醫健通

eHealth

香港特別行政區政府 HKSARGOVT

Developers' Quick Guide
eHealth Problem Records (FHIR)

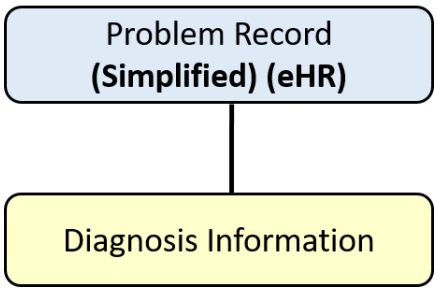
1 Contents

1. Purpose

This document is intended for Information Technology personnel involved in the development of programmes to upload data from their Electronic Medical Record (EMR) system to the electronic Health Record Sharing System (eHRSS) .

The technical interface requirements for implementing Health Level Seven (HL7) Fast Healthcare Interoperability Resources (FHIR) Release 4 (R4) for uploading the Problem Records to eHRSS are provided below. Readers who prefer more in-depth study of the HL7 FHIR (R4) standards and content standards may refer to the HL7 FHIR website https://www.hl7.org/fhir/ and the **eHR Content Standards Guidebook** on the eHealth official website https://www.ehealth.gov.hk/ for more detail.

2. Data Components



Diagnosis Information
Detail of diagnosis for Problem

3. Upload Standards

Supported Data Standards Level

- The Problem data domain (PROB) supports Level 2 or Level 3 data standards.

Examples of Problem Scenarios
Below is an example depicting the different details in Level 2 and Level 3 Problem records:

Data field	Level 2 data	Level 3 data
Diagnosis reference date	2023-06-13 16:15:00.000	2023-06-13 16:15:00.000
Diagnosis status code		C
Diagnosis status description		Active
Diagnosis status local description		Active

Data field	Level 2 data	Level 3 data
Reason for cancellation of diagnosis		
Diagnosis - recognised terminology name		HKCTT
Diagnosis identifier - recognised terminology		1234
Diagnosis description - recognised terminology		Transient ischaemic attack
Diagnosis local code		
Diagnosis local description	Transient ischaemic attack - TIA	Transient ischaemic attack - TIA
Diagnosis comment		

Modes of Data Upload

HCP can upload clinical data in TWO upload modes according to needs. Please refer to the relevant sections in the General Guide.

- **Data materialization (DM)** mode is to upload all of an HCR's clinical data of a specific sharable dataset (data domain) that exists in the EMR system to eHRSS. DM aims for the first data upload for an HCR who newly given sharing consent to the HCP; and

- **Incremental Load (INC)** mode is for HCP to upload all newly created, amended and cancelled clinical data of a specific sharable data from all HCRs in the EMR system to eHRSS in ONE batch since the last data upload.

Recognised Terminology

- The recognised terminology sets adopted for the eHR Problem Records includes:
  - HKCTT
  - SNOMED CT
  - ICD10-2001
  - ICD10-2010
  - ICD10-MBD
  - ICPC2

- The clinical terminology and code sets used are provided in the **self-service kit**. For the latest codes used, please refer the eHR code sets published on the eHealth official website.

Message Standards

- FHIR R4 message standards in JSON format are adopted for Problem Records upload to eHealth.
- Resource and Element names are case-sensitive

Encoding

- UTF-8 encoding is used for eHR Clinical data exchange.

4. Artifacts Summary

This section provides a list of the FHIR artifact defined as part of this implementation guide:

Resource used	Definition	Cardinality
eHRSS Bundle	This profile represents the constraints and localization applied to the Bundle resource by eHRSS	1..1
eHRSS Composition	This profile represents the constraints and localization applied to the Composition resource by eHRSS	1..1
eHRSS Patient	This profile represents the constraints and localization applied to the Patient resource by eHRSS.	1..1
eHRSS Condition	This profile defines a condition structure which includes eHR Problem data	1..*
eHRSS Encounter	This profile defines an Encounter structure which related to the diagnosis reported	0..*

Notes:

The following conventions are used for the specifications described in this document:

