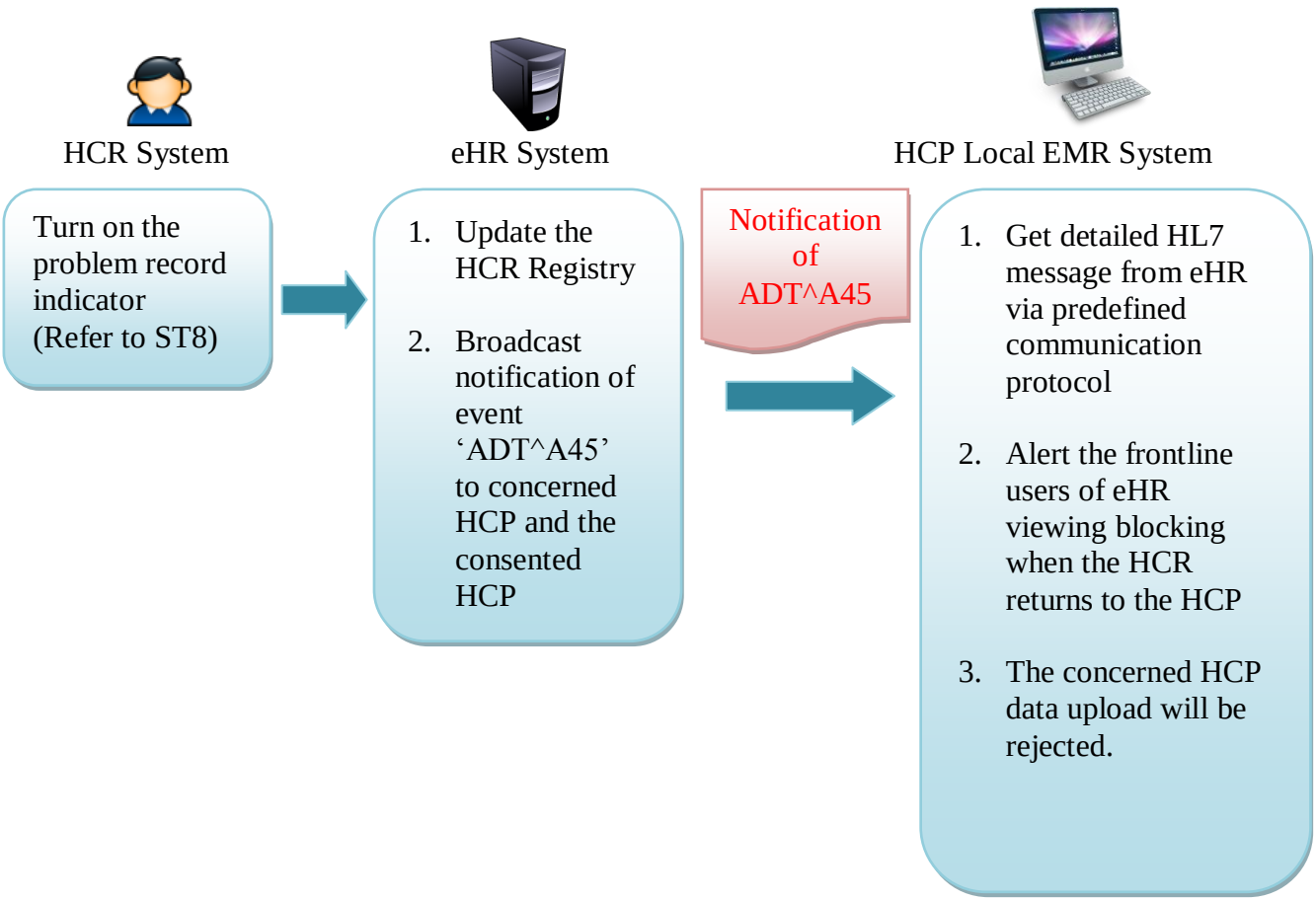

Figure 8-7 Workflow of HCR's Problem record report

8.7.3 Message Event Details

The following event information is referring to HL7 version 2.5 messaging standards. The details of HL7 segments can be found in the corresponding chapters in HL7 specification. For updated HL7 specifications, please visit the official HL7 websites.

Message Code:	ADT
Trigger Event:	A45
Event Name:	Move Visit Information – Visit Number
Usage:	Move / Cancel Problem Record
HL7 Message Structure:	A45

Message Format

Required eHR Segment	ADT^A45	ADT Message	Chapter in HL7 Specification
✓	**MSH**	Message Header	2
	[{ SFT }]	Software Segment	2
✓	**EVN**	Event Type	3
✓	**PID**	Patient Identification	3
	[PD1]	Additional Demographics	3
	{	--- MERGE_INFO begin	
✓	**MRG**	Merge Information	3
✓	**PV1**	Patient Visit	3
	}	--- MERGE_INFO end	
✓	[Signature]	XML Digital Signature	

8.7.4 Data Interface

In this section, the data elements included in the trigger event A45 will be described. The eHR number and major keys of the HCR will be included in the message to related HCPs who have effective sharing consent with the HCR.

Data Component Required: HCR identity information
Purpose: To uniquely and accurately identify the HCR
Data Element Required: Refer to Table 8.7

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
HCR Identity	*(Refer to Table 8.1 in section 8.1.4 - Data Interface)*		HCR Identity information of whom the clinical data contains problem
Transaction Data	Message number	M	
	Event code	M	
	Transaction datetime	M	
	Problem record status	M	O: Mark F: Completed/Cancelled U: Ready for upload

Table 8.7 Data elements in problem record message notification to HCP

8.7.5 Expected Action from HCP

The following actions are expected from HCP upon receiving the event message 'ADT^A45':

- If the problem record deletion starts,
  - Alert the frontline users of eHR viewing blocking when the HCR returns to the HCP
  - Not upload clinical data from the concerned HCP

- If the concerned HCP is allowed to upload clinical data,
  - HCP should resume the clinical data upload.

- If the problem record deletion is completed,
  - Alert the frontline users of eHR viewing re-opening when the HCR returns to the HCP

8.8 UPDATE HCR INFORMATION

Purpose:

When eHR updates the HCR non-identity information, the notification will be sent to the consented HCP for the update detail.

8.8.1 Update HCR information/status (ST9)

Description:

- After eHR mark the update on the HCR non-identity information, the consented HCP will be notified for the update detail such as the type of the changed information and the new value/status of the change. For the update on HCR identity information, another notification (ST7) is delivered.

- For example, if the change is the suspension of HCR, the data of the suspended HCR cannot be viewed and downloaded. The data upload is still kept accepted.

8.8.2 General Workflow

Figure 8-8 below depicts the workflow among EMR/eHR systems when eHR update the HCR information

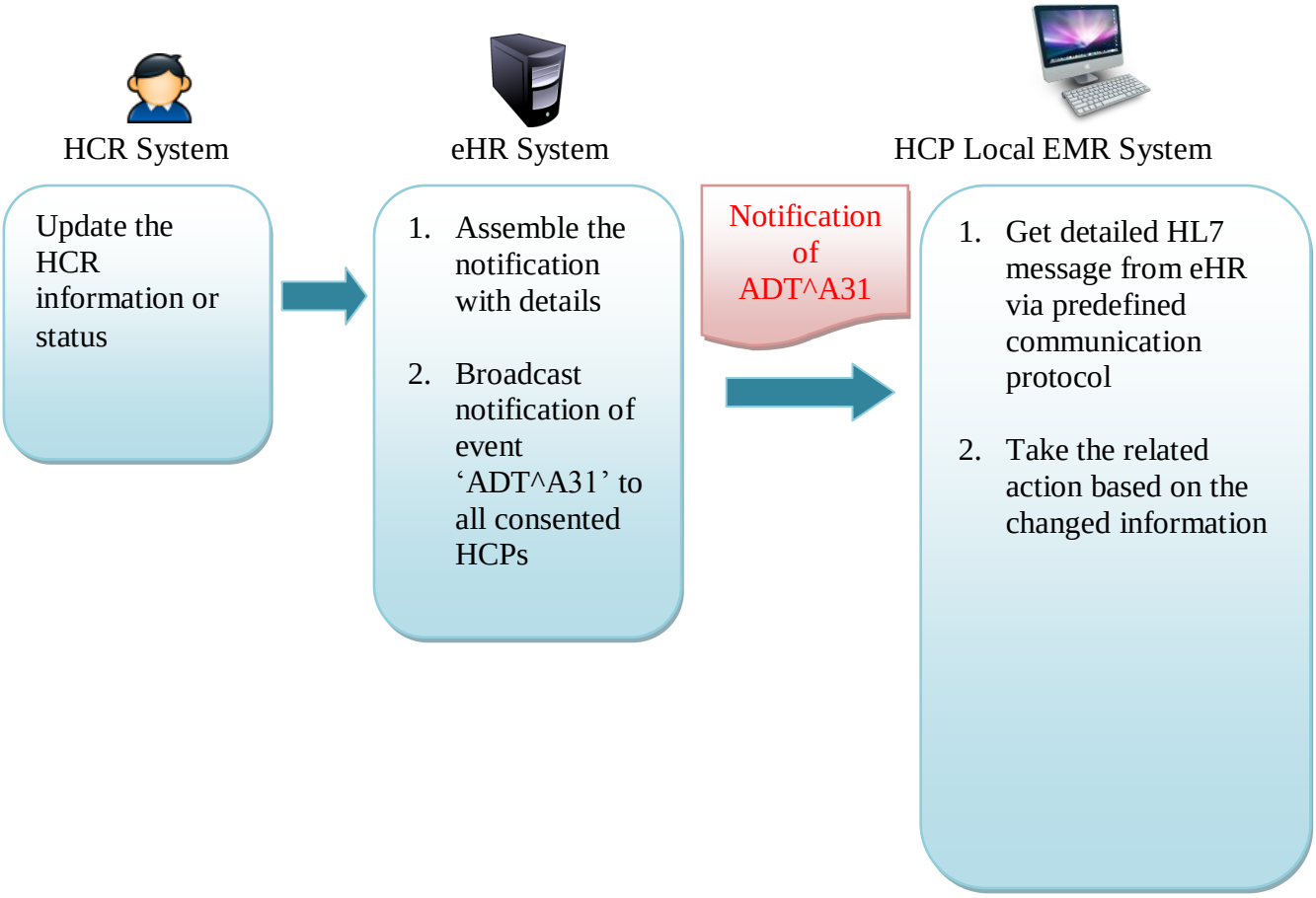

Figure 8-8 Workflow of HCR's Problem record report

8.8.3 Message Event Details

The following event information is referring to HL7 version 2.5 messaging standards. The details of HL7 segments can be found in the corresponding chapters in HL7 specification. For updated HL7 specifications, please visit the official HL7 websites.

Message Code:	ADT
Trigger Event:	A31
Event Name:	Update Person Information
Usage:	Update Patient Information
HL7 Message Structure:	A05

Message Format

Required eHR Segment	ADT^A31	ADT Message	Chapter in HL7 Specification
✓	**MSH**	Message Header	2
	[{ SFT }]	Software Segment	2
✓	**EVN**	Event Type	3
✓	**PID**	Patient Identification	3
	[PD1]	Additional Demographics	3
	[{ ROL }]	Role	15
	[{ NK1 }]	Next of Kin / Associated Parties	3
✓	**PV1**	Patient Visit	3
	[PV2]	Patient Visit - Additional Info.	3
	[{ ROL }]	Role	15
	[{ DB1 }]	Disability Information	3
✓	[{ OBX }]	Observation/Result	7
	[{ AL1 }]	Allergy Information	3
	[{ DG1 }]	Diagnosis Information	6
	[DRG]	Diagnosis Related Group	6
	[{	--- PROCEDURE begin	
	PR1	Procedures	6
	[{ ROL }]	Role	15
	}]	--- PROCEDURE end	
	[{ GT1 }]	Guarantor	6
	[{	--- INSURANCE begin	
	IN1	Insurance	6
	[IN2]	Insurance Additional Info.	6
	[{ IN3 }]	Insurance Additional Info - Cert.	6
	[{ ROL }]	Role	15
	}]	--- INSURANCE end	
	[ACC]	Accident Information	6
	[UB1]	Universal Bill Information	6
	[UB2]	Universal Bill 92 Information	6
✓	[Signature]	XML Digital Signature	

8.8.4 Data Interface

In this section, the data elements included in the trigger event A31 will be described. The eHR number and major keys of the HCR will be included in the message to related HCPs who have effective sharing consent with the HCR.

Data Component Required: HCR identity information
Purpose: To uniquely and accurately identify the HCR
Data Element Required: Refer to Table 8.8

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
HCR Identity	*(Refer to Table 8.1 in section 8.1.4 - Data Interface)*		
HCR Information	Information Name	M	HCR information to be updated

			Possible value: “HCR Suspension status”
	Information Value	M	New value of the updated information Possible value: “S” : “HCR is suspended” “C”: “the HCR suspension is ceased”
Transaction Data	Message number	M	
	Event code	M	
	Transaction datetime	M	

Table 8.8 Data elements in update HCR information message notification to HCP

8.8.5 Expected Action from HCP

The following actions are expected from HCP upon receiving the event message ‘ADT^A31’:

- If the HCR is suspended,
  - Alert the frontline users of eHR viewing blocking when the HCR returns to the HCP
  - Keep to upload clinical data
  - Data download will not include the suspended HCR.

- If the HCR suspension is ceased, the data viewing are allowed. The data download may include such HCR.

8.9 GRANT EMERGENCY ACCESS TO HEALTHCARE PROVIDER

Purpose:

To allow Healthcare Provider (HCP) to view HCR’s clinical records from Electronic Healthcare Record (eHR) system under the emergency situation, the 24-hour emergency access between an HCR and HCPs must be granted in advance. The emergency access will be granted only if HCR can be linked to the registered patient record in local Electronic Medical Record (EMR) / Electronic Patient Record (ePR) system uniquely and accurately.

The notification is for non-HA and non-DH HCP only.

8.9.1 Grant emergency access to HCP (ST10)

Description:

HCP can get the grant to emergency access with the HCR major key. The HCP will be notified once the emergency access between the HCP and HCR has been granted. Then, the HCP will be granted the privilege to access eHR for HCR’s clinical data only. No data upload and data download are accepted. The HA and DH will not receive this type of notification.

8.9.2 General Workflow

Figure 8-9 below depicts the workflow among EMR/eHR systems when HCR gives sharing consent with HCP in eHR registration.

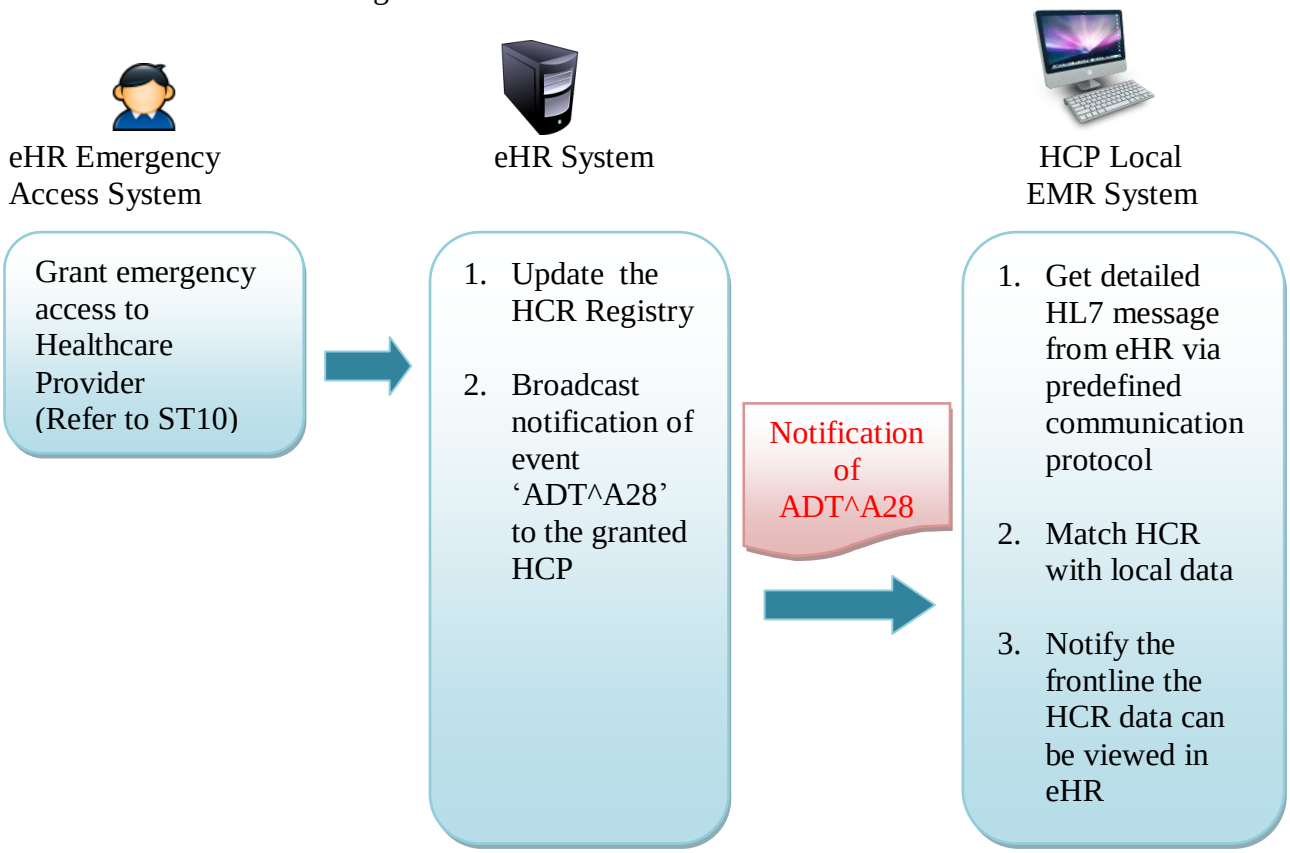

Figure 8-9 Workflow of Grant Emergency Access to HCP

8.9.3 Message Event Details

The following event information is referring to HL7 version 2.5 messaging standards. The details of HL7 segments can be found in the corresponding chapters in HL7 specification. For updated HL7 specifications, please visit the official HL7 websites.

Message Code:	ADT
Trigger Event:	A28
Event Name:	Add Person or Patient Information
Usage:	Grant Emergency Access to HCP
HL7 Message Structure:	A05

Message Format

Required eHR Segment	ADT^A28	ADT Message	Chapter in HL7 Specification
✓	**MSH**	Message Header	2
	[{ SFT }]	Software Segment	2
✓	**EVN**	Event Type	3
✓	**PID**	Patient Identification	3

	[PD1]	Additional Demographics	3
	[{ ROL }]	Role	15
	[{ **NK1** }]	Next of Kin / Associated Parties	3
✓	**PV1**	Patient Visit	3
	[PV2]	Patient Visit - Additional Info.	3
	[{ ROL }]	Role	15
	[{ DB1 }]	Disability Information	3
	[{ OBX }]	Observation/Result	7
	[{ AL1 }]	Allergy Information	3
	[{ DG1 }]	Diagnosis Information	6
	[DRG]	Diagnosis Related Group	6
	[{	--- PROCEDURE begin	
	PR1	Procedures	6
	[{ ROL }]	Role	15
	}]	--- PROCEDURE end	
	[{ GT1 }]	Guarantor	6
	[{	--- INSURANCE begin	
	IN1	Insurance	6
	[IN2]	Insurance Additional Info.	6
	[{ IN3 }]	Insurance Additional Info - Cert.	6
	[{ ROL }]	Role	15
	}]	--- INSURANCE end	
	[ACC]	Accident Information	6
✓	[Signature]	XML Digital Signature	

8.9.4 Data Interface

In this section, the data elements embedded in the trigger event A28 will be described. The eHR number and major keys of the HCR will be included in the message to related HCPs who the emergency access is granted to.

Data Component Required:	HCR identity information
Purpose:	To uniquely and accurately identify the HCR
Data Element Required:	Refer to Table 8.9

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
HCR Identity	*(Refer to Table 8.1 in section 8.1.4 - Data Interface)*		
Emergency Access Information	Type of emergency access	M	Fixed value 2: Emergency Access
	Date of granting emergency access	M	In format: YYYYMMDD
Transaction Data	*(Refer to Table 8.1 in section 8.1.4 - Data Interface)*		

Table 8.9 Data elements in granting emergency access message notification to HCP

8.9.5 Expected Action from HCP

The following actions are expected from HCP upon receiving the event message 'ADT^A28':

- Match HCR with local data
- Notify the frontline the data can be viewed in eHR

9 SCENARIO OF MESSAGE NOTIFICATION FROM HCP

The following subsections will address the scenarios which will trigger HL7 event messages notification upload from HCP to eHR. Under each scenario, the corresponding system workflows and HL7 event message type used will be described. Details of data mappings of the message event will be discussed in 'Section 10 – Data Mapping'.

For the definitions of those data elements included in the HL7 event messages mentioned below, please refer to "Data Requirement Specification for eHR Healthcare Recipient Index Record".

Action	Scenario	HL7 Event Code	Message Structure
Update HCR Death Data	Mark Decease / Death of HCR from HCP (SF1)	ADT^A08	ADT_A01
	Cancel Decease / Death Data of HCR from HCP (SF2)		
Report HCR's Problem Record Status	Report/Cancel HCR's Problem Record (SF3)	ADT^A45	ADT_A45
Reply 'Major Keys Matched' upon eHR registration and giving of sharing consent to HCP	Match HCR with Local System (SF4)	ADT^A28	ADT_A05
Complete Registration of Newborns from DH	Update the identification documents of the newborns (SF5)	ADT^A47	ADT_A30
Update major keys at HCP	Inform eHR that HCP's major keys change in local system (SF6)	ADT^A47	ADT_A30

9.1 UPDATE HCR DEATH

Purpose:

HCP should notify eHR about the eHR HCR's death record in order to maintain the correctness and accuracy of the related clinical records stored in eHR.

9.1.1 Mark Decease / Death of HCR from HCP (SF1)

Description:

If there is an HCR death record created by HCP, the HCP should notify eHR by sending the death information to eHR. Upon receipt of death record from HCP, HCR's clinical records could not be accessed or viewed in eHR portal. However, HCPs which still have effective sharing consent with the HCR should continue to upload the clinical records of that HCR.

If there is any data discrepancy found in death date between DR and HCP, data from DR shall prevail and related parties will be acknowledged of the inconsistency.

9.1.2 Cancel Decease / Death of eHR HCR from HCP (SF2)

Description:

If a HCP finds a death record which it has sent to eHR is not accurate, the HCP should notify eHR to cancel the prior death data submitted.

9.1.3 General Workflow

i. HCP updates the HCR's death record in her local system.

ii. HCP local system assembles messages representing the death update event according to the data requirements of data compliance level 3.

iii. If the HCP has ensured the completeness and correctness of the update death message, she can submit the message to eHR.

9.1.4 Message Event Details

The following event information is referring to HL7 version 2.5 messaging standards. The details of HL7 segments can be found in HL7 specification. For updated HL7 specifications, please visit the official HL7 websites.

Scenario No.	Description	HL-7-HK Message Standards
SF1	Mark Decease / Death of eHR HCR from HCP	Message Event Code ADT^A08 Event Name Update Patient Information HL7 Message Structure A01
SF2	Cancel Decease / Death of eHR HCR from HCP	

Message Format

Required eHR Segment	ADT^A08	ADT Message	Chapter in HL7 Specification
✓	**MSH**	Message Header	2
	[{ SFT }]	Software Segment	2
✓	**EVN**	Event Type	3
✓	**PID**	Patient Identification	3
	[PD1]	Additional Demographics	3
	[{ ROL }]	Role	15
	[{ **NK1** }]	Next of Kin / Associated Parties	3
✓	**PV1**	Patient Visit	3
	[PV2]	Patient Visit - Additional Info.	3
	[{ ROL }]	Role	15
	[{ DB1 }]	Disability Information	3
	[{ OBX }]	Observation/Result	7
	[{ AL1 }]	Allergy Information	3
	[{ DG1 }]	Diagnosis Information	6
	[DRG]	Diagnosis Related Group	6
	[{	--- PROCEDURE begin	
	PR1	Procedures	6
	[{ ROL }]	Role	15
	}]	--- PROCEDURE end	
	[{ GT1 }]	Guarantor	6
	[{	--- INSURANCE begin	
	IN1	Insurance	6
	[IN2]	Insurance Additional Info.	6
	[{ IN3 }]	Insurance Additional Info - Cert.	6
	[{ ROL }]	Role	15
	}]	--- INSURANCE end	
	[ACC]	Accident Information	6
	[UB1]	Universal Bill Information	6
	[UB2]	Universal Bill 92 Information	6
	[PDA]	Patient Death and Autopsy	3
✓	[Signature]	XML Digital Signature	

9.1.5 Data Interface

In this section, the data elements embedded in the trigger event A08 will be described. The eHR number and major keys of the HCR should be included in the notification from HCP to eHR.

Data Component Required:	HCR identity information and death date information
Purpose:	To uniquely and accurately identify the HCR and update death date
Data Element Required:	Refer to Table 9.1

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
HCR Identity	eHR number	M	
	HKIC number	M if [Identity document number] is blank O if [Identity document number] is not blank	
	Type of identity document	O if [Identity document number] is blank M if [Identity document number] is not blank	
	Identity document number	O if [HKIC number] is not blank M if [HKIC number] is blank	
	English surname	O if [English given name] is not blank M if [English given name] is blank	
	English given name	O if [English surname] is not blank M if [English	

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
		surname] is blank	
	English full name	O	
	Date of birth	M	
	Exact date of birth indicator	O	
	Sex	M	
Death Date	Date of death	M	
	Exact date of death indicator	O	
	Death time	O	
Transaction Data	Message number	M	
	Event code	M	
	Transaction datetime	M	
	Death indicator	M	Y: Mark death N: Cancel death

Table 9.1 Data elements in death data update message notification from HCP

9.2 REPORT HCR'S PROBLEM RECORD STATUS

Purpose:

If HCP discovers the episode of an HCR is recorded incorrectly to another person, HCP should notify eHR of the event of problem record report. Once the problem record is fixed, HCP should notify eHR for the cancellation of the problem record.

9.2.1 Report/Cancel Problem Record (SF3)

Description:

- When an episode is found to be recorded to another HCR, the HCP is moving the episode of the HCR to the right person. HCP should notify eHR which HCR has the problem record.

- When the problem record is fixed, the HCP should also notify eHR with 'Cancellation of problem record' message.

Remarks:

- *If HCP wants to notify eHR both 'Problem Record Report' and 'Problem Record Cancellation', HCP should send notification message for each action to eHR separately.*

- *The action status (Report/Cancel) of problem record is indicated with an indicator in the notification message to be sent to eHR.*
- *Please refer Section 10.1- MSH – Message Header Segment for the detail of the problem record indicator.*

9.2.2 General Workflow

i. HCP handles the problem record for a patient in her local system.

ii. HCP local system assembles messages representing the problem record event according to the data requirements of data compliance level 3.

iii. If the HCP has ensured the completeness and correctness of the problem record, she can submit the message to eHR.

9.2.3 Message Event Details

The following event information is referring to HL7 version 2.5 messaging standards. The details of HL7 segments can be found in HL7 specification. For updated HL7 specifications, please visit the official HL7 websites.

Scenario No.	Description	HL-7-HK Message Standards
SF3	Report/ Cancel Problem Record	Message Event Code ADT^A45 Event Name Move Visit Information – Visit Number HL7 Message Structure A45

Message Format

Required eHR Segment	ADT^A45	ADT Message	Chapter in HL7 Specification
✓	**MSH**	Message Header	2
	[{ SFT }]	Software Segment	2
✓	**EVN**	Event Type	3
✓	**PID**	Patient Identification	3
	[PD1]	Additional Demographics	3
	{	--- MERGE_INFO begin	
✓	**MRG**	Merge Information	3
✓	**PV1**	Patient Visit	3
	}	--- MERGE_INFO end	
✓	[Signature]	XML Digital Signature	

9.2.4 Data Interface

In this section, the data elements embedded in the trigger event A45 will be described. The eHR number and major keys of the HCR should be included in the notification from HCP to eHR.

Data Component Required: HCR identity information
Purpose: To uniquely and accurately identify the HCR
Data Element Required: Refer to Table 9.2

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
HCR Identity	eHR number	M	
	HKIC number	M if [Identity document number] is blank O if [Identity document number] is not blank	
	Type of identity document	O if [Identity document number] is blank M if [Identity document number] is not blank]	Refer to the eHR code table 'Type of Identity Document'
	Identity document number	O if [HKIC number] is not blank M if [HKIC number] is blank	
	English surname	O if [English given name] is not blank M if [English given name] is blank	
	English given name	O if [English surname] is not blank M if [English surname] is blank	

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
	English full name	O	
	Date of birth	M	
	Exact date of birth indicator	O	
	Sex	M	
Transaction Data	Message number	M	
	Event code	M	
	Transaction datetime	M	
	Problem record status	M	P: Report C: Completed/Cancel

Table 9.2 Data elements in problem record message notification from HCP

9.3 REPLY MAJOR KEYS MATCHED

Purpose:

To allow Healthcare Provider (HCP) to upload and access HCR's clinical records to or from Electronic Healthcare Record (eHR) system, a HCP must have an effective sharing consent with the HCR, and the HCR identity stored in the HCP local system must be matched with which stored in eHR.

Please note that HCP is expected to use the major keys given by eHR for replying the matching result.

9.3.1 Match HCR with Local System (SF4)

Description:

When HA or DH gets a PMI notification of a new eHR registration or HCP gets a PMI notification message of giving sharing consent with a HCR, HA, DH or HCP should verify if the HCR is registered in her local system.

9.3.2 General Workflow

For Hospital Authority (HA) and Department of Health (DH):

i. HA or DH gets a PMI notification message of a new eHR registration of a HCR.

ii. HA or DH verifies if the HCR is registered in her local system with the same set of major keys.

HA or DH needs to notify eHR if the matching result is:
1. PMI matched
2. No PMI record
3. PMI not matched
4. Data not ready

iii. HA or DH local system assembles messages representing an HCR matching result event according to the data requirements of data compliance level 3

iv. If the HA or DH has ensured the completeness and correctness of the HCR matching result message, she can submit the message to eHR.

For HCPs other than HA and DH:

i. HCP gets a PMI notification message of giving sharing consent to a HCR.

ii. HCP verifies if the HCR is registered in her local system with the same set of major keys.

HCP needs to notify eHR if the matching result is:
1. PMI matched

Remarks: HCP may upload clinical data with the matched major keys to eHR as an alternative way to reply eHR message 'Match HCR with Local System'.

iii. If HCP confirms the HCR is registered with same major keys in her local system, she assembles messages representing a HCR matching result event according to the data requirements of data compliance level 3.

iv. If the HCP has ensured the completeness and correctness of the HCR matching result message, she can submit the message to eHR.

9.3.3 Message Event Details

The following event information is referring to HL7 version 2.5 messaging standards. The details of HL7 segments can be found in HL7 specification. For updated HL7 specifications, please visit the official HL7 websites.

Scenario No.	Description	HL-7-HK Message Standards

SF4	Match HCR with Local System	Message Event Code ADT^A28 Event Name Add Person or Patient Information HL7 Message Structure A05

Message Format

Required eHR Segment	ADT^A28	ADT Message	Chapter in HL7 Specification
✓	**MSH**	Message Header	2
	[{ SFT }]	Software Segment	2
✓	**EVN**	Event Type	3
✓	**PID**	Patient Identification	3
	[PD1]	Additional Demographics	3
	[{ ROL }]	Role	15
	[{ **NK1** }]	Next of Kin / Associated Parties	3
✓	**PV1**	Patient Visit	3
	[PV2]	Patient Visit - Additional Info.	3
	[{ ROL }]	Role	15
	[{ DB1 }]	Disability Information	3
	[{ OBX }]	Observation/Result	7
	[{ AL1 }]	Allergy Information	3
	[{ DG1 }]	Diagnosis Information	6
	[DRG]	Diagnosis Related Group	6
	[{	--- PROCEDURE begin	
	PR1	Procedures	6
	[{ ROL }]	Role	15
	}]	--- PROCEDURE end	
	[{ GT1 }]	Guarantor	6
	[{	--- INSURANCE begin	
	IN1	Insurance	6
	[IN2]	Insurance Additional Info.	6
	[{ IN3 }]	Insurance Additional Info - Cert.	6
	[{ ROL }]	Role	15
	}]	--- INSURANCE end	
	[ACC]	Accident Information	6
✓	[Signature]	XML Digital Signature	

9.3.4 Data Interface

In this section, the data elements embedded in the trigger event A28 will be described. The eHR number and major keys of the HCR should be included in the notification message from HCP to eHR.

Data Component Required: HCR identity information
Purpose: To uniquely and accurately identify the HCR
Data Element Required: Refer to Table 9.3

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
HCR Identity	*(Refer to Table 9.1 in section 9.1.5 - Data Interface)*		
Transaction Data	Message number	M	
	Event code	M	
	Transaction datetime	M	

	HCR matching result	M	Refer to Section 10.2 for possible values

Table 9.3 Data elements in in register in eHR / give sharing consent reply message from HCP

9.4 COMPLETE REGISTRATION OF NEWBORNS FROM DH

Purpose:

To facilitate the completion of registration of newborns once the HK birth certification and identification documents are verified by Department of Health (DH).

9.4.1 Update major keys according to HK Birth Certificate (SF5)

Description:

When there is eHR registration at newborn's birth hospital, 'Type of Identity Document' will be marked as 'eHR document' and a system-generated number will be assigned to the newborn. Once the newborn's identification information in HK birth certificate are verified by DH, DH can send a message to eHR to update the major keys of the newborn.
.

9.4.2 General Workflow

For Department of Health (DH):

i. DH receives a PMI notification message of a new eHR registration of the newborn.

ii. The newborn has presented her HK Birth Certificate in DH and DH has verified the newborn's identification information shown in the HK Birth Certificate.

iii. If DH has ensured the correctness of the newborn's identification information, she can submit the message to eHR for the amendment of newborn's registration record

9.4.3 Message Event Details

The following event information is referring to HL7 version 2.5 messaging standards. The details of HL7 segments can be found in HL7 specification. For updated HL7 specifications, please visit the official HL7 websites.

Scenario No.	Description	HL-7-HK Message Standards
SF5	Complete registration of newborns from DH	Message Event Code ADT^A47 Event Name Change Patient Identifier List HL7 Message Structure A30

Message Format

Required eHR Segment	ADT^A47	ADT Message	Chapter in HL7 Specification
✓	**MSH**	Message Header	2
	[{ SFT }]	Software Segment	2
✓	**EVN**	Event Type	3
✓	**PID**	Patient Identification	3
	[PD1]	Additional Demographics	3
✓	**MRG**	Merge Information	3
✓	[Signature]	XML Digital Signature	

9.4.4 Data Interface

In this section, the data elements embedded in the trigger event A28 will be described. The eHR number and major keys of the HCR should be included in the notification message from HCP to eHR.

Data Component Required: HCR identity information
Purpose: To uniquely and accurately identify the HCR
Data Element Required: Refer to Table 9.4

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
New HCR Identity	eHR number	M	
	HKIC number	M	Refer to the HK Birth Certificate number
	Type of identity document	M	Refer to the eHR value of 'Birth Certificate - HK' defined in eHR code table 'Type of Identity Document' , i.e. "BC"
	English surname	O if [English given name] is not blank M if [English given name] is blank	
	English given name	O if [English surname] is not blank M if [English surname] is blank	
	English full name	O	
	Chinese name	O	Encoding method: Unicode
	Date of birth	M	
	Exact date of birth indicator	O	
	Sex	M	

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
Old HCR Identity	eHR number	M	
	Type of identity document	M	Refer to the eHR value of 'eHR document' defined in eHR code table 'Type of Identity Document' , i.e. "ED"
	Identity document number	M	eHR System-generated eHR number
	English surname	O if [English given name] is not blank M if [English given name] is blank	
	English given name	O if [English surname] is not blank M if [English surname] is blank	
	English full name	O	
	Date of birth	M	
	Exact date of birth indicator	O	
	Sex	M	
Transaction Data	Message number	M	
	Event code	M	
	Transaction datetime	M	
	Newborn registration indicator	M	Fixed value = "**N**" (**N**: Newborn)

Table 9.4 Data elements in Completion of Newborns Registration message from HCP

9.5 MAJOR KEYS CHANGE AT HCP

Purpose:

To facilitate HCP to notify eHR upon the major keys of HCR is updated in local EHR system.

9.5.1 Update major keys at HCP (SF6)

Description:

When the major keys of HCR are updated in local EMR system, HCP is expected to notify eHR for the update. Upon the notification of HCR's major key change from HCP, eHR will be able to remind HCR to update the corresponding records in eHR.

9.5.2 General Workflow

For HCP:

i. HCR has updated his/her major keys in HCP local EMR system.

ii. HCP notifies eHR for the HCR's major keys update event

For eHR:

i. Upon receiving the 'Major keys Change at HCP' message, eHR will keep the major key change record and is able to remind HCR to update his/her major keys in eHR.

9.5.3 Message Event Details

The following event information is referring to HL7 version 2.5 messaging standards. The details of HL7 segments can be found in HL7 specification. For updated HL7 specifications, please visit the official HL7 websites.

Scenario No.	Description	HL-7-HK Message Standards
SF6	Major Key Change at HCP	<u>Message Event Code</u> ADT^A47 <u>Event Name</u> Change Patient Identifier List <u>HL7 Message Structure</u> A30

Message Format

Required eHR Segment	ADT^A47	ADT Message	Chapter in HL7 Specification
✓	**MSH**	Message Header	2
	[{ SFT }]	Software Segment	2
✓	**EVN**	Event Type	3
✓	**PID**	Patient Identification	3
	[PD1]	Additional Demographics	3
✓	**MRG**	Merge Information	3
✓	[Signature]	XML Digital Signature	

9.5.4 Data Interface

In this section, the data elements embedded in the trigger event A28 will be described. The eHR number and major keys of the HCR should be included in the notification message from HCP to eHR.