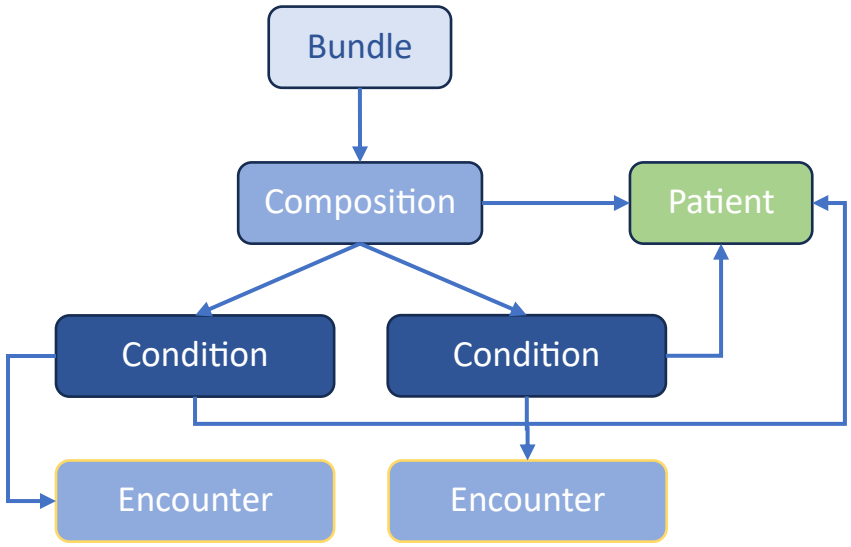
Constants:	***Bolded** values are constants or fixed values.*
E.g.:	*Example values for illustration.*
[…]:	*Data variables*
"…":	*Data values.*
"M/O"	*Indicates if the data field is Mandatory (M) or Optional (O). M* or O* denotes conditional Mandatory or Optional, please refer to Remarks for rules*
NA:	*Data Field in concern is not used.*
[S]:	*Must Support*

5. Specification of Data uploaded

The section describes the format and data required for the data contributed to eHealth. Un-used FHIR message items and those not processed by eHRSS are not listed below. Readers may refer to the HL7 (HK) website for the full HL7 FHIR R4 message specifications if required.

5.1 Composition of HL7 FHIR Message

The Problem Records are structured with the HL7 FHIR components (Resources) and hierarchy as specified below.



Bundle Resource (Single occurrence in each FHIR message bundle)

- Identify the container type for the collection of data included in the bundle. The resource composition and data contents are determined by the Bundle Type. For Problem Records data upload, the following resources are included in the bundle.

Composition Resource (Single occurrence for each bundle)

- Indicate a composition of data or document are collected in the message bundle. For "document" type of bundle, the "Composition Resource" must be the first resource to be included.

Condition Resource (Multiple occurrences are allowed in a bundle)

- Contains the list of problem records based on the mode of upload.

Patient Resource (Single occurrence for each **Bundle**)

- Contains the demographics data of the healthcare recipient (HCR) who has the problem diagnosed

Encounter Resource (Single occurrence for each **Condition**)

- Contains the encounter information for each Condition record.

5.2 Data Elements in the Bundle Resource

A bundle is a collection of resources. For the type of "document" bundle, the following rules should be fulfilled.

+ Rule: A document must have an identifier with a system and a value

The below table listed data elements in the Bundle Resource which identifies the beginning of the container and the collection of data resources are all included under [resource.entry] in the bundle.

JSON Name	**Data Value**	**FHIR Data Type** (**Max Length**)	**Remarks**	**M/O**
resourceType	Name of the current resource	string(6)	Fixed value: "resourceType":"**Bundle**"	M
id	Resource id which is a logic id to identify the artifact A UUID represented as a URI (RFC 4122) Please see reference website in appendix	uuid	*E.g.* urn:uuid:c757873d-ec9a-4326-a141-556f43239520	M

Identifier	Persistent identifier for the resource
	
	UUID/OID for Bundle
		Identifier	*E.g.*
			"identifier" : {
			"system" : "urn:ietf:rfc:3986",
			"value" : "urn:uuid:0c3151bd-1cbf-4d64-b04d-cd9187a4c6e0"
			}
				M

Type	The type is always “document”	code	Fixed value: "type":"**document**"	M
Timestamp	When the bundle was assembled [current time]	instant	In format: YYYY-MM-DDThh:mm:ss.sss+zz:zz *E.g.* "timestamp": "2024-03-01T15:04:48.865+08:00"	M
Entry fullUrl	Resources included in this bundle are collected under ‘entry’ Each resource is identified by a uri A UUID represented as a URI (RFC 4122)	BackboneElement uri	URI for UUID/OID HL7 FHIR Resources that collected in the Problem record upload Bundle include: • Composition • Patient • Condition • Encounter *E.g.* "fullUrl": "urn:uuid:21c6828c-b175-4a3b-b6de-6eaf69335021"	M

JSON Name	Data Value	FHIR Data Type (Max Length)	Remarks	M/O
resource	A document must have a Composition as the first resource. Please refer to Composition resource requirements	BackboneElement .Resource	The 1st resource must be “Composition” resource.	M

5.3 Data Elements in the Composition Resource

The Composition Resource identifies whether the upload package includes list of Problem records in this bundle.

JSON Name	Data Value	Data Definition	FHIR Data Type (Max Length)	Remarks	M/O
resourceType	Resource name	-	string (11)	Fixed value: "resourceType":" **Composition**"	M
id	Resource id which is a logic id to identify the artifact A UUID represented as a URI (RFC 4122) Please see reference website in appendix	-	uuid	*E.g.* urn:uuid: 30551ce1-5a28-4356-b684-1e639094ad4d	M
status	The status is always “final”. Other codes are not accepted by eHRSS.	-	string(5)	Fixed value: "**final**"	M

type.coding.system
type.coding.display
	Composition type
	
	A coding object is required.
		-	CodeableConcept
			
			coding.system
			
			coding.display
				Fixed value:
				"type": {
				"coding": [
				{
				"system": "**[eHR FHIR URL]**",
				"display": "**Hong Kong eHR Healthcare Document**"
				}]}
					M

JSON Name	Data Value	Data Definition	FHIR Data Type (Max Length)	Remarks	M/O

subject.reference	[resource.id] of Patient Resource included in the same bundle	HCR has the condition in this bundle	Reference(Patient)	In format:
				Patient/<resource id>
				
				E.g.
				"subject": {
				"reference": "Patient/6e480262-978c-49f0-a793-468293932fc2"
				}
				• This resource id is the same value of the Patient resource id
				• The Patient Resource contains data of the HCR
					M

date	Message generation time *eHRSS will use this value and [record key] for overriding records uploaded in eHRSS*	Composition creation time	dateTime(25)	In format: YYYY-MM-DDThh:mm:ss+zz:zz *E.g.* "date":"2022-12-01T15:04:48+08:00"	M
author	Author of this composition Name of healthcare institution who created/update the record *eHRSS will not interpret this value*	-	Reference(Organization)	Fixed value: Organization/author *E.g.* "author": [{ "reference" : "Organization/author", "display" : "ABC Clinic" }] HCP could use either the value of the following 2 fields: [Record Create Institution Name] [Record Update institution name]	M
title	Title of this composition *eHR will not interpret this value*	-	string(33)	Fixed value: title:"**Hong Kong eHR Healthcare Document**"	M
section	Composition is broken into sections	-	BackboneElement	-	M

JSON Name	Data Value	Data Definition	FHIR Data Type (Max Length)	Remarks	M/O
title	A human readable label for this section	-	string(255)	Fixed value: title: "**Problem Records**"	M

code	A code identifying the kind of content contained within the section. This must be consistent with the section title.	-	CodeableConcept
			
			coding.system
			
			coding.code
			
			coding.display
				Fixed value:
				"code": {
				"coding": [
				{
				"system": "**[eHR FHIR URL]**/datadomain",
				"code": "**PROB**",
				"display": "**Problem Records**"
				}]}
					M

entry	A reference to data that supports this section **Each entry represents each record		Reference(Condition)	Reference Format: Condition/<resource id> • This resource id is the same value of the Condition resource id • The Condition Resource contains data of the HCR 's list of problem are included in this bundle.	M
99999999-TransactionType	[Transaction Type] Insert / Update / Delete	• Insert ("I"): Upload a record which has never been uploaded to eHRSS before. • Update ("U"): Update a record which has been uploaded to eHRSS before and its data content was changed since the last upload of this record (identified by [Record Key]). • Delete ("D"): Delete an record which has been uploaded to eHRSS before and has since be cancelled or deleted (identified by [Record Key]). • DM mode only permits 'I' (Insert)	BackboneElement.Reference.Extension string(1)	Permissible Values: **I**: Insert **U**: Update **D**: Delete *E.g.:* "extension": [{ "url": "**[eHR FHIR URL]**/99999999-TransactionType", "valueString": "**[Transaction Type]"** }]	M

JSON Name	Data Value	Data Definition	FHIR Data Type (Max Length)	Remarks	M/O
99999999-LastUpdateDateTime	[Last Update Date Time]	The last update datetime for HCP system	BackboneElement.Reference.Extension dateTime(25)	In format: YYYY-MM-DDThh:mm:ss+zz:zz *E.g:* "2019-05-31T08:30:00+08:00" *E.g:* "extension": [{ "url": "**[eHR FHIR URL]**/99999999-LastUpdateDateTime", "valueDateTime": "**[Last Update Date Time]**" }]	M
99999999-TransactionDateTime	[Transaction Date Time]	The datetime indicates the transaction sequence	BackboneElement.Reference.Extension dateTime(25)	In format: YYYY-MM-DDThh:mm:ss+zz:zz *E.g*. "2019-05-31T08:30:00+08:00" *E.g.* "extension": [{ "url": "**[eHR FHIR URL]**/99999999-TransactionDateTime", "valueDateTime": "**[Transaction Date Time]**" }]	M
99999999-ComplianceLevel	[Compliance Level]	Data Compliance level	BackboneElement.Reference.Extension string(1)	Permissible Values: 2,3 *E.g.* "extension": [{ "url": "**[eHR FHIR URL]**/99999999-ComplianceLevel", "valueString": "**[Compliance Level]**" }]	M