Data Component Required:	HCR identity information
Purpose:	To uniquely and accurately identify the HCR
Data Element Required:	Refer to Table 9.5

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
New HCR Identity	eHR number	M	
	HKIC number	M if [Identity document number] is blank O if [Identity document number] is not blank	
	Type of identity document	O if [Identity document number] is blank M if [Identity document number] is not blank	Refer to the eHR value of 'eHR document' defined in eHR code table 'Type of Identity Document'
	Identity document number	O if [HKIC number] is not blank M if [HKIC number] is blank	
	English surname	O if [English given name] is not blank M if [English given name] is blank	
	English given name	O if [English surname] is not blank M if [English surname] is blank	
	English full name	O	
	Date of birth	M	
	Exact date of birth indicator	O	
	Sex	M	
Old HCR Identity	eHR number	M	
	HKIC number	M if [Identity document number] is blank O if [Identity	

Data Component	Data Element	Cardinality (M: Mandatory O: Optional)	Remark
		document number] is not blank	
	Type of identity document	O if [Identity document number] is blank M if [Identity document number] is not blank	Refer to the eHR value of 'eHR document' defined in eHR code table 'Type of Identity Document'
	Identity document number	O if [HKIC number] is not blank M if [HKIC number] is blank	
	English surname	O if [English given name] is not blank M if [English given name] is blank	
	English given name	O if [English surname] is not blank M if [English surname] is blank	
	English full name	O	
	Date of birth	M	
	Exact date of birth indicator	O	
	Sex	M	
Transaction Data	Message number	M	
	Event code	M	
	Transaction datetime	M	
	Major keys change notification type	M	Fixed value = "**O**" (**O**: Others)

Table 9.5 Data elements in 'Major Key Change at HCP' message

10 HL7 SEGMENT DATA MAPPING

10.1 MSH – MESSAGE HEADER SEGMENT

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7 SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
#<MSH.1>	1	ST			Field Separator	"|"						Fixed value
#<MSH.2>	4	ST			Encoding Characters	"^~\&"						Fixed value
<MSH.3> <HD.1>	227	HD IS		0361	Sending Application Namespace ID	*System Version*						System name and version for data exchange
<MSH.4> <HD.1>	227	HD IS		0362	Sending Facility Namespace ID	*Sending Institution Code*						A unique identifier assigned by eHR Healthcare Provider Index to each healthcare institution for participation in eHR Sharing System
<MSH.5> <HD.1>	227	HD IS		0361	Receiving Application Namespace ID	"EIF" (For "Notification Send From HCP (SF)" case only)						This field uniquely identifies the receiving application among all other applications within the network enterprise • For cases of "Notification Send From HCP (SF)" only • Fixed value

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7 SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<MSH.6>	227	HD		0362	Receiving Facility							This field uniquely identifies the receiving application among multiple identical instances of the application running on behalf of different organisations
<HD.1>		IS			Namespace ID	"eHR" (For "Notification Send From HCP (SF)" case only)						• For cases of "Notification Send From HCP (SF)" only • Fixed value
#<MSH.7>	26	TS			Date/Time Of Message							
<TS.1>		DTM			Time	*Message generation datetime*						In format: YYYYMMDDhhmmss
<MSH.8>	40	ST			Security	"3"						• Fixed value • Data Compliance Level
#<MSH.9>	15	MSG			Message Type							
<MSG.1>		ID			Message Type Code	"ADT"	"ADT"	"ADT"	"ADT"	"ADT"	"ADT"	Fixed value
<MSG.2>		ID			Trigger Event	"A28"	"A29"	"A47"	"A08"	"A45"	"A31"	Fixed value
<MSG.3>		ID			Message Structure	"ADT_A05"	"ADT_A21"	"ADT_A30"	"ADT_A01"	"ADT_A45"	"ADT_A05"	Fixed value

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7 SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
#<MSH.10>	20	ST			Message Control ID	Unique message identifier in sending application						Values can be in any combination of alphanumeric characters i.e. [A-Z][0-9][-_]
#<MSH.11> <PT.1>	3	PT ID			Processing ID Processing ID	"P"						Fixed value: P: Production
#<MSH.12> <VID.1>	60	VID ID			Version ID Version ID	"2.5"						Fixed value
<MSH.13>	15	NM			Sequence Number	Not Use						
<MSH.14>	180	ST			Continuation Pointer	Not Use						
<MSH.15>	2	ID		0155	Accept Acknowledgment Type	Not Use						
<MSH.16>	2	ID		0155	Application Acknowledgment Type	Not Use						
<MSH.17>	3	ID		0399	Country Code	Not Use						
<MSH.18>	16	ID	Y	0211	Character Set	Not Use						
<MSH.19>	250	CE			Principal Language Of Message	Not Use						

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7 SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<MSH.20>	20	ID		0356	Alternate Character Set Handling Scheme	Not Use						
<MSH.21> <EI.1>	427	EI ST	Y		Message Profile Identifier Entity Identifier	Not Use		Newborn registration indicator (For SF5 only) Or Major keys change notification type (For SF6 only)	Not Use	Problem record Status	Not Use	A code uniquely identifies the handling case of the event message For event A45 (SF3): • Possible value: • P: In progress • C: Complete For event A45 (ST8): • Possible value: ○ O: eHR problem flag is 'ON' (any one HCP ON) ○ F: eHR problem flag is 'OFF' (when all OFF) ○ U: Ready for HCP to upload clinical data For event A47: • Possible value: ○ **N**: Newborm (SF5) ○ **O**: Others (SF6)

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7 SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<EI.2>		IS			Namespace ID	"PMI"						• Fixed value • An unique identifier of the 'eHR Healthcare Recipient Index' domain • Sharable Dataset Code (eHR Record Type)

10.2 EVN – EVENT TYPE SEGMENT

Tag	Len	HL7 Data Type	RP/#	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7)	A08 (ST1, SF1, SF2)	A45 (SF3)	A31 (ST9)	
<EVN.1>	3	ID		0003	Event Type Code	Not Use						
#<EVN.2> <TS.1>	26	TS DTM			Recorded Date/Time Time	Transaction Datetime						In format: YYYYMMDDhhmmss[.s[s[s]]]
<EVN.3>	26	TS			Date/Time Planned Event	Not Use						
<EVN.4>	3	IS		0062	Event Reason Code	HCR Matching Result (For SF4 only)	Not Use					Possible value for HA and DH: 1: PMI matched 2: No PMI record 3: PMI not matched 4: Data not ready Possible value for other HCP: 1: PMI matched
<EVN.5>	60	HAOPID	Y	0188	Operator ID	Not Use						
<EVN.6>	26	TS			Event Occurred	Not Use						
<EVN.7>	241	HD	Y		Event Facility	Not Use						

10.3 PID – PATIENT IDENTIFICATION SEGMENT

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<PID.1>	4	SI			Set ID - PID	Not Use						
<PID.2>	20	CX			Patient ID							
<CX.1>		ST			ID Number	eHR Number						
<CX.7>		DT			Effective Date	eHR Enrolment Start Date (For ST2 ,ST3 and ST10 only)	Not Use					In format: *YYYYMMDD*
<CX.8>		DT			Expiration Date	Not Use	eHR Enrolment End Date (For ST5 only)	Not Use				In format: *YYYYMMDD*
#<PID.3>	250	CX	Y		Patient Identifier List							At most two sets of <PID.3> is allowed

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<CX.1>		ST			ID Number	HKIC Number/						The first occurrence of this field must be HKIC number in uppercase letters. In format of: AANNNNNNC where C is the check digit (One leading space is added if only one letter (A) is present.) If HKIC number is not available, keep this field <*blank*>
						Identity Document Number						
<CX.5>		IS (Localised)			Identifier Type Code	Type of Identity Document Number in <PID.3>						Please refer to the latest code set of 'Type of Identity Document' in eHR Office website The first occurrence of this field must be fixed value "ID" or "BC" For SF5, the value of 'Type of Identity Document' must be "BC" <u>Example 1</u> If both HKIC number and other document number can be provided, the data should be presented as: <PID.3> <CX.1>

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
												A1234567 </CX.1> <CX.5> **ID** <CX.5> </PID.3> <PID.3> <CX.1> **9876543** </CX.1> <CX.5> **AO** <CX.5> </PID.3> <u>Example 2</u> If only other document number can be provided, the data should be presented as: <PID.3> **<CX.1></CX.1>** <CX.5> **ID** <CX.5> </PID.3> <PID.3> <CX.1> **9876543** </CX.1> <CX.5> **AO**

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
												<CX.5> </PID.3> *Remark: The XML tag for HKIC number with blank value must be given* <u>Example 3</u> If only HKIC number can be provided, the data should be presented as: <PID.3> **<CX.1>** **A1234567** **</CX.1>** <CX.5> **ID** <CX.5> </PID.3> Refer to *Section 16.2.1 - Localisation of the data type of <PID.3>/<CX.5> to 'IS'* for the HL7 localisation
<PID.4>	20	CX	Y		Alternate Patient ID - PID	Not Use						
#<PID.5> <XPN.1>	250	XPN FN	Y		Patient Name Family Name							

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<FN.1>		ST			Surname	HCR English Surname						In uppercase letters e.g. CHAN
<XPN.2>		ST			Given Name	HCR English Given Name						In uppercase letters e.g. TAI MAN

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<XPN.9> <CE.2>		CE ST			Name Context Text	HCR English Full Name// HCR Chinese Name (For SF5 only)						Full name should be in uppercase letters. In format of : [Surname]+[,]+ 1 white space +[Given Name] + [:] + [Chinese Name] e.g. - CHAN, TAI MAN - CHAN, TAI MAN: 陳大文 (for SF5 only) For the single name case, full name is either: - Surname + [:] + [Chinese Name] - Given name + [:] + [Chinese Name] E.g. - CHAN - TAI MAN - “CHAN: 陳” or “TAI MAN:大文” (for SF5 only) Chinese name is the ISO standards. *Remarks:* *For SF5, if HCR’s Chinese name can be provided by HCP, the Chinese name will be attached after the English full name with the delimiter “**:**”.*

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
												Message example (for non-SF5): <PID.5> <!—HCR English Surname --> <XPN.1> <FN.1>CHAN</FN.1> </XPN.1> <!-- HCR English Given Name --> <XPN.2>TAI MAN</XPN.2> <!-- HCR English Full Name --> <XPN.9> <CE.2>CHAN, TAI MAN</CE.2> </XPN.9> </PID.5> Message example (for SF5 only): <PID.5> <!—HCR English Surname --> <XPN.1> <FN.1>CHAN</FN.1> </XPN.1> <!-- HCR English Given Name --> <XPN.2>TAI MAN</XPN.2> <!-- HCR English Full Name --> <XPN.9> <CE.2>CHAN, TAI MAN: 陳大文</CE.2> </XPN.9> </PID.5>

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<PID.6>	250	XPN	Y		Mother's Maiden Name	Not Use						
<PID.7>	26	TS			Date/Time of Birth							
<TS.1>		DTM			Time	Date of Birth						In format: *YYYYMMDD* Remarks: • If date is exact to 'Year' (e.g. 2010), the unknown month and day is suggested to be set as '0101' E.g. 2010**0101** • If date is exact to 'Month'(e.g. 2010-12), the unknown day is suggested to be set as '01' E.g. 201012**01**
<TS.2>		IS (Localised)			Degree of Precision	Exact Date of Birth Indicator						Please refer to the latest code set of 'Exact Date' in eHR Office website
<PID.8>	1	IS		0001	Sex	Sex						Please refer to the latest code set of 'Sex' in eHR Office website

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<PID.9>	250	XPN	Y		Patient Alias	Not Use						
<PID.10>	250	CE	Y	0005	Race	Not Use						
<PID.11>	250	XAD	Y		Patient Address	Not Use						
<PID.12>	4	IS		0289	County Code	Not Use						
<PID.13>	250	XTN	Y		Phone Number – Home	Not Use						
<PID.14>	250	XTN	Y		Phone Number - Business	Not Use						
<PID.15>	250	CE		0296	Primary Language	Not Use						
<PID.16>	250	CE		0002	Marital Status	Not Use						
<PID.17>	250	CE		0006	Religion	Not Use						
<PID.18>	250	CX			Patient Account Number	Not Use						
<PID.19>	16	ST			SSN Number - Patient	Not Use						
<PID.20>	25	DLN			Driver's License Number - Patient	Not Use						

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<PID.21>	250	CX	Y		Mother's Identifier	Not Use						
<PID.22>	250	CE	Y	0189	Ethnic Group	Not Use						
<PID.23>	250	ST			Birth Place	Not Use						
<PID.24>	1	ID		0136	Multiple Birth Indicator	Not Use						
<PID.25>	2	NM			Birth Order	Not Use						
<PID.26>	250	CE	Y	0171	Citizenship	Not Use						
<PID.27>	250	CE		0172	Veterans Military Status	Not Use						
<PID.28>	250	CE		0212	Nationality	Not Use						
<PID.29>	26	TS			Patient Death Date and Time	Not Use				Not Use		

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<TS.1>		DTM			Time				Date and time of Death			For ST1: In format: *YYYYMMDD* For SF1 and SF2: • In format: YYYYMMDD[hhmmss[.s[s[s]]]] • If there is no death time, only the death date should be given Remarks: • If date is exact to 'Year' (e.g. 2010), the unknown month and day is suggested to be set as '0101' E.g. 2010**0101** • If date is exact to 'Month'(e.g. 2010-12), the unknown day is suggested to be set as '01' E.g. 201012**01** • If date is not exact to 'Date', the time values should not be provided E.g. 20101214

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<TS.2>		IS (Localised)			Degree of Precision				Exact Date of Death Indicator			Please refer to the latest code set of 'Exact Date' in eHR Office website
<PID.30>	1	ID		0136	Patient Death Indicator	Not Use			e.g. Y (For SF1 and SF2 only)	Not Use		Possible value: Y: Mark death N: Cancel death
<PID.31>	1	ID		0136	Identity Unknown Indicator	Not Use						
<PID.32>	20	IS	Y	0445	Identity Reliability Code	Not Use						
<PID.33>	26	TS			Last Update Date/Time	Not Use						
<PID.34>	241	HD			Last Update Facility	Not Use						
<PID.35>	250	CE		0446	Species Code	Not Use						
<PID.36>	250	CE		0447	Breed Code	Not Use						
<PID.37>	80	ST			Strain	Not Use						

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<PID.38>	250	CE		0428	Production Class Code	Not Use						
<PID.39>	250	CWE	Y	0171	Tribal Citizenship	Not Use						

10.4 PV1 – PATIENT VISIT SEGMENT

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<PV1.1>	4	SI			Set ID - PV1	Not Use						
#<PV1.2>	1	IS		0004	Patient Class	"N"		Not Use	"N"			Fixed value: N - Not Applicable
<PV1.3>	80	PL			Assigned Patient Location	Not Use						
<PV1.4>	2	IS		0007	Admission Type	Not Use						
<PV1.5>	250	CX			Preadmit Number	Not Use						
<PV1.6>	80	PL			Prior Patient Location	Not Use						

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<PV1.7>	250	XCN	Y	0010	Attending Doctor	Not Use						
<PV1.8>	250	XCN	Y	0010	Referring Doctor	Not Use						
<PV1.9>	250	XCN	Y	0010	Consulting Doctor	Not Use						
<PV1.10>	3	IS		0069	Hospital Service	Not Use						
<PV1.11>	80	PL			Temporary Location	Not Use						
<PV1.12>	2	IS		0087	Preadmit Test Indicator	Not Use						
<PV1.13>	2	IS		0092	Re-admission Indicator	Not Use						
<PV1.14>	6	IS		0023	Admit Source	Not Use						
<PV1.15>	2	IS	Y	009	Ambulatory Status	Not Use						
<PV1.16>	2	IS		0099	VIP Indicator	Not Use						
<PV1.17>	250	XCN	Y	0010	Admitting Doctor	Not Use						
<PV1.18>	2	IS		0018	Patient Type	Not Use						
<PV1.19>	250	CX			Visit Number	Not Use						
<PV1.20>	50	FC	Y	0064	Financial Class	Not Use						
<PV1.21>	2	IS		0032	Charge Price Indicator	Not Use						
<PV1.22>	2	IS		0045	Courtesy Code	Not Use						
<PV1.23>	2	IS		0046	Credit Rating	Not Use						

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<PV1.24>	2	IS	Y	0044	Contract Code	Not Use						
<PV1.25>	8	DT	Y		Contract Effective Date	Not Use						
<PV1.26>	12	NM	Y		Contract Amount	Not Use						
<PV1.27>	3	NM	Y		Contract Period	Not Use						
<PV1.28>	2	IS		0073	Interest Code	Not Use						
<PV1.29>	4	IS		0110	Transfer to Bad Debt Code	Not Use						
<PV1.30>	8	DT			Transfer to Bad Debt Date	Not Use						
<PV1.31>	10	IS		0021	Bad Debt Agency Code	Not Use						
<PV1.32>	12	NM			Bad Debt Transfer Amount	Not Use						
<PV1.33>	12	NM			Bad Debt Recovery Amount	Not Use						
<PV1.34>	1	IS		0111	Delete Account Indicator	Not Use						
<PV1.35>	8	DR			Delete Account Date	Not Use						
<PV1.36>	3	IS		0112	Discharge Disposition	Not Use						

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<PV1.37>	47	DLD		0113	Discharged to Location Discharge Location	Not Use						
<PV1.38>	250	CE		0114	Diet Type	Not Use						
<PV1.39>	2	IS		0115	Servicing Facility	Not Use						
<PV1.40>	1	IS		0116	Bed Status	Not Use						
<PV1.41>	2	IS		0117	Account Status	Not Use						
<PV1.42>	80	PL			Pending Location	Not Use						
<PV1.43>	80	PL			Prior Temporary Location	Not Use						
<PV1.44>	26	TS			Admit Date/Time	Not Use						
<PV1.45>	26	TS			Discharge Date/Time	Not Use						
<PV1.46>	12	NM			Current Patient Balance	Not Use						
<PV1.47>	12	NM			Total Charges	Not Use						
<PV1.48>	12	NM			Total Adjustments	Not Use						
<PV1.49>	12	NM			Total Payments	Not Use						
<PV1.50>	250	CX		0203	Alternate Visit ID	Not Use						
<PV1.51>	1	IS		0326	Visit Indicator	Not Use						

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<PV1.52>	250	XCN	Y	0010	Other Healthcare Provider	Not Use						

10.5 MRG – MERGE PATIENT INFORMATION SEGMENT

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
#<MRG.1>	20	CX	Y		Prior Patient Identifier List	Not Use	Not Use		Not Use		Not Use	For ST7: At most two sets of <MRG.1> is allowed For SF3: • Only one set of <MRG.1> is allowed • The set of 'Obsoleted Document ID/ Old HKIC Number' and 'Obsoleted Type of Identity Document Number' given is for reference only. eHR will not validate their values. For ST8: • Only one set of <MRG.1> is allowed • The set of 'Affected Document ID/ Old HKIC Number' and 'Affected Type of Identity Document Number' given is for reference only. eHR will not validate their values.