JSON Name	Data Value	Data Definition	FHIR Data Type (Max Length)	Remarks	M/O
99999999-UploadMode	Bulk Load Type	-	string(4)	Permissible values: **BL**: INC Bulk load **BL-M**: DM Bulk load *E.g:* "extension": [{ "url": "**[eHR FHIR URL]**/99999999-UploadMode", "valueString": "**[99999999-UploadMode]**" }]	M
99999999-RecordCreateDatetime	[Record Create Datetime]	Datetime when the record was created in source system of HCP	BackboneElement.Reference.Extension dateTime(25)	In format: YYYY-MM-DDThh:mm:ss+zz:zz *E.g.*"2021-01-25T08:30:00+08:00" *E.g.* "extension": [{ "url": "**[eHR FHIR URL]**/99999999-RecordCreateDatetime", "valueDateTime": "**[Record Create Datetime]**" }]	O
extension 99999999-RecordCreateInstIdentifier	[Record Create Institution Identifier]	A unique identifier assigned by eHR Healthcare Provider Index to each healthcare institution who created the record	BackboneElement.Reference.Extension string(10)	*E.g.* "extension": [{ "url": "**[eHR FHIR URL]**/99999999-RecordCreateInstIdentifier", "valueString": **"[Record Create Institution Identifier]"** }]	O
extension 99999999-RecordCreateInstName	[Record Create Institution Name]	Name of healthcare institution who created the record	BackboneElement.Reference.Extension string(255)	*E.g.*: "extension": [{ "url": "**[eHR FHIR URL]**/99999999-RecordCreateInstName", "valueString": "**[Record Create Institution Name]**" }]	O

JSON Name	Data Value	Data Definition	FHIR Data Type (Max Length)	Remarks	M/O
extension 99999999-RecordLastUpdateDatetime	[Record Last Update Datetime]	Datetime when the record was last updated in source system of HCP	BackboneElement.Reference.Extension dateTime(25)	In format: YYYY-MM-DDThh:mm:ss+zz:zz E.g. 2017-03-04T08:30:00+08:00 *E.g.* "extension": [{ "url": "**[eHR FHIR URL]**/99999999-RecordLastUpdateDatetime", "valueDateTime": "**[Record Last Update Datetime]**" }]	O
extension 99999999-RecordUpdateInstIdentifier	[Record Update Institution Identifier]	A unique identifier assigned by eHR Healthcare Provider Index to each healthcare institution who updated the record	BackboneElement.Reference.Extension string(10)	*E.g.* "extension": [{ "url": "**[eHR FHIR URL]**/99999999-RecordCreateInstIdentifier", "valueString": "**[Record Update Institution Identifier]**" }]	O
extension 99999999-RecordUpdateInstName	[Record Update Institution Name]	Name of healthcare institution who updated the record	BackboneElement.Reference.Extension string(255)	*E.g.* "extension": [{ "url": "**[eHR FHIR URL]**/99999999-RecordUpdateInstName", "valueString": "**[Record Update Institution Name]**" }]	O

identifier	[Record key]	A unique identifier for each record	string(40)	*E.g.*
				"identifier": {
				"system": "**[HCP FHIR URL]**/Recordkey",
				"value": "**[Record key]**"
				}
					M

5.4 Data Elements in the Patient Resource

Data elements providing information on the HCR whom this bundle of problem records belong to.

JSON Name	Data Field	Data Definition	FHIR Data Type (Max Length)	Remarks	M/O
resourceType	Resource name	-	string(7)	Fixed value: "resourceType" : "**Patient**"	M

JSON Name	Data Field	Data Definition	FHIR Data Type (Max Length)	Remarks	M/O
id	Resource id reference by Condition resource	Logical id of this artifact A UUID represented as a URI (RFC 4122);	string(32)	*E.g.* urn:uuid: 6e480262-978c-49f0-a793-468293932fc2	M
identifier	eHR number for this patient	-	identifier		
type.coding.system	Link to document type coding system	-	uri	Fixed value:"**[eHR FHIR URL]/typeofID-ext**"	M
type.coding.code	identifier type code	-	string(5)	Fixed value: **"EHRNO"**	M

value	[eHR number]	A unique HCR identifier assigned by eHRSS.	numeric(12)	*E.g.*
				{
				"type": {
				"coding": [{
				"system": "**[eHR FHIR URL]**/typeofID-ext",
				"code": "**EHRNO**"}]
				}, "value": "**[eHR number]**"
				}
					M

identifier	Document type and HKIC for this patient	-	identifier		
type.coding.system	Link to document type coding system	-	uri	Fixed value:"**[eHR FHIR URL]/typeofID-ext**"	M
type.coding.code	[Type of identity document]	The type of identity document the HCR used for eHealth registration or identity update.	string(6)	Permissible Value: ID, BC, CD, ECID	M
value	[HKIC]	• Hong Kong Identity Card (HKIC) number; or • Registration Number on Hong Kong Birth Certificate (post-1981); or • Consular Corps Identity Card number issued by HKSAR Immigration Department	string(12)	Format: AANNNNNNC or ANNNNNNC e.g.: A1234563 • C is the check digit • One leading space if there is only one leading alphabet in HKIC number • All Uppercase	M

JSON Name	Data Field	Data Definition	FHIR Data Type (Max Length)	Remarks	M/O
identifier	Document type and document number for this patient	Mandatory if [Type of identity document] = ID / BC / CD or [Identity document number] is blank Optional if [Identity document number] is given	identifier		
type.coding.system	Link to document type coding system	-	uri	Fixed value:"**[eHR FHIR URL]/typeofID-ext**"	O*
type.coding.code	[Type of identity document]	The type of identity document the HCR used for eHealth registration or identity update.	string(6)	Refer to the document type code set provided in the **self-service kit** or the eHRSS official website for the most updated code set.	O*
value	[Identity document number]	The document number of the HCR's identity document	string(30)	Mandatory if HKIC identifier is blank	O*
name.family	[English surname]	HCR's surname in English For single name cases, the single name can be specified in either [English surname] or [English given Name]	string(40)	Mandatory if [English full name] is blank; else Optional All Uppercase letters e.g.1: CHAN e.g.2: PARTICIPANT53	M*
name.given	[English given name]	HCR's given name in English	string(40)	Mandatory if [English full name] is blank; else Optional All Uppercase letters	
text	[English full name]	HCR's full name in English	string(100)	Mandatory if [English surname] and [English given name] are blank In format: [English surname] + [,] + 1 white space + [English given name] All Uppercase letters * If HCR has either English surname or given name stored in local EMR system, full name should be filled.	M*

JSON Name	Data Field	Data Definition	FHIR Data Type (Max Length)	Remarks	M/O
gender	[sex]	The Administrative Gender defined in FHIR eHR will convert the FHIR gender to eHR [Sex] according to the Section 6 conversion table	code	Permissible Values: - male - female - unknown *E.g.*: "gender": " **[Sex]**"	M
birthdate	[Date of birth]	The HCR's date of birth as indicated on the HCR's identity document	Date(10)	In format: YYYY-MM-DD *E.g.*: "birthDate": "**[Date of birth]**" If date is exact to 'Year' (e.g. 2010), the unknown month and day should be filled with '01-01'. Example: "2010-01-01". If date is exact to 'Month' (e.g. 2011-12), the unknown day should be filled with '01'. Example: "2011-12-01".	M

5.5 Data Elements in the Condition resource

The information about an individual who has diagnosis and problem list.

JSON Name	Data Value	Data Definition	FHIR Data Type (Max Length)	Remarks	L2 M/O	L3 M/O	Delete Scenario
resousrceType	Resource name	Detailed information about conditions, problems for diagnoses	string(9)	Fixed Value: "resourceType": "**Condition**"	M	M	M
id	Resource id reference by Composition resource	Logical id of this artifact A UUID represented as a URI (RFC 4122);	uuid	*E.g.* urn:uuid:c7781f44-6df8-4a8b-9e06-0b34263a47c5	M	M	M

JSON Name	Data Value	Data Definition	FHIR Data Type (Max Length)	Remarks	L2 M/O	L3 M/O	Delete Scenario
identifier	[Record key]	A unique identifier for each Problem record	string(40)	This [Record Key] is reference to the same [Record Key] in Composite Resource entry "identifier": { "system": "**[HCP FHIR URL]**/Recordkey", "value": "**[Record key]**"}	M	M	M
clinicalStatus	Condition Clinical Status Codes	-	CodeableConcept				
coding.system	Link to Diagnosis status coding system	-	uri	Fixed value:"**[eHR FHIR URL]**/DiagStatuscd"	NA	O	NA
coding.code	[Diagnosis status code]	It is used to identify the status of a reported diagnosis	string(1)	Please refer to section 8 for code tables value "code": "**[Diagnosis status code]**",	NA	O	NA
coding.display	[Diagnosis status description]	It is used to identify the status of a reported diagnosis and should be the corresponding description of the selected [Diagnosis status code]	string(255)	Mandatory for Level 3 if [Diagnosis status code] is given, else N/A. "display": "**[Diagnosis status description]**"	NA	M*	NA
text	[Diagnosis status local description]	Local description of the diagnosis status	string(255)	Mandatory or Level 3 if [Diagnosis status code] is given, else N/A.	O	M*	NA
Code	Identification of the condition/problem or diagnosis	--	CodeableConcept				
Recognised Terminology							