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<CX.1>		ST			ID Number			Old Document ID/ Old HKIC Number		Obsoleted Document ID/ Old HKIC Number		For ST7: The first occurrence of this field must be HKIC number. If HKIC number is not available, keep this field <*blank*> For ST8: This field must be fixed value “NA”
<CX.5>		IS (Localised)			Identifier Type Code			Old Type of Identity Document Number of <MRG.1>		Obsoleted Type of Identity Document Number of <MRG.1>		Please refer to the latest code set of ‘Type of Identity Document’ in eHR Office website For ST8: This field must be fixed value “ID” For ST7: The first occurrence of this field must be fixed value “ID” For SF5: The value of ‘Old Type of Identity Document’

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
												must be fixed value "ED" <u>Example 1</u> If both HKIC number and other document number can be provided, the data should be presented as: <MRG.1> <CX.1> **A1234567** </CX.1> <CX.5> **ID** <CX.5> </ MRG.1> < MRG.1> <CX.1> **9876543** </CX.1> <CX.5> **AO** <CX.5> </ MRG.1> <u>Example 2</u> If only other document number can be provided, the data should be

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
												presented as: < MRG.1> **<CX.1></CX.1>** <CX.5> **ID** <CX.5> </ MRG.1> < MRG.1> <CX.1> **9876543** </CX.1> <CX.5> **AO** <CX.5> </ MRG.1> *Remark: The XML tag for HKIC number with blank value must be given* Refer to *Section 16.2.5 - Localisation of the data type of <MRG.1>/<CX.5> to 'IS'* for the HL7 localisation

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<MRG.2>	20	CX	Y		Prior Alternate Patient ID	Not Use						
<MRG.3>	20	CX			Prior Patient Account Number	Not Use						
<MRG.4>	20	CX			Prior Patient ID	Not Use						
<MRG.5>	20	CX			Prior Visit Number	Not Use						
<MRG.6>	20	CX			Prior Alternate Visit ID	Not Use						
<MRG.7>	48	XPN	Y		Prior Patient Name	Not Use Not Use			Not Use			
<XPN.1>		FN			Family Name							
<FN.1>		ST			Surname			Old HCR English Surname				
<XPN.2>		ST			Given Name			Old HCR English Given Name				

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<XPN.9>		CE			Name Context							
<CE.2>		ST			Text			Old HCR English Full Name				Full name should be in uppercase letters. In format of : [Surname]+[,]+ 1 white space +[Given Name] e.g. CHAN, TAI MAN For the single name case, full name is either: - Surname - Given name (i.e. no comma and space is supplemented) E.g. “CHAN” or “TAI MAN”

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4, ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<MRG.8>	1	IS			Prior Sex	Not Use		Old Sex	Not Use			Please refer to the latest code set of 'Sex' in eHR Office website
<MRG.9> <TS.1>	26	TS DTM			Prior Date/Time of Birth Time	Not Use		Old Date of Birth	Not Use			In format: *YYYYMMDD* Remarks: • If date is exact to 'Year' (e.g. 2010), the unknown month and day is suggested to be set as '0101' E.g. 2010**0101** • If date is exact to 'Month'(e.g. 2010-12), the unknown day is suggested to be set as '01' E.g. 201012**01**
<TS.2>		IS (Localised)			Degree of Precision	Not Use		Old Exact Date of Birth	Not Use			Please refer to the latest code set of 'Exact Date' in eHR Office website

Remarks: <MRG.8> and <MRG.9> are suggested to extended in 'MRG' segment to keep the values of 'Sex' and 'DOB' of prior person during the events of 'Major Keys Change'.

10.6 OBX – OBSERVATION / RESULT SEGMENT

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4,ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<OBX.1>	4	SI			Set ID – OBX	Not Use						
<OBX.2>	2	ID		0125	Value Type	Data Type of Value in <OBX.5> (For ST4 and ST10 only)	Data Type of Value in <OBX.5> (For ST6 only)	Not Use	Not Use	Not Use	Data Type of Value in <OBX.5>	Possible value (for ST4, ST6 and ST10) "TS": If <OBX.5> is value of • "Date of consent-to-provider" • "Date of revoke consent-to-provider" "ST": If <OBX.5> is value of elements other than above Fixed value (for ST9) "ST"
#<OBX.3>	250	CE			Observation Identifier			Not Use		Not Use		

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4,ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<CE.1>		ST			Identifier	Name of element in <OBX.5> (For ST4 and ST10 only)	Name of element in <OBX.5> (For ST6 only)		Not Use		Name of element in <OBX.5>	Possible value (for ST4 and ST10): • "Type of consent-to-provider" • "Date of consent-to-provider" Possible value (for ST6): • "Type of consent-to-provider" • "Date of revoke consent-to-provider" Possible value (for ST9): • "HCR Suspension Status" ** Each data value in <OBX.3> can only occur once.*
<OBX.4>	20	ST			Observation Sub-ID	Not Use						

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4,ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<OBX.5>	99999	varies	Y		Observation Value	Value of Type of sharing consent (For ST4 only) / Value of Type of Emergency Access (For ST10 only) / Value of Date of giving sharing consent (For ST4 only)/ Value of Date of granting emergency access (For ST10 only)		Not Use	Not Use	Not Use		Possible value (for ST4 and ST6): • 0: Indefinite sharing consent • 1: One-year sharing consent Possible value (for ST10): • 2: Emergency Access In format: *YYYYMMDD* In format: *YYYYMMDD*

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4,ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
							Value of the Date of revoking sharing consent (For ST6 only)				Value of the HCR informatio n	In format: *YYYYMMDD* Possible value (for ST9): • S : HCR is suspended • C: the HCR suspension is ceased
<OBX.6>	250	CE			Units	Not Use						
<OBX.7>	60	ST			References Range	Not Use						
<OBX.8>	5	IS	Y	0078	Abnormal Flags	Not Use						
<OBX.9>	5	NM			Probability	Not Use						
<OBX.10>	2	ID	Y	0080	Nature of Abnormal Test	Not Use						
#<OBX.11>	1	ID		0085	Observation Result Status	"F" (For ST4 and ST10 only)	"F" (For ST6 only)	Not Use	Not Use	Not Use	"F"	Fixed value: **F**: Final result
<OBX.12>	26	TS			Effective Date of Reference Range	Not Use						
<OBX.13>	20	ST			User Defined Access Checks	Not Use						

Tag	Len	HL7 Data Type	RP/ #	TBL #	Element Name	eHR Required Data Field						Remarks
						Compliance Level 3						
						A28 (ST2, ST3, ST4, SF4,ST10)	A29 (ST5, ST6)	A47 (ST7, SF5, SF6)	A08 (ST1, SF1, SF2)	A45 (SF3, ST8)	A31 (ST9)	
<OBX.14>	26	TS			Date / Time of the Observation	Not Use						
<OBX.15>	250	CE			Producer's ID	Not Use						
<OBX.16>	250	XCN	Y		Responsible Observer	Not Use						
<OBX.17>	250	CE	Y		Observation Method	Not Use						
<OBX.18>	22	EI	Y		Equipment Instance Identifier	Not Use						
<OBX.19>	26	TS			Date / Time of the Analysis	Not Use						

10.7 XML DIGITAL SIGNATURE ON HL7

The HL7 signature is for message exchange using SFTP and Web service. The components of XML digital signature are listed below:

No.	XML Tag	XPath	Attribute	Element Name	Mandatory (M) / Optional(O)	Remarks
1	Signature	Signature		Signature	M	Sign the HL7 message *(Please refer to "XML Signature Syntax and Processing (Second Edition)" provided by W3C Recommendation 10 June 2008)*
			@xmlns		M	Fixed Value: "http://www.w3.org/2000/09/xmldsig#"
2	SignedInfo	Signature/SignedInfo		Signed Information	M	
2.1	CanonicalizationMethod	Signature/SignedInfo/ CanonicalizationMethod		Canonicalization Method	M	
			@Algorithm	Algorithm	M	Fixed Value: "http://www.w3.org/TR/2001/REC-xml-c14n-20010315"
2.2	SignatureMethod	Signature/SignedInfo/ SignatureMethod		Signature Method	M	
			@Algorithm	Algorithm	M	Fixed Value: "http://www.w3.org/2001/04/xmldsig-more#rsa-sha256"

No.	XML Tag	XPath	Attribute	Element Name	Mandatory (M) / Optional(O)	Remarks
2.3	Reference	Signature/SignedInfo/ Reference		Reference element for the whole HL7 document	M	
			@ URI	URI	M	Fixed Value: “” *(Empty String).* Apply the signature to the whole HL7 document
2.3.1	Transforms	Signature/SignedInfo/ Reference/Transforms		Transforms	M	
2.3.1.1	Transform	Signature/SignedInfo/ Reference/Transforms/ Transform		Transform	M	
			@Algorithm	Algorithm	M	Fixed Value: “http://www.w3.org/2000/09/xmldsig#enveloped-signature”
2.3.2	DigestMethod	Signature/SignedInfo/ Reference/DigestMethod			M	
			@Algorithm	Algorithm	M	Fixed Value: “http://www.w3.org/2001/04/xmlenc#sha256”
2.3.3	DigestValue	Signature/SignedInfo/ Reference/DigestValue		Digest Value	M	Message’s Digest Value

No.	XML Tag	XPath	Attribute	Element Name	Mandatory (M) / Optional(O)	Remarks
3	SignatureValue	Signature/SignatureValue		Signature value	M	Canonicalize and then calculate the SignatureValue over SignedInfo based on algorithms specified in SignedInfo as specified in XML Signature [XMLDSIG]
4	KeyInfo	Signature/KeyInfo		Key Info	M	
4.1	X509Data	Signature/KeyInfo/ X509Data		X509 Data	M	
4.1.1	X509SubjectName	Signature/KeyInfo/ X509Data/ X509SubjectName		X509 Subject Name	M	Distinguished name (DN) that contains the information for both the owner or requestor of the certificate (called the Subject DN) and the CA that issues the certificate (called the Issuer DN)
4.1.2	X509Certificate	Signature/KeyInfo/ X509Data/ X509Certificate		Certificate	M	base64-encoded [X509v3] certificate *(Please refer to the content of X509Data in "XML Signature Syntax and Processing (Second Edition)" provided by W3C Recommendation 10 June 2008)*

Example

```
<?xml version="1.0" encoding="UTF-8"?>
<ORU_R01 xmlns="..." xmlns:xsi="..." xsi:schemaLocation="...">
  <MSH>...</MSH>
  <ORU_R01.PATIENT_RESULT>
    <ORU_R01.ORDER_OBSERVATION>
      <OBR>...      </OBR>
      <ORU_R01.OBSERVATION>
        <OBX>... </OBX>
      </ORU_R01.OBSERVATION>
    </ORU_R01.ORDER_OBSERVATION>
  </ORU_R01.PATIENT_RESULT>
  <Signature xmlns="http://www.w3.org/2000/09/xmldsig#">
    <SignedInfo>
      <CanonicalizationMethod Algorithm="http://www.w3.org/TR/2001/REC-xml-c14n-20010315"/>
      <SignatureMethod Algorithm="http://www.w3.org/2001/04/xmldsig-more#rsa-sha256"/>
      <Reference URI="">
        <Transforms>
          <Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-signature"/>
        </Transforms>
        <DigestMethod Algorithm="http://www.w3.org/2001/04/xmlenc#sha256"/>
        <DigestValue>xxxxx</DigestValue>
      </Reference>
    </SignedInfo>
    <SignatureValue>xxxxxxxxxx</SignatureValue>
    <KeyInfo>
      <X509Data>
        <X509SubjectName>xxxxx</X509SubjectName>
        <X509Certificate>xxxxxxxxxx</X509Certificate>
      </X509Data>
    </KeyInfo>
  </Signature>
</ORU_R01>
```

XML Digital Signature

11 MESSAGE DATA MAPPING SUMMARY

No.	Data Field	XML Tag	XPath	Maximum Length	Remarks
1	**HCR Identity**				
1.1	eHR number	PID.2	PID.2/CX.1	string(12)	
1.2	HKIC number	PID.3	PID.3/CX.1	string(12)	
1.3	Type of identity document	PID.3	PID.3/CX.5	string(6)	
1.4	Identity document number	PID.3	PID.3/CX.1	string(30)	
1.5	English surname	PID.5	PID.5/XPN.1/FN.1	string(40)	
1.6	English given name	PID.5	PID.5/XPN.2	string(40)	
1.7	English full name	PID.5	PID.5/XPN.9/CE.2	string(100)	
1.8	Sex	PID.8	PID.8	string(1)	
1.9	Date of birth	PID.7	PID.7/TS.1	string(23)	
1.10	Exact date of birth indicator	PID.7	PID.7/TS.2	string(4)	
1.11	Chinese name	PID.5	PID.5/XPN.9/CE.2	string(20)	For SF5, SF6 only
2	**HCR Identity (Old Record)**				
2.1	Old HKIC number	MRG.1	MRG.1/CX.1	string(12)	For SF5, SF6 only
2.2	Old type of identity document	MRG.1	MRG.1/CX.5	string(6)	
2.3	Old identity document number	MRG.1	MRG.1/CX.1	string(30)	
2.4	Old English surname	MRG.7	MRG.7/XPN.1/FN.1	string(40)	
2.5	Old English given name	MRG.7	MRG.7/XPN.2	string(40)	

No.	Data Field	XML Tag	XPath	Maximum Length	Remarks
2.6	Old English full name	MRG.7	MRG.7/XPN.9/CE.2	string(100)	
2.7	Old sex	MRG.8	MRG.8	string(1)	
2.8	Old date of birth	MRG.9	MRG.9/TS.1	string(23)	
2.9	Old exact date of birth indicator	MRG.9	MRG.9/TS.2	string(4)	
3	**Death Date**				
3.1	Date of death	PID.29	PID.29/TX.1	string(23)	
3.2	Exact date of death indicator	PID.29	PID.29/TX.2	string(4)	
4	**eHR Registration**				
4.1	eHR enrolment start Date	PID.2	PID.2/CX.7	string(23)	YYYYMMDD
4.2	eHR enrolment end date	PID.2	PID.2/CX.8	string(23)	YYYYMMDD
5	**Consent Information**				
5.1	Type of sharing consent	OBX.5	OBX.5	string(2)	Possible value: 0: Indefinite sharing consent 1: One-year sharing consent
5.2	Date of giving sharing consent	OBX.5	OBX.5	string(23)	YYYYMMDD
5.3	Date of revoking sharing consent	OBX.5	OBX.5	string(23)	YYYYMMDD
6	**Transaction Data**				
6.1	Message number	MSH.10	MSH.10	string(20)	
6.2	Event code	MSH.9	MSH.9/MSG.2	string(3)	
6.3	Transaction datetime	EVN.2	EVN.2/TS.1	string(23)	YYYYMMDDhhmmss[.s[s[s]]]
6.4	Death indicator	PID.30	PID.30	string(1)	For event A08 (ST1, SF1 and SF2): Possible value: Y: Mark death N: Cancel death

No.	Data Field	XML Tag	XPath	Maximum Length	Remarks
6.5	Problem record status	MSH.21	MSH.21/EI.1	string(1)	For event A45 (SF3): Possible value: P: In progress C: Complete For event A45 (ST8): Possible value: O: problem record is reported F: problem record is completed/cancelled U: Ready for concerned HCP to upload clinical data
6.6	Newborn registration indicator	MSH.21	MSH.21/EI.1	string(1)	Fixed value: N: Newborm (SF5)
6.7	Major keys change notification type	MSH.21	MSH.21/EI.1	string(1)	Fixed value: O: Others (SF6)
6.8	HCR matching result	EVN.4	EVN.4	string(1)	Possible value for HA and DH: 1: PMI matched 2: No PMI record 3: PMI not matched 4: Data not ready Possible value for other HCP: 1: PMI matched
7	**HCR Information**				
7.1	Information name	OBX.5	OBX.5	string(100)	Possible value:

No.	Data Field	XML Tag	XPath	Maximum Length	Remarks
					"HCR Suspension Status"
7.2	Information value	OBX.5	OBX.5	string(100)	Possible value: S : HCR is suspended C: the HCR suspension is ceased
8	**Emergency Access Information**				
8.1	Type of emergency access	OBX.5	OBX.5	string(2)	Possible value: 2: Emergency Access
8.2	Date of granting emergency access	OBX.5	OBX.5	string(23)	YYYYMMDD

12 MESSAGE DELIVERY REQUIREMENTS

12.1 CHARACTER SET AND ENCODING

Unicode Transformation Format – 8 bit (UTF-8) will be used in eHR Clinical Data Sharing data exchange. HCP is required to ensure the file that sent to eHR should use UTF-8 encoding as below:

Data File Type	Charset and Encoding	Version
HL7 message (e.g. ORU^R01)	UTF-8	XML 1.0

12.2 XML PREDEFINED ENTITIES

Extensible Markup Language (XML) is adopted in eHR Clinical Data Sharing data exchange using HL7 messages. The XML specification defines five "predefined entities" representing special characters, and requires that all XML processors honor them. To render the character, the format `&name;` must be used. For example, `&` renders as the character `&` . The table below lists the 5 predefined entities in XML:

Name	Character	Entity Reference	Description
Gt	>	>	Greater than
Lt	<	<	Less than
Amp	&	&	Ampersand
Apos	‘	'	Apostrophe
Quot	“	"	Quotation mark

12.3 COMMUNICATION PROTOCOL

eHR supports web service protocol for PMI message delivery. For transport level severity, the implementation of web service interface must conform to standard WS-Security requirements. There are 2 message delivery types, namely:

- PMI Message from eHR to HCP (outgoing message)
- PMI Message from HCP to eHR (incoming message)

The details of the above message delivery types will be described in following sections.