JSON Name	Data Value	Data Definition	FHIR Data Type (Max Length)	Remarks	L2 M/O	L3 M/O	Delete Scenario
coding.system	Link to recognized terminology coding system which indicate the [Diagnosis - recognised terminology name]	Name of the recognised terminology / classification from which the diagnosis is referenced to	uri	Fixed value: "system": "**[uri for Diagnosis - recognised terminology name]**" Please refer to Section 8 : use [Diagnosis - recognised terminology name] to look up the **uri** in the table "Recognised terminology name – Problem" as the coding.system	NA	M	NA
coding.code	[Diagnosis identifier - recognised terminology]	Unique identifier of the reported diagnosis in the recognised terminology	string(20)	code": "**[Diagnosis identifier - recognised terminology]**" Please refer to Section 8 : use [Diagnosis - recognised terminology name] to look up the **code value** in the table "Recognised terminology name – Problem"	NA	M	NA
coding.display	[Diagnosis description – 18ecognized terminology]	The description of the reported diagnosis in the recognized terminology. It should be the corresponding description of the selected [Diagnosis identifier –recognized terminology].	string(1000)	"display": "**[Diagnosis description - recognised terminology]**" Please refer to Section 8 : use [Diagnosis - recognised terminology name] to look up the **Description** in the table "Recognised terminology name – Problem"	NA	M	NA
Local Terminology							
coding.system	Link to local terminology coding system	--	uri	Fixed Value: "**[HCP FHIR URL]**/diagnosis"	O	O	NA
coding.code	[Diagnosis local code]	Local code created by the healthcare provider for the reported diagnosis	string(20)	"code": "**[Diagnosis local code]**"	O	O	NA

JSON Name	Data Value	Data Definition	FHIR Data Type (Max Length)	Remarks	L2 M/O	L3 M/O	Delete Scenario
coding.display	[Diagnosis local description]	Local description created by the healthcare provider for the reported diagnosis	string(1000)	"display": "**[Diagnosis local description]**"	M	M	NA

subject.reference	[resource.id] of Patient Resource in the same bundle	HCR has the condition in this bundle	Reference(Patient)	In format:
				Patient/<resource id>
				
				E.g.
				"subject": {
				"reference": "Patient/6e480262-978c-49f0-a793-468293932fc2"
				}
				• This resource id is the same value of the Patient resource id
				• The Patient Resource contains data of the HCR
					M	M	NA

Encounter	[resource.id] of Encounter Resource in the same bundle related to the Condition resource	Encounter created as part of	Reference(Encounter)	In format:
				Encounter/<resource id>
				
				E.g.
				"encounter": {
				"reference": "Encounter/169281c8-fb76-4e9c-b30f-3dfb3a7f53f2"
				}
				
				• This resource id is the same value of the Encounter resource id
					O	O	NA

recordedDate	[Diagnosis reference date]	Date when the diagnosis was created. For eHR, if this date is not available, the last update date of the diagnosis should be used when submitting data to the eHR	dateTime(25)	In format: YYYY-MM-DDThh:mm:ss+zz:zz *E.g.* "date":"2023-06-13T16:15:00+08:00"	M	M	NA
note	[Diagnosis comment]	Comment made on the reported diagnosis	string(2000)	*E.g.* "text": "**[Diagnosis comment]**"	O	O	NA

JSON Name	Data Value	Data Definition	FHIR Data Type (Max Length)	Remarks	L2 M/O	L3 M/O	Delete Scenario
1003582-ReasonForCancel	[Reason for cancellation of diagnosis]	The stated reason for cancelling the diagnosis	string(1000)	Optional in scenarios for Level 3 if [Diagnosis Status Code] is “C”, else N/A.	NA	O	NA

5.6 Data Elements for the Encounter resource

The information about an encounter which related to diagnosis reported.

JSON Name	Data Value	Data Definition	FHIR Data Type (Max Length)	Remarks	L2 M/O	L3 M/O	Delete Scenario
resousrceType	Resource name	Encounter information about the service provided to HCR	string(9)	Fixed Value: "resourceType":"**Encounter**"	M	M	NA
id	Resource id reference by Condition resource	Logical id of this artifact A UUID represented as a URI (RFC 4122);	uuid	*E.g.* urn:uuid:169281c8-fb76-4e9c-b30f-3dfb3a7f53f2	O	O	NA
99999999-AttendanceInstIdentifier	[Attendance institution identifier]	eHRSS assigned [Healthcare Institution Identifier] (HCI ID) of the healthcare institution where the HCR receives the service.	string(10)	*E.g.* "extension": [{ "url": "**[eHR FHIR URL]**/99999999-AttendanceInstIdentifier", "valueString": "**[Attendance institution identifier]**" }]	O	O	NA

identifier	[Episode number]	A unique reference number assigned by the healthcare institution to an episode of care. The episode of care can be of inpatient or outpatient nature	string(20)	*E.g.*
				{
				"system": "**[HCP FHIR URL]**/EpisodeNum",
				"value": "**[Episode number]**"
				}
					O	O	NA

status	Encounter Status *eHRSS will not interpret the value.*	--	code	Fixed Value : "**finished**"	M	M	M

JSON Name	Data Value	Data Definition	FHIR Data Type (Max Length)	Remarks	L2 M/O	L3 M/O	Delete Scenario
Class	Classification of patient encounter *eHRSS will not interpret the value.*	--	Coding	Fixed Value: "class": { "system": "**[eHR FHIR URL]**/class", "code": "UNKNOWN", "display": "Unknown status"}	M	M	M

6. Examples

In the following samples, data variables that have to be generated with each specific upload are quoted in square brackets and highlighted in *[Red]*. The definitions and expected values of these variables are listed in the previous section. All other parts including data values should not be altered without confirmation with the eHRSS project teams.