12.3.1 PMI Message FROM eHR to HCP

<table>
<tr><td>Namespace</td><td>HCP registered namespace
(HCP needs to register the namespace to eHR before using this service. The namespace should be registered with host name.)</td></tr>
<tr><td>Operation</td><td>getEhrWebS(String inputParam) returns String</td></tr>
<tr><td>Service Input</td><td>The parameter carries a single XML string consists of the following data. Refer to below “SOAP Request Sample”.
<table>
<tr><th>XPath</th><th>Data Type</th><th>Description</th><th>Remarks</th></tr>
<tr><td>root/data</td><td>String [CDATA]</td><td>PMI message sent from eHR.</td><td></td></tr>
</table></td></tr>
<tr><td>Service Output</td><td>The parameter returned carries a single XML string consists of the following data. Output data is in encoded XML format. Refer to below “SOAP Response Sample”.
<table>
<tr><th>XPath</th><th>Data Type</th><th>Description</th><th>Remarks</th></tr>
<tr><td>root/data</td><td>String [CDATA]</td><td>Status code and description specifies the PMI message sending result.</td><td>Format:
status code:status description
e.g. 8001:System error

Please refer to Table 12.1</td></tr>
</table></td></tr>
</table>

<u>Service Status Code</u>

Status Code	Status Description
8000	Request completed successfully
8001	System error
8002	Invalid schema checking

Table 12.1 Service Status Code for Message Delivery from eHR to HCP

SOAP Request Sample

The input string and PMI message content are highlighted in different colours.


```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:ext="http://hk.org.abchospital.service/ExternalCallinWebS">
<soapenv:Header/>
<soapenv:Body>
<ext:getEhrWebS>
<ext:inputParam><?xml version="1.0" encoding="UTF-8"?><root><data><![CDATA[<?xml version="1.0" encoding="UTF-8"?><ADT_A21 xmlns="urn:hl7-org:v2xml"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance"><MSH><MSH.1>|</MSH.1><MSH.2>^~\&amp;</MSH.2><MSH.3><HD.1>EIF</HD.1></MSH.3><MSH.4><HD.1>eHR</HD.1></MSH.4><MSH.7><TS.1>20130114170349.844</TS.1></MSH.
7><MSH.9><MSG.1>ADT</MSG.1><MSG.2>A29</MSG.2><MSG.3>ADT_A21</MSG.3></MSH.9><MSH.10>2123500</MSH.10><MSH.11><PT.1>P</PT.1></MSH.11><MSH.12><VID.1>2.5</VID.1>
</MSH.12><MSH.21><EI.2>PMI</EI.2></MSH.21></MSH><EVN><EVN.2><TS.1>20100131163005.005</TS.1></EVN.2></EVN><PID><PID.2><CX.1>eHR666666666</CX.1><CX.8>20100131</CX.
8></PID.2><PID.3><CX.1>A12345678</CX.1><CX.5>ID</CX.5></PID.3><PID.3><CX.1>B12345678</CX.1><CX.5>OP</CX.5></PID.3><PID.5><XPN.1><FN.1>CHAN</FN.1></XPN.1><XPN.2>TAI
MAN</XPN.2><XPN.9><CE.2>CHAN, TAI
MAN</CE.2></XPN.9></PID.5><PID.7><TS.1>19670813</TS.1><TS.2>EDMY</TS.2></PID.7><PID.8>M</PID.8></PID><PV1><PV1.2>N</PV1.2></PV1><Signature
xmlns="http://www.w3.org/2000/09/xmldsig#"><SignedInfo><CanonicalizationMethod Algorithm="http://www.w3.org/TR/2001/REC-xml-c14n-20010315"/><SignatureMethod
Algorithm="http://www.w3.org/2001/04/xmldsig-more#rsa-sha256"/><Reference URI=""><Transforms><Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-
signature"/></Transforms><DigestMethod
Algorithm="http://www.w3.org/2001/04/xmlenc#sha256"/><DigestValue>xxxxx</DigestValue></Reference></SignedInfo><SignatureValue>xxxxxxxxxx</SignatureValue><KeyInfo><X509Data><X509Su
bjectName>xxxxx</X509SubjectName><X509Certificate>xxxxxxxxxx</X509Certificate> </X509Data></KeyInfo></Signature></ADT_A21>]]></data></root></ext:inputParam>
</ext:getEhrWebS>
</soapenv:Body>
</soapenv:Envelope>
```


SOAP Response Sample

The input string and returned status code and description are highlighted in different colours.


```
<S:Envelope xmlns:S="http://schemas.xmlsoap.org/soap/envelope>
<S:Body>
<ns2:getEhrWebSResponse xmlns: ns2="http://hk.gov.ehr.service.app.ehrws.proxy/ehrws-proxy/ExternalCallinWebS">
<return>&lt;![CDATA[&lt;root&gt;&lt;data&gt;&lt;![CDATA[8000:Request completed
successfully]]&gt;&lt;/data&gt;&lt;/root&gt;]]&gt;</return>
</ns2:getEhrWebSResponse>
</S:Body>
</S:Envelope>
```


12.3.2 PMI Message From HCP TO eHR

<table>
<tr><td>Namespace</td><td>http://hk.gov.ehr.service.app.ehrws.proxy/ehrws-proxy/ExternalCallinWebS</td></tr>
<tr><td>Operation</td><td>getEhrWebS(String inputParam) returns String</td></tr>
<tr><td>Service Input</td><td>The parameter carries a single XML string consists of the following data. Input data is in encoded XML format. Refer to below “SOAP Request Sample”.
<table>
<tr><th>XPath</th><th>Data Type</th><th>Description</th><th>Remarks</th></tr>
<tr><td>root/VerificationPass</td><td>String [CDATA]</td><td>The verification pass code.</td><td>To obtain the verification pass, please refer “Interface Specification for System Verification”</td></tr>
<tr><td>root/SysID</td><td>String [CDATA]</td><td>The HCP system ID registered in eHR.</td><td></td></tr>
<tr><td>root/servicecode</td><td>String [CDATA]</td><td>Service code of the PMI message upload service</td><td>Fixed value: EIFPMIMSGUPLOAD</td></tr>
<tr><td>root/data</td><td>String [CDATA]</td><td>PMI message to be uploaded</td><td></td></tr>
</table></td></tr>
</table>

Service Output	The returned parameter carries a single XML string consists of the following data. Refer to below "SOAP Response Sample".

XPath	Data Type	Description	Remarks
returnObj/Status	String [CDATA]	Status code that specifies the PMI message uploading result.	Please refer to Table 12.2
returnObj/StatusDescription	String [CDATA]	Description of PMI message uploading result.	Please refer to Table 12.2
returnObj/data	String [CDATA]	N/A	This tag is not used for the service, a NULL tag will be returned.

<table>
<tr><td>SOAP Fault Message</td><td>The returned fault message carries details of error which occurs during the connection transit from HCP to eHR backend service. Refer to below “SOAP SOAP Fault Response Sample”.
<table>
<tr><th>XPath</th><th>Data Type</th><th>Description</th><th>Remarks</th></tr>
<tr><td>faultcode</td><td>String</td><td>Error code and transaction ID specifies the connection transit error and indicates the transaction.</td><td>Format:
error code,transaction ID
e.g. 122203,50453271

Please refer to Table 12.3</td></tr>
<tr><td>faultstring</td><td>String</td><td>Description of the connection transit error.</td><td></td></tr>
</table>
</td></tr>
</table>

Service Status Code

Status Code	Status Description
20010	XML parameters Errors
20020	Invalid Service Code
20021	Invalid HCP ID.
20022	Invalid System ID.
20023	Invalid Version Number.
20051	Invalid Response Data.
20060	Service Registration not found.
20100	Insufficient information.
20101	Insufficient information: HCP ID is missing.
20102	Insufficient information: System ID is missing.
20103	Insufficient information: Service Code is missing.

20200	SRT error.
20201	SRT validation error.
20202	SRT operation level validation error.
20203	SRT Contract not found.
20300	Web Service Call-out Exception.
20301	Endpoint not found.
20302	Endpoint Connect Failure.
20400	Exception Thrown by XSG.
22222	Connection time out.
22223	Connection Error.
70000	Request completed successfully
70001	Digital signature verification failure
70002	Invalid schema checking
70003	System error
70004	Incorrect inputs from EHRWS
70005	Service access denied
99999	Unexpected error

Table 12.2 Service Status Code for Message Delivery from HCP to eHR

Connection Transit Error Code

Error Code	Error Description	Remarks
122201	Invalid ELSA	ELSA status is invalid
122202	Invalid HCP	HCP status is invalid
122203	HCP not found	Cannot find HCP profile
122204	Invalid VP	Get Inputparam success but verify VP fail
122205	Invalid VP	Parse Inputparam error
122206	Rejected	00d30003, Hash values do not match.

126199	Rejected	Unknown error

Table 12.3 Connection Transit Error Code for Message Delivery from HCP to eHR

SOAP Request Sample

The input string, verification pass, system ID, service code and PMI message are highlighted in different colours.


```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:ext="http://hk.gov.ehr.service.app.ehrws.proxy/ehrws-proxy/ExternalCallinWebS">
<soapenv:Header/>
<soapenv:Body>
<ext:getEhrWebS>
<ext:inputParam>&lt;?xml version=&quot;1.0&quot; encoding=&quot;UTF-
8&quot;?&gt;&lt;root&gt;&lt;VerificationPass&gt;&lt;![CDATA[53dc320197d442acb24f12e1c61e5e64]]&gt;&lt;/VerificationPass&gt;&lt;SysID&gt;&lt;![CDATA[1234567890]]&gt;&lt;/SysID&gt;&lt;serviceCo
de&gt;&lt;![CDATA[EIFPMIMSGUPLOAD]]&gt;&lt;/serviceCode&gt;&lt;data&gt;&lt;![CDATA[&lt;?xml version=&quot;1.0&quot; encoding=&quot;UTF-8&quot;?&gt;&lt;ADT_A05 xmlns=&quot;urn:hl7-
org:v2xml&quot; xmlns:xsi=&quot;http://www.w3.org/2001/XMLSchema-
instance&quot;&gt;&lt;MSH&gt;&lt;MSH.1&gt;|&lt;/MSH.1&gt;&lt;MSH.2&gt;^~\&amp;amp;&lt;/MSH.2&gt;&lt;MSH.3&gt;&lt;HD.1&gt;ABC3.0&lt;/HD.1&gt;&lt;/MSH.3&gt;&lt;MSH.4&gt;&lt;HD.1&gt;1234567
89&lt;/HD.1&gt;&lt;/MSH.4&gt;&lt;MSH.5&gt;&lt;HD.1&gt;EIF&lt;/HD.1&gt;&lt;/MSH.5&gt;&lt;MSH.6&gt;&lt;HD.1&gt;eHR&lt;/HD.1&gt;&lt;/MSH.6&gt;&lt;MSH.7&gt;&lt;TS.1&gt;20100203163005.005&lt;/T
S.1&gt;&lt;/MSH.7&gt;&lt;MSH.8&gt;3&lt;/MSH.8&gt;&lt;MSH.9&gt;&lt;MSG.1&gt;ADT&lt;/MSG.1&gt;&lt;MSG.2&gt;A28&lt;/MSG.2&gt;&lt;MSG.3&gt;ADT_A05&lt;/MSG.3&gt;&lt;/MSH.9&gt;&lt;MSH.10&g
t;2123497&lt;/MSH.10&gt;&lt;MSH.11&gt;&lt;PT.1&gt;P&lt;/PT.1&gt;&lt;/MSH.11&gt;&lt;MSH.12&gt;&lt;VID.1&gt;2.5&lt;/VID.1&gt;&lt;/MSH.12&gt;&lt;MSH.21&gt;&lt;EI.2&gt;PMI&lt;/EI.2&gt;&lt;/MSH.21&
gt;&lt;/MSH&gt;&lt;EVN&gt;&lt;EVN.2&gt;&lt;TS.1&gt;20100131163005.005&lt;/TS.1&gt;&lt;/EVN.2&gt;&lt;EVN.4&gt;1&lt;/EVN.4&gt;&lt;/EVN&gt;&lt;PID&gt;&lt;PID.2&gt;&lt;CX.1&gt;201000000001&lt;/C
X.1&gt;&lt;/PID.2&gt;&lt;PID.3&gt;&lt;CX.1&gt;A12345678&lt;/CX.1&gt;&lt;CX.5&gt;HKIC&lt;/CX.5&gt;&lt;/PID.3&gt;&lt;PID.5&gt;&lt;XPN.1&gt;&lt;FN.1&gt;CHAN&lt;/FN.1&gt;&lt;/XPN.1&gt;&lt;XPN.2&gt;
TAI MAN&lt;/XPN.2&gt;&lt;XPN.9&gt;&lt;CE.2&gt;CHAN, TAI
MAN&lt;/CE.2&gt;&lt;/XPN.9&gt;&lt;/PID.5&gt;&lt;PID.7&gt;&lt;TS.1&gt;19670813&lt;/TS.1&gt;&lt;TS.2&gt;EDMY&lt;/TS.2&gt;&lt;/PID.7&gt;&lt;PID.8&gt;M&lt;/PID.8&gt;&lt;/PID&gt;&lt;PV1&gt;&lt;PV1.2&g
t;N&lt;/PV1.2&gt;&lt;/PV1&gt;&lt;Signature xmlns=&quot;http://www.w3.org/2000/09/xmldsig#&quot;&gt;&lt;SignedInfo&gt;&lt;CanonicalizationMethod Algorithm=&quot;http://www.w3.org/TR/2001/REC-
xml-c14n-20010315&quot;/&gt;&lt;SignatureMethod Algorithm=&quot;http://www.w3.org/2001/04/xmldsig-more#rsa-sha256&quot;/&gt;&lt;Reference
URI=&quot;&quot;&gt;&lt;Transforms&gt;&lt;Transform Algorithm=&quot;http://www.w3.org/2000/09/xmldsig#enveloped-signature&quot;/&gt;&lt;/Transforms&gt;&lt;DigestMethod
Algorithm=&quot;http://www.w3.org/2001/04/xmlenc#sha256&quot;/&gt;&lt;DigestValue&gt;xxxxx&lt;/DigestValue&gt;&lt;/Reference&gt;&lt;/SignedInfo&gt;&lt;SignatureValue&gt;xxxxxxxxxx&lt;/Signature
Value&gt;&lt;KeyInfo&gt;&lt;X509Data&gt;&lt;X509SubjectName&gt;xxxxx&lt;/X509SubjectName&gt;&lt;X509Certificate&gt;xxxxxxxxxx&lt;/X509Certificate&gt;&lt;/X509Data&gt;&lt;/KeyInfo&gt;&lt;/Signat
ure&gt;&lt;/ADT_A05&gt;]]&gt;&lt;/data&gt;&lt;/root&gt;</ext:inputParam>
</ext:getEhrWebS>
</soapenv:Body>
</soapenv:Envelope>
```


SOAP Response Sample

The input string, status code and status description are highlighted in different colours.


```
<S:Envelope xmlns:S="http://schemas.xmlsoap.org/soap/envelope>
<S:Body>
<ns2:getEhrWebSResponse xmlns: ns2="http://hk.gov.ehr.service.app.ehrws.proxy/ehrws-proxy/ExternalCallinWebS">
<return><![CDATA[<returnObj><Status><![CDATA[70000]]></Status><StatusDescription><![CDATA[Request completed
successfully]]></StatusDescription><data/></returnObj>]]></return>
</ns2:getEhrWebSResponse>
</S:Body>
</S:Envelope>
```


SOAP Fault Response Sample

The error code, transaction ID and error description are highlighted in different colours.


```
<S:Envelope xmlns:S="http://schemas.xmlsoap.org/soap/envelope/">
  < S:Body>
    <S:Fault>
      <faultcode>122203,50453271</faultcode>
      <faultstring>HCP not found</faultstring>
    </S:Fault>
  </S:Body>
</S:Envelope>
```


13 EXAMPLES OF NOTIFICATION MESSAGES

For all the samples below, there are some attributes in the root element for declaring the namespaces and schema used. Details of the declaration are shown in the following table:

Attribute	Description	Value
xmlns	Default namespace	Fixed: urn:hl7-org:v2xml
xmlns:xsi	Other namespace used	Fixed: http://www.w3.org/2001/XMLSchema-instance
xsi:schemaLocation	Namespace and schema to be used	Sample: urn:hl7-org:v2xml http://www.ehealth.gov.hk/ehr/xsd/ADT_A05.xsd

13.1 PMI MESSAGE FROM eHR TO HCP

The sample messages below are for the ST scenarios in which message notification are broadcasted to HCPs.

13.1.1 Example: Update HCR Death from DR

This message is sent to HCPs who are having sharing consent with the HCR when eHR receives death notification of a HCR from DR.

The sample data and message are listed below for reference:

Example Data

Data Field	Sample Value
Event code	A08
Transaction datetime	20100131163005.005 (In format: YYYYMMDDhhmmss[.s[s[s]]])
Message number	2123497
eHR number	201000000001
HKIC number	A12345678

Identity document number	*(Blank)*
Type of identity document	*(Blank)*
Surname	Chan
Given name	Tai Man
Birth date	19670813 (In format: YYYYMMDD)
Exact date of birth indicator	EDMY
Sex	M
Date of death	20100131 (In format: YYYYMMDD)
Exact date of death indicator	EDMY

Sample HL7 Message


```xml
<?xml version="1.0" encoding="UTF-8"?>
<ADT_A01 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml http://www.ehealth.gov.hk/ehr/xsd/ADT_A01.xsd">
  <MSH>
    <MSH.1>|</MSH.1>
    <MSH.2>^~\&amp;amp;</MSH.2>
    <!-- Sending Application Code -->
    <MSH.3>
      <HD.1>EIF</HD.1>
    </MSH.3>
    <!-- Sending Institution Code -->
    <MSH.4>
      <HD.1>eHR</HD.1>
    </MSH.4>
    <!-- Message Generation Datetime -->
    <MSH.7>
      <TS.1>20100203163005</TS.1>
    </MSH.7>
    <!-- Compliance Level -->
    <MSH.8>3</MSH.8>
    <!-- Event Code -->
    <MSH.9>
      <MSG.1>ADT</MSG.1>
      <MSG.2>A08</MSG.2>
      <MSG.3>ADT_A01</MSG.3>
    </MSH.9>
    <!-- Message Number -->
    <MSH.10>2123497</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
    <MSH.12>
      <VID.1>2.5</VID.1>
    </MSH.12>
    <MSH.21>
      <EI.2>PMI</EI.2>
    </MSH.21>
  </MSH>
```



```
<EVN>
  <!-- Transaction Datetime -->
  <EVN.2>
    <TS.1>20100131163005.005</TS.1>
  </EVN.2>
</EVN>
<PID>
  <!-- eHR Number -->
  <PID.2>
    <CX.1>201000000001</CX.1>
  </PID.2>
  <!-- Identity Document Number and Type of Identity Document-->
  <PID.3>
    <CX.1>A12345678</CX.1>
    <CX.5>ID</CX.5>
  </PID.3>
  <PID.5>
    <!-- HCR English Surname -->
    <XPN.1>
      <FN.1>CHAN</FN.1>
    </XPN.1>
    <!-- HCR English Given Name -->
    <XPN.2>TAI MAN</XPN.2>
    <!-- HCR English Full Name -->
    <XPN.9>
      <CE.2>CHAN, TAI MAN</CE.2>
    </XPN.9>
  </PID.5>
  <PID.7>
    <!-- Date of Birth -->
    <TS.1>19670813</TS.1>
    <!-- Date of Birth Indicator -->
    <TS.2>EDMY</TS.2>
  </PID.7>
  <!-- Sex -->
  <PID.8>M</PID.8>
  <PID.29>
    <!-- Date of Death -->
    <TS.1>20100131</TS.1>
    <!-- Exact Date of Death Indicator -->
    <TS.2>EDMY</TS.2>
```



```
    </PID.29>
  </PID>
  <PV1>
    <!-- Patient Type -->
    <PV1.2>N</PV1.2>
  </PV1>
</ADT_A01>
```

13.1.2 Example: Register in eHR

This message is sent to HA and DH when a HCR register in eHR (before or after registration) at HCP.

The sample data and message are listed below for reference:

Example Data

Data Field	Sample Value
Event code	A28
Transaction datetime	20100131163005.005 (In format: YYYYMMDDhhmmss[.s[s[s]]])
Message number	2123497
eHR number	201000000001
HKIC number	A12345678
Identity document number	*(Blank)*
Type of identity document	*(Blank)*
Surname	Chan
Given name	Tai Man
Birth date	19670813 (In format: YYYYMMDD)
Exact date of birth indicator	EDMY
Sex	M
eHR enrolment start date	20100131 (In format: YYYYMMDD)

Sample HL7 Message


```xml
<?xml version="1.0" encoding="UTF-8"?>
<ADT_A05 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml http://www.ehealth.gov.hk/ehr/xsd/ADT_A05.xsd">
  <MSH>
    <MSH.1>|</MSH.1>
    <MSH.2>^~\&amp;amp;</MSH.2>
    <!-- Sending Application Code -->
    <MSH.3>
      <HD.1>EIF</HD.1>
    </MSH.3>
    <!-- Sending Institution Code -->
    <MSH.4>
      <HD.1>eHR</HD.1>
    </MSH.4>
    <!-- Message Generation Datetime -->
    <MSH.7>
      <TS.1>20100203163005</TS.1>
    </MSH.7>
    <!-- Compliance Level -->
    <MSH.8>3</MSH.8>
    <!-- Event Code -->
    <MSH.9>
      <MSG.1>ADT</MSG.1>
      <MSG.2>A28</MSG.2>
      <MSG.3>ADT_A05</MSG.3>
    </MSH.9>
    <!-- Message Number -->
    <MSH.10>2123497</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
    <MSH.12>
      <VID.1>2.5</VID.1>
    </MSH.12>
    <MSH.21>
      <EI.2>PMI</EI.2>
    </MSH.21>
  </MSH>
```



```
<EVN>
  <!-- Transaction Datetime -->
  <EVN.2>
    <TS.1>20100131163005.005</TS.1>
  </EVN.2>
</EVN>
<PID>
  <!-- eHR Number -->
  <PID.2>
    <CX.1>201000000001</CX.1>
    <!-- eHR Enrolment Start Date -->
    <CX.7>20100131</CX.7>
  </PID.2>
  <PID.3>
    <!-- Identity Document Number and Type of Identity Document-->
    <CX.1>A12345678</CX.1>
    <CX.5>ID</CX.5>
  </PID.3>
  <PID.5>
    <!-- HCR English Surname -->
    <XPN.1>
      <FN.1>CHAN</FN.1>
    </XPN.1>
    <!-- HCR English Given Name -->
    <XPN.2>TAI MAN</XPN.2>
    <!-- HCR English Full Name -->
    <XPN.9>
      <CE.2>CHAN, TAI MAN</CE.2>
    </XPN.9>
  </PID.5>
  <PID.7>
    <!-- Date of Birth -->
    <TS.1>19670813</TS.1>
    <!-- Exact Date of Birth Indicator -->
    <TS.2>EDMY</TS.2>
  </PID.7>
  <!-- Sex -->
  <PID.8>M</PID.8>
</PID>
<PV1>
  <!-- Patient Type -->
```



```
    <PV1.2>N</PV1.2>
  </PV1>
</ADT_A05>
```


13.1.3 Example: Give sharing consent to HCP

This message is sent to the involving HCP when eHR receives a HCR's request of giving sharing consent to a HCP.

The sample data and message are listed below for reference:

Example Data

Data Field	Sample Value
Event code	A28
Transaction Datetime	20100131163005.005 (In format: YYYYMMDDhhmmss[.s[s[s]]])
Message Number	2123497
eHR number	201000000001
HKIC number	A12345678
Identity document number	*(Blank)*
Type of identity document	*(Blank)*
Surname	Chan
Given name	Tai Man
Birth date	19670813 (In format: YYYYMMDD)
Exact date of birth indicator	EDMY
Sex	M
Type of sharing consent	1
Date of giving sharing consent	20100131 (In format: YYYYMMDD)

Sample HL7 Message

```
<?xml version="1.0" encoding="UTF-8"?>
<ADT_A05 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml http://www.ehealth.gov.hk/ehr/xsd/ADT_A05.xsd">
  <MSH>
    <MSH.1>|</MSH.1>
    <MSH.2>^~\&amp;</MSH.2>
    <!-- Sending Application Code -->
    <MSH.3>
```



```
      <HD.1>EIF</HD.1>
    </MSH.3>
    <!-- Sending Institution Code -->
    <MSH.4>
      <HD.1>eHR</HD.1>
    </MSH.4>
    <!-- Message Generation Datetime -->
    <MSH.7>
      <TS.1>20100203163005</TS.1>
    </MSH.7>
    <!-- Compliance Level -->
    <MSH.8>3</MSH.8>
    <!-- Event Code -->
    <MSH.9>
      <MSG.1>ADT</MSG.1>
      <MSG.2>A28</MSG.2>
      <MSG.3>ADT_A05</MSG.3>
    </MSH.9>
    <!-- Message Number -->
    <MSH.10>2123497</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
    <MSH.12>
      <VID.1>2.5</VID.1>
    </MSH.12>
    <MSH.21>
      <EI.2>PMI</EI.2>
    </MSH.21>
  </MSH>
  <EVN>
    <!-- Transaction Datetime -->
    <EVN.2>
      <TS.1>20100131163005.005</TS.1>
    </EVN.2>
  </EVN>
  <PID>
    <!-- eHR Number -->
    <PID.2>
      <CX.1>201000000001</CX.1>
    </PID.2>
```



```
    <PID.3>
      <!-- Identity Document Number and Type of Identity Document-->
      <CX.1>A12345678</CX.1>
      <CX.5>ID</CX.5>
    </PID.3>
    <PID.5>
      <!-- HCR English Surname -->
      <XPN.1>
        <FN.1>CHAN</FN.1>
      </XPN.1>
      <!-- HCR English Given Name -->
      <XPN.2>TAI MAN</XPN.2>
      <!-- HCR English Full Name -->
      <XPN.9>
        <CE.2>CHAN, TAI MAN</CE.2>
      </XPN.9>
    </PID.5>
    <!-- Date of Birth -->
    <PID.7>
      <!-- Date of Birth -->
      <TS.1>19670813</TS.1>
      <!-- Exact Date of Birth Indicator -->
      <TS.2>EDMY</TS.2>
    </PID.7>
    <!-- Sex -->
    <PID.8>M</PID.8>
  </PID>
  <!-- Patient Type -->
  <PV1>
    <PV1.2>N</PV1.2>
  </PV1>
  <!-- Type of Sharing Consent -->
  <OBX>
    <OBX.2>ST</OBX.2>
    <OBX.3>
      <CE.1>Type of consent-to-provider </CE.1>
    </OBX.3>
    <OBX.5>1</OBX.5>
    <OBX.11>F</OBX.11>
  </OBX>
  <OBX>
```



```
    <!-- Date of Giving Sharing Consent -->
    <OBX.2>TS</OBX.2>
    <OBX.3>
      <CE.1>Date of consent-to-provider</CE.1>
    </OBX.3>
    <OBX.5>20100131</OBX.5>
    <OBX.11>F</OBX.11>
  </OBX>
</ADT_A05>
```


13.1.4 Example: Withdraw from eHR

This message is sent to HA and DH when a HCR withdraw from eHR.

The sample data and message are listed below for reference:

Example Data

Data Field	Sample Value
Event code	A29
Transaction Datetime	20100131163005.005 (In format: YYYYMMDDhhmmss[.s[s[s]]])
Message Number	2123497
eHR number	201000000001
HKIC number	A12345678
Identity document number	*(Blank)*
Type of identity document	*(Blank)*
Surname	Chan
Given name	Tai Man
Birth date	19670813 (In format: YYYYMMDD)
Exact date of birth indicator	EDMY
Sex	M
eHR enrolment end date	20100131 (In format: YYYYMMDD)

Sample HL7 Message

```
<?xml version="1.0" encoding="UTF-8"?>
<ADT_A21 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-
org:v2xml http://www.ehealth.gov.hk/ehr/xsd/ADT_A21.xsd ">
  <MSH>
    <MSH.1>|</MSH.1>
    <MSH.2>^~\&amp;</MSH.2>
    <!-- Sending Application Code -->
    <MSH.3>
      <HD.1>EIF</HD.1>
    </MSH.3>
    <!-- Sending Institution Code -->
```



```
    <MSH.4>
      <HD.1>eHR</HD.1>
    </MSH.4>
    <!-- Message Generation Datetime -->
    <MSH.7>
      <TS.1>20100203163005</TS.1>
    </MSH.7>
    <!-- Compliance Level -->
    <MSH.8>3</MSH.8>
    <!-- Event Code -->
    <MSH.9>
      <MSG.1>ADT</MSG.1>
      <MSG.2>A29</MSG.2>
      <MSG.3>ADT_A21</MSG.3>
    </MSH.9>
    <!-- Message Number -->
    <MSH.10>2123497</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
    <MSH.12>
      <VID.1>2.5</VID.1>
    </MSH.12>
    <MSH.21>
      <EI.2>PMI</EI.2>
    </MSH.21>
  </MSH>
  <EVN>
    <!-- Transaction Datetime -->
    <EVN.2>
      <TS.1>20100131163005.005</TS.1>
    </EVN.2>
  </EVN>
  <PID>
    <PID.2>
      <!-- eHR Number -->
      <CX.1>201000000001</CX.1>
      <!-- eHR Enrolment End Date -->
      <CX.8>20100131</CX.8>
    </PID.2>
    <PID.3>
```



```xml
      <!-- Identity Document Number and Type of Identity Document-->
      <CX.1>A12345678</CX.1>
      <CX.5>ID</CX.5>
      <!-- eHR Enrolment End Date -->
      <CX.7>20100131</CX.7>
    </PID.3>
    <PID.5>
      <!-- HCR English Surname -->
      <XPN.1>
        <FN.1>CHAN</FN.1>
      </XPN.1>
      <!-- HCR English Given Name -->
      <XPN.2>TAI MAN</XPN.2>
      <!-- HCR English Full Name -->
      <XPN.9>
        <CE.2>CHAN, TAI MAN</CE.2>
      </XPN.9>
    </PID.5>
    <PID.7>
      <!-- Date of Birth -->
      <TS.1>19670813</TS.1>
      <!-- Exact Date of Birth Indicator -->
      <TS.2>EDMY</TS.2>
    </PID.7>
    <!-- Sex -->
    <PID.8>M</PID.8>
  </PID>
  <!-- Patient Type -->
  <PV1>
    <PV1.2>N</PV1.2>
  </PV1>
</ADT_A21>
```


13.1.5 Example: Revoke Sharing Consent to HCP

This message is sent to the involving HCP when eHR receives a HCR's request of revoking sharing consent to HCP.

The sample data and message are listed below for reference:

Example Data

Data Field	Sample Value
Event code	A29
Transaction Datetime	20100131163005.005 (In format: YYYYMMDDhhmmss[.s[s[s]]])
Message Number	2123497
eHR number	201000000001
HKIC number	A12345678
Identity document number	*(Blank)*
Type of identity document	*(Blank)*
Surname	Chan
Given name	Tai Man
Birth date	19670813 (In format: YYYYMMDD)
Exact date of birth indicator	EDMY
Sex	M
Date of revoking sharing consent	20100131 (In format: YYYYMMDD)

Sample HL7 Message

```
<?xml version="1.0" encoding="UTF-8"?>
<ADT_A21 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml http://www.ehealth.gov.hk/ehr/xsd/ADT_A21.xsd">
  <MSH>
    <MSH.1>|</MSH.1>
    <MSH.2>^~\&amp;amp;</MSH.2>
    <!-- Sending Application Code -->
    <MSH.3>
      <HD.1>EIF</HD.1>
    </MSH.3>
    <!-- Sending Institution Code -->
```



```
    <MSH.4>
      <HD.1>eHR</HD.1>
    </MSH.4>
    <!-- Message Generation Datetime -->
    <MSH.7>
      <TS.1>20100203163005</TS.1>
    </MSH.7>
    <!-- Compliance Level -->
    <MSH.8>3</MSH.8>
    <!-- Event Code -->
    <MSH.9>
      <MSG.1>ADT</MSG.1>
      <MSG.2>A29</MSG.2>
      <MSG.3>ADT_A21</MSG.3>
    </MSH.9>
    <!-- Message Number -->
    <MSH.10>2123497</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
    <MSH.12>
      <VID.1>2.5</VID.1>
    </MSH.12>
    <MSH.21>
      <EI.2>PMI</EI.2>
    </MSH.21>
  </MSH>
  <EVN>
    <!-- Transaction Datetime -->
    <EVN.2>
      <TS.1>20100131163005.005</TS.1>
    </EVN.2>
  </EVN>
  <PID>
    <PID.2>
      <!-- eHR Number -->
      <CX.1>201000000001</CX.1>
    </PID.2>
    <PID.3>
      <!-- Identity Document Number and Type of Identity Document-->
      <CX.1>A12345678</CX.1>
```



```xml
      <CX.5>ID</CX.5>
    </PID.3>
    <PID.5>
      <!-- HCR English Surname -->
      <XPN.1>
        <FN.1>CHAN</FN.1>
      </XPN.1>
      <!-- HCR English Given Name -->
      <XPN.2>TAI MAN</XPN.2>
      <!-- HCR English Full Name -->
      <XPN.9>
        <CE.2>CHAN, TAI MAN</CE.2>
      </XPN.9>
    </PID.5>
    <PID.7>
      <!-- Date of Birth -->
      <TS.1>19670813</TS.1>
      <!-- Exact Date of Birth Indicator -->
      <TS.2>EDMY</TS.2>
    </PID.7>
    <!-- Sex -->
    <PID.8>M</PID.8>
  </PID>
  <!-- Patient Type -->
  <PV1>
    <PV1.2>N</PV1.2>
  </PV1>
  <!-- Date of Revoking Sharing Consent -->
  <OBX>
    <OBX.2>TS</OBX.2>
    <OBX.3>
      <CE.1>Date of revoke sharing consent</CE.1>
    </OBX.3>
    <OBX.5>20100131</OBX.5>
    <OBX.11>F</OBX.11>
  </OBX>
</ADT_A21>
```


13.1.6 Example: Update HCR's Major Keys

This message is sent to HCPs who are having sharing consent with the HCR when eHR receives a HCR's request to change major keys.

The sample data and message are listed below for reference:

Example Data

Data Field	Sample Value
Event code	A47
Transaction datetime	20100131163005.005 (In format: YYYYMMDDhhmmss[.s[s[s]]])
Message number	2123497
eHR number	201000000001
HKIC number	A12345678
Identity document number	*(Blank)*
Type of identity document	*(Blank)*
Surname	Chan
Given name	Tai Man
Birth date	19670813 (In format: YYYYMMDD)
Exact date of birth indicator	EDMY
Sex	M
Old HKIC number	*(Blank)*
Old identity document number	B7654321
Old type of identity document	OP
Old surname	LEE
Old given name	SIU MING
Old birth date	19770324 (In format: YYYYMMDD)
Old exact date of birth indicator	EDMY
Old sex	F

Sample HL7 Message


```xml
<?xml version="1.0" encoding="UTF-8"?>
<ADT_A30 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml http://www.ehealth.gov.hk/ehr/xsd/ADT_A30.xsd">
  <MSH>
    <MSH.1>|</MSH.1>
    <MSH.2>^~\&amp;amp;</MSH.2>
    <!-- Sending Application Code -->
    <MSH.3>
      <HD.1>EIF</HD.1>
    </MSH.3>
    <!-- Sending Institution Code -->
    <MSH.4>
      <HD.1>eHR</HD.1>
    </MSH.4>
    <!-- Message Generation Datetime -->
    <MSH.7>
      <TS.1>20100203163005</TS.1>
    </MSH.7>
    <!-- Compliance Level -->
    <MSH.8>3</MSH.8>
    <!-- Event Code -->
    <MSH.9>
      <MSG.1>ADT</MSG.1>
      <MSG.2>A47</MSG.2>
      <MSG.3>ADT_A30</MSG.3>
    </MSH.9>
    <!-- Message Number -->
    <MSH.10>2123497</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
    <MSH.12>
      <VID.1>2.5</VID.1>
    </MSH.12>
    <MSH.21>
      <EI.2>PMI</EI.2>
    </MSH.21>
  </MSH>
  <EVN>
```



```
    <!-- Transaction Datetime -->
    <EVN.2>
      <TS.1>20100131163005.005</TS.1>
    </EVN.2>
  </EVN>
  <PID>
    <!-- eHR Number -->
    <PID.2>
      <CX.1>201000000001</CX.1>
    </PID.2>
    <PID.3>
      <!-- Identity Document Number and Type of Identity Document-->
      <CX.1>A12345678</CX.1>
      <CX.5>ID</CX.5>
    </PID.3>
    <PID.5>
      <!-- HCR English Surname -->
      <XPN.1>
        <FN.1>CHAN</FN.1>
      </XPN.1>
      <!-- HCR English Given Name -->
      <XPN.2>TAI MAN</XPN.2>
      <!-- HCR English Full Name -->
      <XPN.9>
        <CE.2>CHAN, TAI MAN</CE.2>
      </XPN.9>
    </PID.5>
    <PID.7>
      <!-- Date of Birth -->
      <TS.1>19670813</TS.1>
      <!-- Exact Date of Birth Indicator -->
      <TS.2>EDMY</TS.2>
    </PID.7>
    <!-- Sex -->
    <PID.8>M</PID.8>
  </PID>
  <MRG>
    <!-- Old Identity Document Number and Type of Identity Document -->
    <MRG.1>
      <CX.1/>
      <CX.5>ID</CX.5>
```



```
    </MRG.1>
    <MRG.1>
      <CX.1> B7654321</CX.1>
      <CX.5>OP</CX.5>
    </MRG.1>
    <MRG.7>
      <!-- Old HCR English Surname -->
      <XPN.1>
        <FN.1>LEE</FN.1>
      </XPN.1>
      <!-- Old HCR English Given Name -->
      <XPN.2>SIU MING</XPN.2>
      <!-- Old HCR English Full Name -->
      <XPN.9>
        <CE.2>LEE, SIU MING</CE.2>
      </XPN.9>
    </MRG.7>
    <!-- Old Sex -->
    <MRG.8>F</MRG.8>
    <MRG.9>
      <!-- Old Date of Birth -->
      <TS.1>19770324</TS.1>
      <!-- Old Exact Date of Birth Indicator -->
      <TS.2>EDMY</TS.2>
    </MRG.9>
  </MRG>
</ADT_A30>
```


13.1.7 Example: Report Problem Record

This message is sent to HCPs who are having sharing consent with the HCR when eHR problem record of that HCR is reported.