A sample in JSON format are included in the eHealth Data Upload Self Service Kit. Developers may use it as a template for incorporation with their data uploads after modification.

PROBLEM template:

```
{
    "resourceType": "Bundle",
    "id": "[resource id]",
    "identifier": {
        "system": "urn:ietf:rfc:4122",
        "value": "[UUID/OID for Bundle]"
    },
    "type": "document",
    "timestamp": "[current time]",
    "entry": [
        {
            "fullUrl": "urn:uuid:[resource id for Composition]",
            "resource": {
                "resourceType": "Composition",
                "id": "[resource id for Composition]",
                "status": "final",
                "type": {
                    "coding": [
                        {
                            "system": "https://ehealth.gov.hk/FHIR",
                            "display": "Hong Kong eHR Healthcare Document"
                        }
                    ]
                },
                "date": "[Message generation time]",
                "author": [
                    {
```

```
                "reference": "Organization/author ",
                "display": "[Record Creation institution name]"
            }
        ],
        "title": "Hong Kong eHR Healthcare Document",
        "section": [
            {
                "title": "Problem Records",
                "code": {
                    "coding": [
                        {
                            "system": "https://ehealth.gov.hk/FHIR/datadomain",
                            "code": "PROB",
                            "display": "Problem Records"
                        }
                    ]
                },
                "entry": [
                    {
                        "extension": [
                            {
                                "url": "https://ehealth.gov.hk/FHIR/99999999-RecordCreateDatetime",
                                "valueDateTime": "[Record Create Datetime]"
                            },
                            {
                                "url": "https://ehealth.gov.hk/FHIR/99999999-RecordCreateInstIdentifier",
                                "valueString": "[Record Create Institution Identifier]"
                            },
                            {
                                "url": "https://ehealth.gov.hk/FHIR/99999999-RecordCreateInstName",
                                "valueString": "[Record Create Institution Name]"
                            },
                            {
                                "url": "https://ehealth.gov.hk/FHIR/99999999-RecordLastUpdateDatetime",
                                "valueDateTime": "[Record Last Update Datetime]"
                            },
                            {
                                "url": "https://ehealth.gov.hk/FHIR/99999999-RecordUpdateInstIdentifier",
                                "valueString": "[Record Update Institution Identifier]"
                            },
                            {
                                "url": "https://ehealth.gov.hk/FHIR/99999999-RecordUpdateInstName",
                                "valueString": "[Record Update Institution Name]"
                            },
```

```
                                {
                                    "url": "https://ehealth.gov.hk/FHIR/99999999-TransactionDateTime",
                                    "valueDateTime": "[Transaction Date Time]"
                                },
                                {
                                    "url": "https://ehealth.gov.hk/FHIR/99999999-TransactonType",
                                    "valueString": "[Transaction Type]"
                                },
                                {
                                    "url": "https://ehealth.gov.hk/FHIR/99999999-LastUpdateDateTime",
                                    "valueDateTime": "[Last Update Date Time]"
                                },
                                {
                                    "url": "https://ehealth.gov.hk/FHIR/99999999-ComplianceLevel",
                                    "valueString": "[Compliance Level]"
                                },
                                {
                                    "url": "https://ehealth.gov.hk/FHIR/99999999-UploadMode",
                                    "valueString": "[Bulk Load Type]"
                                }
                            ],
                            "reference": "Condition/[resource id for Condition]",
                            "identifier": {
                                "system": "https://ehealth.gov.hk/HCP/Recordkey",
                                "value": "[Record key]"
                            }
                        }
                    ]
                }
            ]
        }
    },
    {
        "fullUrl": "urn:uuid:[resource id for Patient]",
        "resource": {
            "resourceType": "Patient",
            "id": "[resource id for Patient]",
            "identifier": [
                {
                    "type": {
                        "coding": [
                            {
                                "system": "https://ehealth.gov.hk/FHIR/typeofID-ext",
                                "code": "EHRNO"
```

```
                            }
                        ]
                    },
                    "value": "[eHR number]"
                },
                {
                    "type": {
                        "coding": [
                            {
                                "system": "http://ehealth.gov.hk/fhir/typeofID-ext",
                                "code": "ID"
                            }
                        ]
                    },
                    "value": "[HKIC number]"
                }
            ],
            "name": [
                {
                        "text": "[English full name]",
                        "family": "[English surname]",
                        "given": "[English given name]"
                }
            ],
            "gender": "[Sex]",
            "birthDate": "[Date of birth]"
        }
    },
    {
        "fullUrl": "urn:uuid:[resource id for Condition]",
        "resource": {
            "resourceType": "Condition",
            "id": "[resource id for Condition]",
            "extension": [
                {
                    "url": "https://ehealth.gov.hk/FHIR/1003582-ReasonForCancel",
                    "valueString": "[Reason for cancellation of diagnosis]"
                }
             ],
                "clinicalStatus": {
                    "coding": [
                        {
                            "system": "https://ehealth.gov.hk/FHIR/DiagStatuscd",
```

```
                        "code": "[Diagnosis status code]",
                        "display": "[Diagnosis status description]"
                    }
            ],
                "text": "[Diagnosis status local description]"
            },
            "code": {
                "coding": [
                    {
                        "system": "[uri for Diagnosis - recognised terminology name]",
                        "code": "[Diagnosis identifier - recognised terminology]",
                        "display": "[Diagnosis description - recognised terminology]"
                    },
                    {
                        "system": "https://ehealth.gov.hk/FHIR/HCP/local/diagnosis",
                        "code": "[Diagnosis local code]",
                        "display": "[Diagnosis local description]"

                    }
                ]
            },
            "subject": {
                "reference": "Patient/[resource id for Patient]"
            },
            "encounter": {
                "reference": "Encounter/[resource id for Encounter]"
            },
            "recordedDate": "[Diagnosis reference date]",
            "note": [
                {
                    "text": "[Diagnosis comment]"

                }
            ]
        }
    },
    {
        "fullUrl": "urn:uuid:[resource id for Encounter]",
        "resource": {
            "resourceType": "Encounter",
            "id": "[resource id for Encounter]",
            "extension": [
```

```
                    {
                        "url": "https://ehealth.gov.hk/FHIR/99999999-AttendanceInstIdentifier",
                        "valueString": "[Attendance institution identifier]"
                    }
                ],
                "identifier": [
                    {
                        "system": "https://ehealth.gov.hk/FHIR/HCP/local/EpisodeNum",
                        "value": "[Episode Number]"
                    }
                ],
                "status": "finished",
                "class": {
                    "system": "https://ehealth.gov.hk/FHIR/class",
                    "code": "UNKNOWN",
                    "display": "Unknown status"
                }
            }
        }
    ]
}
```