The sample data and message are listed below for reference:

Example Data

Data Field	Sample Value

Data Field	Sample Value
Event code	A45
Transaction datetime	20100131163005.005 (In format: YYYYMMDDhhmmss[.s[s[s]]])
Message number	2123497
eHR number	201000000001
HKIC number	A12345678
Identity document number	*(Blank)*
Type of identity document	*(Blank)*
Surname	Chan
Given name	Tai Man
Birth date	19670813 (In format: YYYYMMDD)
Sex	M
Problem Record situation	O

Sample HL7 Message


```xml
<?xml version="1.0" encoding="UTF-8"?>
<ADT_A45 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml
http://www.ehealth.gov.hk/ehr/xsd/ADT_A45.xsd">
  <MSH>
    <MSH.1>|</MSH.1>
    <MSH.2>^~\&amp;amp;</MSH.2>
    <!-- Sending Application Code -->
    <MSH.3>
      <HD.1>EIF</HD.1>
    </MSH.3>
    <!-- Sending Institution Code -->
    <MSH.4>
      <HD.1>eHR</HD.1>
    </MSH.4>
    <!-- Message Generation Datetime -->
    <MSH.7>
      <TS.1>20100203163005.005</TS.1>
    </MSH.7>
    <!-- Compliance Level -->
    <MSH.8>3</MSH.8>
    <!-- Event Code -->
    <MSH.9>
      <MSG.1>ADT</MSG.1>
      <MSG.2>A45</MSG.2>
      <MSG.3>ADT_A45</MSG.3>
    </MSH.9>
```



```
    <!-- Message Number -->
    <MSH.10>2123497</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
    <MSH.12>
      <VID.1>2.5</VID.1>
    </MSH.12>
    <MSH.21>
      <!-- Problem Record Situation -->
      <EI.1>O</EI.1>
      <EI.2>PMI</EI.2>
    </MSH.21>
  </MSH>
  <EVN>
    <!-- Transaction Datetime -->
    <EVN.2>
      <TS.1>20100131163005.005</TS.1>
    </EVN.2>
  </EVN>
  <PID>
    <!-- eHR Number -->
    <PID.2>
      <CX.1>201000000001</CX.1>
    </PID.2>
    <!-- Identity Document Number and Type of Identity Document -->
    <PID.3>
      <CX.1>A12345678</CX.1>
      <CX.5>ID</CX.5>
    </PID.3>
    <PID.5>
      <!-- HCR English Surname -->
      <XPN.1>
        <FN.1>CHAN</FN.1>
      </XPN.1>
      <!-- HCR English Given Name -->
      <XPN.2>TAI MAN</XPN.2>
      <!-- HCR English Full Name -->
      <XPN.9>
        <CE.2>CHAN, TAI MAN</CE.2>
      </XPN.9>
    </PID.5>
    <PID.7>
      <!-- Date of Birth -->
      <TS.1>19670813</TS.1>
      <!-- Exact Date of Birth Indicator -->
```



```
        <TS.2>EDMY</TS.2>
      </PID.7>
      <!-- Sex -->
      <PID.8>M</PID.8>
    </PID>
    <ADT_A45.MERGE_INFO>
      <MRG>
        <!-- Incorrect Source Identity Document Number and Type of Identity Document -->
        <MRG.1>
          <CX.1>NA</CX.1>
          <CX.5>ID</CX.5>
        </MRG.1>
      </MRG>
      <!-- Patient Type -->
      <PV1>
        <PV1.2>N</PV1.2>
      </PV1>
    </ADT_A45.MERGE_INFO>
  </ADT_A45>
```

13.1.8 Example: Update HCR information

This message is sent to the consented HCP when eHR suspends the HCR

The sample data and message are listed below for reference:

Example Data

Data Field	Sample Value
Event code	A31
Transaction Datetime	20100131163005.005 (In format: YYYYMMDDhhmmss[.s[s[s]]])
Message Number	2123497
eHR number	201000000001
HKIC number	A12345678
Identity document number	*(Blank)*
Type of identity document	*(Blank)*
Surname	Chan

Given name	Tai Man
Birth date	19670813 (In format: YYYYMMDD)
Exact date of birth indicator	EDMY
Sex	M
HCR Suspension Status	S

Sample HL7 Message


```xml
<?xml version="1.0" encoding="UTF-8"?>
<ADT_A05 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml http://www.ehealth.gov.hk/ehr/xsd/ADT_A05.xsd">
  <MSH>
    <MSH.1>|</MSH.1>
    <MSH.2>^~\&amp;amp;</MSH.2>
    <!-- Sending Application Code -->
    <MSH.3>
      <HD.1>EIF</HD.1>
    </MSH.3>
    <!-- Sending Institution Code -->
    <MSH.4>
      <HD.1>eHR</HD.1>
    </MSH.4>
    <!-- Message Generation Datetime -->
    <MSH.7>
      <TS.1>20100203163005</TS.1>
    </MSH.7>
    <!-- Compliance Level -->
    <MSH.8>3</MSH.8>
    <!-- Event Code -->
    <MSH.9>
      <MSG.1>ADT</MSG.1>
      <MSG.2>A31</MSG.2>
      <MSG.3>ADT_A05</MSG.3>
    </MSH.9>
    <!-- Message Number -->
    <MSH.10>2123497</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
    <MSH.12>
      <VID.1>2.5</VID.1>
```



```
    </MSH.12>
    <MSH.21>
      <EI.2>PMI</EI.2>
    </MSH.21>
  </MSH>
  <EVN>
    <!-- Transaction Datetime -->
    <EVN.2>
      <TS.1>20100131163005.005</TS.1>
    </EVN.2>
  </EVN>
  <PID>
    <!-- eHR Number -->
    <PID.2>
      <CX.1>201000000001</CX.1>
    </PID.2>
    <PID.3>
      <!-- Identity Document Number and Type of Identity Document-->
      <CX.1>A12345678</CX.1>
      <CX.5>ID</CX.5>
    </PID.3>
    <PID.5>
      <!-- HCR English Surname -->
      <XPN.1>
        <FN.1>CHAN</FN.1>
      </XPN.1>
      <!-- HCR English Given Name -->
      <XPN.2>TAI MAN</XPN.2>
      <!-- HCR English Full Name -->
      <XPN.9>
        <CE.2>CHAN, TAI MAN</CE.2>
      </XPN.9>
    </PID.5>
    <PID.7>
      <!-- Date of Birth -->
      <TS.1>19670813</TS.1>
      <!-- Exact Date of Birth Indicator -->
      <TS.2>EDMY</TS.2>
    </PID.7>
    <!-- Sex -->
    <PID.8>M</PID.8>
```



```
  </PID>
  <!-- Patient Type -->
  <PV1>
    <PV1.2>N</PV1.2>
  </PV1>
  <OBX>
    <OBX.2>ST</OBX.2>
    <OBX.3>
      <CE.1>HCR Suspension Status</CE.1>
    </OBX.3>
    <OBX.5>S</OBX.5>
    <OBX.11>F</OBX.11>
  </OBX>
</ADT_A05>
```

13.1.9 Example: Grant emergency access to HCP

This message is sent to the involving HCP when HCR grants the emergency access to such HCP.

The sample data and message are listed below for reference:

Example Data

Data Field	Sample Value
Event code	A28
Transaction Datetime	20100131163005.005 (In format: YYYYMMDDhhmmss[.s[s[s]]])
Message Number	2123497
eHR number	201000000001
HKIC number	A12345678
Identity document number	*(Blank)*
Type of identity document	*(Blank)*
Surname	Chan
Given name	Tai Man
Birth date	19670813 (In format: YYYYMMDD)
Exact date of birth indicator	EDMY

Sex	M
Type of emergency access	2 (Fixed value)
Date of granting emergency access	20100131 (In format: YYYYMMDD)

Sample HL7 Message


```xml
<?xml version="1.0" encoding="UTF-8"?>
<ADT_A05 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml http://www.ehealth.gov.hk/ehr/xsd/ADT_A05.xsd">
  <MSH>
    <MSH.1>|</MSH.1>
    <MSH.2>^~\&amp;amp;</MSH.2>
    <!-- Sending Application Code -->
    <MSH.3>
      <HD.1>EIF</HD.1>
    </MSH.3>
    <!-- Sending Institution Code -->
    <MSH.4>
      <HD.1>eHR</HD.1>
    </MSH.4>
    <!-- Message Generation Datetime -->
    <MSH.7>
      <TS.1>20100203163005</TS.1>
    </MSH.7>
    <!-- Compliance Level -->
    <MSH.8>3</MSH.8>
    <!-- Event Code -->
    <MSH.9>
      <MSG.1>ADT</MSG.1>
      <MSG.2>A28</MSG.2>
      <MSG.3>ADT_A05</MSG.3>
    </MSH.9>
    <!-- Message Number -->
    <MSH.10>2123497</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
```



```
    <MSH.12>
      <VID.1>2.5</VID.1>
    </MSH.12>
    <MSH.21>
      <EI.2>PMI</EI.2>
    </MSH.21>
  </MSH>
  <EVN>
    <!-- Transaction Datetime -->
    <EVN.2>
      <TS.1>20100131163005.005</TS.1>
    </EVN.2>
  </EVN>
  <PID>
    <!-- eHR Number -->
    <PID.2>
      <CX.1>201000000001</CX.1>
    </PID.2>
    <PID.3>
      <!-- Identity Document Number and Type of Identity Document-->
      <CX.1>A12345678</CX.1>
      <CX.5>ID</CX.5>
    </PID.3>
    <PID.5>
      <!-- HCR English Surname -->
      <XPN.1>
        <FN.1>CHAN</FN.1>
      </XPN.1>
      <!-- HCR English Given Name -->
      <XPN.2>TAI MAN</XPN.2>
      <!-- HCR English Full Name -->
      <XPN.9>
        <CE.2>CHAN, TAI MAN</CE.2>
      </XPN.9>
    </PID.5>
    <!-- Date of Birth -->
    <PID.7>
      <!-- Date of Birth -->
      <TS.1>19670813</TS.1>
      <!-- Exact Date of Birth Indicator -->
      <TS.2>EDMY</TS.2>
```



```
    </PID.7>
    <!-- Sex -->
    <PID.8>M</PID.8>
  </PID>
  <!-- Patient Type -->
  <PV1>
    <PV1.2>N</PV1.2>
  </PV1>
  <!-- Type of Sharing Consent -->
  <OBX>
    <OBX.2>ST</OBX.2>
    <OBX.3>
      <CE.1>Type of consent-to-provider</CE.1>
    </OBX.3>
    <OBX.5>2</OBX.5>
    <OBX.11>F</OBX.11>
  </OBX>
  <OBX>
    <!-- Date of Granting Emergency Access-->
    <OBX.2>TS</OBX.2>
    <OBX.3>
      <CE.1>Date of consent-to-provider</CE.1>
    </OBX.3>
    <OBX.5>20100131</OBX.5>
    <OBX.11>F</OBX.11>
  </OBX>
</ADT_A05>
```

13.2 MESSAGE NOTIFICATION FROM HCP TO eHR

The sample messages below are for SF scenarios in which message notifications are sent from HCP to eHR.

13.2.1 Example: Mark Deceased / Death of HCR from HCP

This message is sent to eHR when HCP marks the death of a HCR. The sample data and message are listed below for reference:

Example Data

Data Field	Sample Value
Event code	A08
Transaction datetime	20100131163005.005 (In format: YYYYMMDDhhmmss[.s[s[s]]])
Message number	2123497
eHR number	201000000001
HKIC number	A12345678
Identity document number	*(Blank)*
Type of identity document	*(Blank)*
Surname	Chan
Given name	Tai Man
Birth date	19670813 (In format: YYYYMMDD)
Sex	M
Date of death	20100131 (In format: YYYYMMDD)
Exact date of death indicator	EDMY
Death time	132200 (In format: hhmmss)
Death indicator	Y

Sample HL7 Message

```
<?xml version="1.0" encoding="UTF-8"?>
<ADT_A01 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml
http://www.ehealth.gov.hk/ehr/xsd/ADT_A01.xsd">
  <MSH>
    <MSH.1>|</MSH.1>
    <MSH.2>^~\&amp;amp;</MSH.2>
    <!-- Sending Application Code -->
    <MSH.3>
      <HD.1>CMS 3.0</HD.1>
    </MSH.3>
    <!-- Sending Institution Code -->
    <MSH.4>
      <HD.1>8088450656</HD.1>
    </MSH.4>
    <MSH.5>
```



```
      <HD.1>EIF</HD.1>
    </MSH.5>
    <MSH.6>
      <HD.1>eHR</HD.1>
    </MSH.6>
    <!-- Message Generation Datetime -->
    <MSH.7>
      <TS.1>20100203163005</TS.1>
    </MSH.7>
    <!-- Compliance Level -->
    <MSH.8>3</MSH.8>
    <!-- Event Code -->
    <MSH.9>
      <MSG.1>ADT</MSG.1>
      <MSG.2>A08</MSG.2>
      <MSG.3>ADT_A01</MSG.3>
    </MSH.9>
    <!-- Message Number -->
    <MSH.10>2123497</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
    <MSH.12>
      <VID.1>2.5</VID.1>
    </MSH.12>
    <MSH.21>
      <EI.2>PMI</EI.2>
    </MSH.21>
  </MSH>
  <EVN>
    <!-- Transaction Datetime -->
    <EVN.2>
      <TS.1>20100131163005.005</TS.1>
    </EVN.2>
  </EVN>
  <PID>
    <!-- eHR Number -->
    <PID.2>
      <CX.1>201000000001</CX.1>
    </PID.2>
    <!-- Identity Document Number and Type of Identity Document-->
    <PID.3>
      <CX.1>A12345678</CX.1>
      <CX.5>ID</CX.5>
    </PID.3>
    <PID.5>
```



```
      <!-- HCR English Surname -->
      <XPN.1>
        <FN.1>CHAN</FN.1>
      </XPN.1>
      <!-- HCR English Given Name -->
      <XPN.2>TAI MAN</XPN.2>
      <!-- HCR English Full Name -->
      <XPN.9>
        <CE.2>CHAN, TAI MAN</CE.2>
      </XPN.9>
    </PID.5>
    <PID.7>
      <!-- Date of Birth -->
      <TS.1>19670813</TS.1>
      <!-- Exact Date of Birth Indicator -->
      <TS.2>EDMY</TS.2>
    </PID.7>
    <!-- Sex -->
    <PID.8>M</PID.8>
    <PID.29>
      <!-- Date and Time of Death -->
      <TS.1>20100131132200</TS.1>
      <!-- Exact Date of Death Indicator -->
      <TS.2>EDMY</TS.2>
    </PID.29>
    <!-- Death Indicator -->
    <PID.30>Y</PID.30>
  </PID>
  <!-- Patient Type -->
  <PV1>
    <PV1.2>N</PV1.2>
  </PV1>
</ADT_A01>
```


13.2.2 Example: Cancel Deceased / Death of HCR from HCP

This message is sent to eHR when HCP cancels death notification of a HCR. The sample data and message are listed below for reference:

Example Data

Data Field	Sample Value
Event code	A08
Transaction datetime	20100131163005.005 (In format: YYYYMMDDhhmmss[.s[s[s]]])
Message number	2123497
eHR number	201000000001
HKIC number	A12345678
Identity document number	*(Blank)*
Type of identity document	*(Blank)*
Surname	Chan
Given name	Tai Man
Birth date	19670813 (In format: YYYYMMDD)
Sex	M
Date of death	20100131 (In format: YYYYMMDD)
Exact date of death indicator	EDMY
Death time	132200 (In format: hhmmss)
Death indicator	N

Sample HL7 Message


```xml
<?xml version="1.0" encoding="UTF-8"?>
<ADT_A01 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml
http://www.ehealth.gov.hk/ehr/xsd/ADT_A01.xsd">
  <MSH>
    <MSH.1>|</MSH.1>
    <MSH.2>^~\&amp;amp;</MSH.2>
    <!-- Sending Application Code -->
    <MSH.3>
      <HD.1>CMS 3.0</HD.1>
    </MSH.3>
    <!-- Sending Institution Code -->
    <MSH.4>
      <HD.1>8088450656</HD.1>
    </MSH.4>
    <MSH.5>
      <HD.1>EIF</HD.1>
    </MSH.5>
    <MSH.6>
      <HD.1>eHR</HD.1>
    </MSH.6>
```



```
    <!-- Message Generation Datetime -->
    <MSH.7>
      <TS.1>20100203163005</TS.1>
    </MSH.7>
    <!-- Compliance Level -->
    <MSH.8>3</MSH.8>
    <!-- Event Code -->
    <MSH.9>
      <MSG.1>ADT</MSG.1>
      <MSG.2>A08</MSG.2>
      <MSG.3>ADT_A01</MSG.3>
    </MSH.9>
    <!-- Message Number -->
    <MSH.10>2123497</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
    <MSH.12>
      <VID.1>2.5</VID.1>
    </MSH.12>
    <MSH.21>
      <EI.2>PMI</EI.2>
    </MSH.21>
  </MSH>
  <EVN>
    <!-- Transaction Datetime -->
    <EVN.2>
      <TS.1>20100131163005.005</TS.1>
    </EVN.2>
  </EVN>
  <PID>
    <!-- eHR Number -->
    <PID.2>
      <CX.1>201000000001</CX.1>
    </PID.2>
    <!-- Identity Document Number and Type of Identity Document-->
    <PID.3>
      <CX.1>A12345678</CX.1>
      <CX.5>ID</CX.5>
    </PID.3>
    <PID.5>
      <!-- HCR English Surname -->
      <XPN.1>
        <FN.1>CHAN</FN.1>
      </XPN.1>
      <!-- HCR English Given Name -->
```



```
        <XPN.2>TAI MAN</XPN.2>
        <!-- HCR English Full Name -->
        <XPN.9>
          <CE.2>CHAN, TAI MAN</CE.2>
        </XPN.9>
      </PID.5>
      <PID.7>
        <!-- Date of Birth -->
        <TS.1>19670813</TS.1>
        <!-- Exact Date of Birth Indicator -->
        <TS.2>EDMY</TS.2>
      </PID.7>
      <!-- Sex -->
      <PID.8>M</PID.8>
      <PID.29>
        <!-- Date and Time of Death -->
        <TS.1>20100131132200</TS.1>
        <!-- Exact Date of Death Indicator -->
        <TS.2>EDMY</TS.2>
      </PID.29>
      <!-- Death Indicator -->
      <PID.30>N</PID.30>
    </PID>
    <!-- Patient Type -->
    <PV1>
      <PV1.2>N</PV1.2>
    </PV1>
  </ADT_A01>
```

13.2.3 Example: Report HCP's Problem Record from HCP

This message is sent to eHR when HCP report the problem record notification of a HCR. The sample data and message are listed below for reference:

Example Data

Data Field	Sample Value
Event code	A45
Transaction datetime	20100131163005.005 (In format: YYYYMMDDhhmmss[.s[s[s]]])

Data Field	Sample Value
Message number	2123497
eHR number	201000000001
HKIC number	A12345678
Identity document number	*(Blank)*
Type of identity document	*(Blank)*
Surname	Chan
Given name	Tai Man
Birth date	19670813 (In format: YYYYMMDD)
Sex	M
Date of death	20100131 (In format: YYYYMMDD)
Exact date of death indicator	EDMY
Incorrect source identity document number	B7654321
Incorrect source type of identity document	HKIC
Problem record situation	P

Sample HL7 Message


```xml
<?xml version="1.0" encoding="UTF-8"?>
<ADT_A45 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml
http://www.ehealth.gov.hk/ehr/xsd/ADT_A45.xsd">
  <MSH>
    <MSH.1>|</MSH.1>
    <MSH.2>^~\&amp;</MSH.2>
    <!-- Sending Application Code -->
    <MSH.3>
      <HD.1>CMS 3.0</HD.1>
    </MSH.3>
    <!-- Sending Institution Code -->
    <MSH.4>
      <HD.1>8088450656</HD.1>
    </MSH.4>
    <MSH.5>
      <HD.1>EIF</HD.1>
    </MSH.5>
    <MSH.6>
      <HD.1>eHR</HD.1>
    </MSH.6>
    <!-- Message Generation Datetime -->
```



```
    <MSH.7>
      <TS.1>20100203163005</TS.1>
    </MSH.7>
    <!-- Compliance Level -->
    <MSH.8>3</MSH.8>
    <!-- Event Code -->
    <MSH.9>
      <MSG.1>ADT</MSG.1>
      <MSG.2>A45</MSG.2>
      <MSG.3>ADT_A45</MSG.3>
    </MSH.9>
    <!-- Message Number -->
    <MSH.10>2123497</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
    <MSH.12>
      <VID.1>2.5</VID.1>
    </MSH.12>
    <MSH.21>
      <!-- Problem record Situation -->
      <EI.1>P</EI.1>
      <EI.2>PMI</EI.2>
    </MSH.21>
  </MSH>
  <EVN>
    <!-- Transaction Datetime -->
    <EVN.2>
      <TS.1>20100131163005.005</TS.1>
    </EVN.2>
  </EVN>
  <PID>
    <!-- eHR Number -->
    <PID.2>
      <CX.1>201000000001</CX.1>
    </PID.2>
    <!-- Identity Document Number and Type of Identity Document -->
    <PID.3>
      <CX.1>A12345678</CX.1>
      <CX.5>ID</CX.5>
    </PID.3>
    <PID.5>
      <!-- HCR English Surname -->
      <XPN.1>
        <FN.1>CHAN</FN.1>
      </XPN.1>
```



```
        <!-- HCR English Given Name -->
        <XPN.2>TAI MAN</XPN.2>
        <!-- HCR English Full Name -->
        <XPN.9>
          <CE.2>CHAN, TAI MAN</CE.2>
        </XPN.9>
      </PID.5>
      <PID.7>
        <!-- Date of Birth -->
        <TS.1>19670813</TS.1>
        <!-- Exact Date of Birth Indicator -->
        <TS.2>EDMY</TS.2>
      </PID.7>
      <!-- Sex -->
      <PID.8>M</PID.8>
    </PID>
    <ADT_A45.MERGE_INFO>
      <MRG>
        <!-- Incorrect Source Identity Document Number and Type of Identity Document -->
        <MRG.1>
          <CX.1>B7654321</CX.1>
          <CX.5>HKIC</CX.5>
        </MRG.1>
      </MRG>
      <!-- Patient Type -->
      <PV1>
        <PV1.2>N</PV1.2>
      </PV1>
    </ADT_A45.MERGE_INFO>
  </ADT_A45>
```

13.2.4 Example: Reply HCR Major Key Match

This message is expected to be received by eHR from HA, DH or HCP when HA, DH or HCP confirms that the major keys stored in their local EMR systems are matched with the major keys sent out by eHR during the scenarios of ‘Register in eHR’ and ‘Give Sharing Consent to HCP’. The sample data and message are listed below for reference:

Example Data

Data Field	Sample Value
Event code	A28
Transaction datetime	20100131163005.005 (In format: YYYYMMDDhhmmss[.s[s[s]]])
Message number	2123497
eHR number	201000000001
HKIC number	A12345678
Identity document number	*(Blank)*
Type of identity document	*(Blank)*
Surname	Chan
Given name	Tai Man
Birth date	19670813 (In format: YYYYMMDD)
Sex	M
HCR matching result	1

Sample HL7 Message


```xml
<?xml version="1.0" encoding="UTF-8"?>
<ADT_A05 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml
http://www.ehealth.gov.hk/ehr/xsd/ADT_A05.xsd">
  <MSH>
    <MSH.1>|</MSH.1>
    <MSH.2>^~\&amp;amp;</MSH.2>
    <!-- Sending Application Code -->
    <MSH.3>
      <HD.1>CMS 3.0</HD.1>
    </MSH.3>
    <!-- Sending Institution Code -->
    <MSH.4>
      <HD.1>8088450656</HD.1>
    </MSH.4>
    <MSH.5>
      <HD.1>EIF</HD.1>
    </MSH.5>
    <MSH.6>
      <HD.1>eHR</HD.1>
    </MSH.6>
    <!-- Message Generation Datetime -->
    <MSH.7>
      <TS.1>20100203163005</TS.1>
    </MSH.7>
    <!-- Compliance Level -->
    <MSH.8>3</MSH.8>
    <!-- Event Code -->
    <MSH.9>
      <MSG.1>ADT</MSG.1>
      <MSG.2>A28</MSG.2>
      <MSG.3>ADT_A05</MSG.3>
    </MSH.9>
    <!-- Message Number -->
    <MSH.10>2123497</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
    <MSH.12>
      <VID.1>2.5</VID.1>
    </MSH.12>
    <MSH.21>
      <EI.2>PMI</EI.2>
    </MSH.21>
  </MSH>
```



```xml
  <EVN>
    <!-- Transaction Datetime -->
    <EVN.2>
      <TS.1>20100131163005.005</TS.1>
    </EVN.2>
    <!-- HCR Matching Result -->
    <EVN.4>1</EVN.4>
  </EVN>
  <PID>
    <!-- eHR Number -->
    <PID.2>
      <CX.1>201000000001</CX.1>
    </PID.2>
    <PID.3>
      <!-- Identity Document Number and Type of Identity Document-->
      <CX.1>A12345678</CX.1>
      <CX.5>ID</CX.5>
    </PID.3>
    <PID.5>
      <!-- HCR English Surname -->
      <XPN.1>
        <FN.1>CHAN</FN.1>
      </XPN.1>
      <!-- HCR English Given Name -->
      <XPN.2>TAI MAN</XPN.2>
      <!-- HCR English Full Name -->
      <XPN.9>
        <CE.2>CHAN, TAI MAN</CE.2>
      </XPN.9>
    </PID.5>
    <PID.7>
      <!-- Date of Birth -->
      <TS.1>19670813</TS.1>
      <!-- Exact Date of Birth Indicator -->
      <TS.2>EDMY</TS.2>
    </PID.7>
    <!-- Sex -->
    <PID.8>M</PID.8>
  </PID>
  <PV1>
    <!-- Patient Type -->
    <PV1.2>N</PV1.2>
  </PV1>
</ADT_A05>
```


13.2.5 Example: Complete registration of Newborns from DH

This message is expected to facilitate the completion of registration of newborns once the HK birth certification and identification documents are verified by Department of Health (DH).

The sample data and message are listed below for reference:

Example Data

Data Field	Sample Value
Event code	A47
Transaction datetime	20140530163005.005 (In format: YYYYMMDDhhmmss[.s[s[s]]])
Message number	2123497
eHR number	201000000001
HKIC number	Z0099001
Identity document number	*(Blank)*
Surname	Chan
Given name	Tai Man
Chinese name	陳大文
Birth date	20140529 (In format: YYYYMMDD)
Exact date of birth indicator	EDMY
Sex	M
Old HKIC number	*(Blank)*
Old identity document number	1231231230
Old type of identity document	ED
Old surname	B/O CHAN
Old given name	SIU SIU TW1
Old birth date	20140529 (In format: YYYYMMDD)
Old exact date of birth indicator	EDMY
Old sex	M

Sample HL7 Message

```
<?xml version="1.0" encoding="UTF-8"?>
```



```xml
<ADT_A30 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml
http://www.ehealth.gov.hk/ehr/xsd/ADT_A30.xsd">
  <MSH>
    <MSH.1>|</MSH.1>
    <MSH.2>^~\&amp;amp;</MSH.2>
    <!-- Sending Application Code -->
    <MSH.3>
      <HD.1>CMS 3.0</HD.1>
    </MSH.3>
    <!-- Sending Institution Code -->
    <MSH.4>
      <HD.1>3088450123</HD.1>
    </MSH.4>
    <MSH.5>
      <HD.1>EIF</HD.1>
    </MSH.5>
    <MSH.6>
      <HD.1>eHR</HD.1>
    </MSH.6>
    <!-- Message Generation Datetime -->
    <MSH.7>
      <TS.1>20140530163005</TS.1>
    </MSH.7>
    <!-- Compliance Level -->
    <MSH.8>3</MSH.8>
    <!-- Event Code -->
    <MSH.9>
      <MSG.1>ADT</MSG.1>
      <MSG.2>A47</MSG.2>
      <MSG.3>ADT_A30</MSG.3>
    </MSH.9>
    <!-- Message Number -->
    <MSH.10>2123497</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
    <MSH.12>
      <VID.1>2.5</VID.1>
    </MSH.12>
    <MSH.21>
     <!—Newborn registration indicator -->
      <EI.1>N</EI.1>
      <EI.2>PMI</EI.2>
    </MSH.21>
  </MSH>
  <EVN>
```



```
    <!-- Transaction Datetime -->
    <EVN.2>
      <TS.1>20100131163005.005</TS.1>
    </EVN.2>
  </EVN>
  <PID>
    <!-- eHR Number -->
    <PID.2>
      <CX.1>201000000001</CX.1>
    </PID.2>
    <PID.3>
      <!— New HKID -->
      <CX.1>Z0099001</CX.1>
      <CX.5>BC</CX.5>
    </PID.3>
    <PID.5>
      <!-- HCR New English Surname -->
      <XPN.1>
        <FN.1>CHAN</FN.1>
      </XPN.1>
      <!-- HCR New English Given Name -->
      <XPN.2>TAI MAN</XPN.2>
      <!-- HCR New English Full Name / New Chinese Name -->
      <XPN.9>
        <CE.2>CHAN, TAI MAN:陳大文</CE.2>
      </XPN.9>
    </PID.5>
    <PID.7>
      <!— New Date of Birth -->
      <TS.1>20140529</TS.1>
      <!-- Exact Date of Birth Indicator -->
      <TS.2>EDMY</TS.2>
    </PID.7>

    <!— New Sex -->
    <PID.8>M</PID.8>
  </PID>

  <MRG>
    <!-- Old Identity Document Number and Type of Identity Document -->
    <MRG.1>
      <CX.1/>
      <CX.5>ID</CX.5>
    </MRG.1>
    <MRG.1>
      <CX.1>1231231230</CX.1>
```



```
      <CX.5>ED</CX.5>
    </MRG.1>

    <MRG.7>

      <!-- Old HCR English Surname -->
      <XPN.1>
        <FN.1>B/O CHAN</FN.1>
      </XPN.1>
      <!-- Old HCR English Given Name -->
      <XPN.2>SIU SIU TWN1 </XPN.2>
      <!-- Old HCR English Full Name -->
      <XPN.9>
        <CE.2>B/O CHAN, SIU SIU TWN1</CE.2>
      </XPN.9>
    </MRG.7>

    <!-- Old Sex -->
    <MRG.8>M</MRG.8>
    <MRG.9>
      <!-- Old Date of Birth -->
      <TS.1>20140529</TS.1>
      <!-- Old Exact Date of Birth Indicator -->
      <TS.2>EDMY</TS.2>
    </MRG.9>
  </MRG>
</ADT_A30>
```


13.2.6 Example: Major Key Change at HCP

This message is expected to facilitate HCP to notify eHR for the major keys change of HCP in local EMR system.

The sample data and message are listed below for reference:

Example Data

Data Field	Sample Value
Event code	A47
Transaction datetime	20140530163005.005 (In format: YYYYMMDDhhmmss[.s[s[s]]])
Message number	3123497
eHR number	201000000001
New HKIC number	Z0099001
New Identity document number	*(Blank)*
New Surname	Chan
New Given name	Tai Man
New Birth date	20140529 (In format: YYYYMMDD)
New Exact date of birth indicator	EDMY
New Sex	M
Old HKIC number	Z0099001
Old identity document number	*(Blank)*
Old type of identity document	*(Blank)*
Old surname	CHAN
Old given name	SIU MAN
Old birth date	19840529 (In format: YYYYMMDD)
Old exact date of birth indicator	EDMY
Old sex	M

Sample HL7 Message

```
<?xml version="1.0" encoding="UTF-8"?>
<ADT_A30 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml
http://www.ehealth.gov.hk/ehr/xsd/ADT_A30.xsd">
```



```
<MSH>
  <MSH.1>|</MSH.1>
  <MSH.2>^~\&amp;</MSH.2>
  <!-- Sending Application Code -->
  <MSH.3>
    <HD.1>CMS 3.0</HD.1>
  </MSH.3>
  <!-- Sending Institution Code -->
  <MSH.4>
    <HD.1>3088450123</HD.1>
  </MSH.4>
  <MSH.5>
    <HD.1>EIF</HD.1>
  </MSH.5>
  <MSH.6>
    <HD.1>eHR</HD.1>
  </MSH.6>
  <!-- Message Generation Datetime -->
  <MSH.7>
    <TS.1>20140530163005</TS.1>
  </MSH.7>
  <!-- Compliance Level -->
  <MSH.8>3</MSH.8>
  <!-- Event Code -->
  <MSH.9>
    <MSG.1>ADT</MSG.1>
    <MSG.2>A47</MSG.2>
    <MSG.3>ADT_A30</MSG.3>
  </MSH.9>
  <!-- Message Number -->
  <MSH.10>3123497</MSH.10>
  <MSH.11>
    <PT.1>P</PT.1>
  </MSH.11>
  <MSH.12>
    <VID.1>2.5</VID.1>
  </MSH.12>
  <MSH.21>
   <!—Major keys change notification type-->
    <EI.1>O</EI.1>
    <EI.2>PMI</EI.2>
  </MSH.21>
</MSH>
<EVN>
  <!-- Transaction Datetime -->
  <EVN.2>
```



```
      <TS.1>20100131163005.005</TS.1>
    </EVN.2>
  </EVN>
  <PID>
    <!-- eHR Number -->
    <PID.2>
      <CX.1>201000000001</CX.1>
    </PID.2>
    <PID.3>
      <!-- New HKID -->
      <CX.1>Z0099001</CX.1>
      <CX.5>ID</CX.5>
    </PID.3>
    <PID.5>
      <!-- HCR New English Surname -->
      <XPN.1>
        <FN.1>Chan</FN.1>
      </XPN.1>
      <!-- HCR New English Given Name -->
      <XPN.2>Tai Man</XPN.2>
      <!-- HCR New English Full Name / New Chinese Name -->
      <XPN.9>
        <CE.2>Chan, Tai Man</CE.2>
      </XPN.9>
    </PID.5>
    <PID.7>
      <!-- New Date of Birth -->
      <TS.1>20140529</TS.1>
      <!-- Exact Date of Birth Indicator -->
      <TS.2> EDMY</TS.2>
    </PID.7>

    <!-- New Sex -->
    <PID.8>M</PID.8>
  </PID>

  <MRG>
    <!-- Old Identity Document Number and Type of Identity Document -->
    <MRG.1>
      <CX.1> Z0099001</CX.1>
      <CX.5>ID</CX.5>
    </MRG.1>
    <MRG.7>
      <!-- Old HCR English Surname -->
      <XPN.1>
        <FN.1>CHAN</FN.1>
```



```
        </XPN.1>
        <!-- Old HCR English Given Name -->
        <XPN.2>SIU MAN </XPN.2>
        <!-- Old HCR English Full Name -->
        <XPN.9>
          <CE.2>CHAN, SIU MAN</CE.2>
        </XPN.9>
      </MRG.7>
      <!-- Old Sex -->
      <MRG.8>M</MRG.8>
      <MRG.9>
        <!-- Old Date of Birth -->
        <TS.1>19840529</TS.1>
        <!-- Old Exact Date of Birth Indicator -->
        <TS.2>EDMY</TS.2>
      </MRG.9>
    </MRG>
</ADT_A30>
```


14 LOCALISATION OF HL7 ELEMENTS

The changes described in this section are applied ONLY in eHR Healthcare Recipient Index domain.

14.1 EXTEND HL7 MRG SEGMENT - MERGE PATIENT INFORMATION

Add new components into the segment

SEG	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
8	***1***	***IS***	***O***				***Prior Sex***
9	***26***	***TS***	***O***				***Prior Date/Time of Birth***

Extended HL7 Attribute Table - MRG segment

SEG	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	250	CX	R	Y		00211	Prior Patient Identifier List
2	250	CX	B	Y		00212	Prior Alternate Patient ID
3	250	CX	O			00213	Prior Patient Account Number
4	250	CX	B			00214	Prior Patient ID
5	250	CX	O			01279	Prior Visit Number
6	250	CX	O			01280	Prior Alternate Visit ID
7	250	XPN	O	Y		01281	Prior Patient Name
8	***1***	***IS***	***O***				***Prior Sex***
9	***26***	***TS***	***O***				***Prior Date/Time of Birth***

14.1.1 MRG extended field definitions

14.1.1.1 MRG - 8 Prior Sex (IS)

Definition: This field contains the prior HCR's sex.

- Refer to the latest code set of 'Sex' in eHR Office website for possible values
- Affected data field:
  - "old sex"
  - "old date of birth"

14.1.1.2 MRG - 9 Prior Date/Time of Birth (TS)

```
Components: <Time (DTM)> ^ <Degree of Precision (IS)>
```

Definition: This field contains the prior HCR's date and time of birth.

- Refer to the latest code set of 'Exact Date' in eHR Office website for possible values of <MRG.9>/<TS.2>
- Affected data field:
  - "old date of birth"

14.2 LOCALISATION OF DATA TYPE

14.2.1 Data Type of <PID.3>/<CX.5> – 'IS'

PID – 3 Patient Identifier List (CS) 00106

```
Components: <ID Number (ST)> ^ <Check Digit (ST)> ^ <Check Digit Scheme (ID)> ^ <Assigning Authority (HD)> ^
<Identifier Type Code (IS)> ^ <Assigning Facility (HD)> ^ <Effective Date (DT)> ^ <Expiration Date (DT)> ^ <Assigning
Jurisdiction (CWE)> ^ <Assigning Agency or Department (CWE)>
```

Definition: This field contains the list of identifiers (one or more) used by the healthcare facility to uniquely identify a HCR.

- Refer to the latest code set of 'Type of Identity Document' in eHR Office website for possible values of <PID.3>/<CX.5>
- Affected data field
  - "type of identity document"

14.2.2 Data Type of <PID.7>/<TS.2> – 'IS'

PID – 7 Date/Time of Birth (TS) 00110

```
Components: <Time (DTM)> ^ <Degree of Precision (IS)>
```

Definition: This field contains the HCR's date and time of birth.

- Refer to the latest code set of 'Exact Date' in eHR Office website for possible values of <PID.7>/<TS.2>
- Affected data field:
  - "exact date of birth indicator"

14.2.3 Data Type of <PID.29>/<TS.2> – 'IS'

PID – 7 Patient Death Date and Time (TS) 00740

```
Components: <Time (DTM)> ^ <Degree of Precision (IS)>
```

Definition: This field contains the date and time at which the HCR death occurred.

- Refer to the latest code set of 'Exact Date' in eHR Office website for possible values of <PID.29>/<TS.2>
- Affected data field:
  - "exact date of death indicator"

14.2.4 Data Type of <MRG.1>/<CX.5> – 'IS'

MRG – 1 Prior Patient Identifier List (CS) 00211


```
Components: <ID Number (ST)> ^ <Check Digit (ST)> ^ <Check Digit Scheme (ID)> ^ <Assigning Authority (HD)> ^
<Identifier Type Code (IS)> ^ <Assigning Facility (HD)> ^ <Effective Date (DT)> ^ <Expiration Date (DT)> ^ <Assigning
Jurisdiction (CWE)> ^ <Assigning Agency or Department (CWE)>
```

Definition: This field contains the prior HCR identifier list.

- Refer to the latest code set of 'Type of Identity Document' in eHR Office website for possible values of <MRG.1>/<CX.5>
- Affected data field:
    - "old type of identity document"