7. Mapping Tables

7.1 FHIR Administrative Gender

FHIR Administrative Gender	eHR Value of [Sex]
male	M
female	F
unknown	U

8. Code Tables

Type of identity document

eHR Value	eHR Description	Chinese Description	Full Description
AR	Adoption Certificate	領養證明書	Adopted Children Register (include those issued by HKSAR and non-HKSAR government authorities)
BC	Birth Certificate - HK	香港出生證明書	Hong Kong Birth Certificate
CD	Consular Corps ID Card	領事團身份證	Consular Corps Identity Card
DI	Document of Identity for Visa Purposes	香港特別行政區簽證身份書	HKSAR Document of Identity for Visa Purposes
EC	Exemption Certificate	豁免證明書(或稱豁免登記證明書)	Certificate of Exemption
ED	eHR document	電子健康紀錄文件	Document issued by eHRC for newborn registration
ID	HKID Card	香港身份證	Hong Kong Identity Card
MD	Macao ID Card	澳門身份證	Macao Identity Card
OC	Travel documents - PRC	中華人民共和國發出之其他旅遊証件	Other travel documents issued by the People Republic of China government / authorising agent, exclude One-way Permit and Two-way Permit
OP	Travel document - overseas	其他國家/地區發出之旅遊証件	Travel documents issued by other countries / regions
OW	One-way Permit	單程証	One-way Permit
RE	Recognizance Form	擔保書(行街紙)	Recognizance Form
RP	Re-entry Permit	香港特別行政區回港證	HKSAR Re-entry Permit
TW	Two-way Permit	雙程証	Two-way Permit

Diagnosis Status

eHR Value	eHR Description
P	Provisional
A	Active
I	Inactive
R	Resolved
C	Cancelled

Recognised terminology name - Problem

eHR Value	eHR Description	Allowable Values	Corresponding uri	Code Value	Description
HKCTT	Hong Kong Clinical	Nature=	https://ehealth.gov.hk/FHIR/	Use [TermID]	use [eHR

	Terminology Table	Diagnosis	HKCTT		Description]
SNOMED CT	Systematized Nomenclature of Medicine - Clinical Terms	Hierarchy = Clinical finding, Situation	http://snomed.info/sct	use [ConceptID]	use [Preferred Term]
ICD10-2001	International Statistical Classification of Diseases and Related Health Problems Tenth Revision (2001)	Valid ICD 10 codes	https://eheath.gov.hk/FHIR/ICD10-2001	use [Code]	use [Full Name]
ICD10-2010	International Statistical Classification of Diseases and Related Health Problems Tenth Revision (2010)	Valid ICD 10 codes	https://eheath.gov.hk/FHIR/ICD10-2010	use [Code]	use [Full Name]
ICD10-MBD	ICD-10 Mental and Behavioural Disorders: Clinical descriptions and diagnostic guidelines	Valid ICD 10 MBD codes	https://eheath.gov.hk/FHIR/ICD10-MBD	use [Code]	use [Full Name]
ICPC2	International Classification for Primary Care, Second edition	Valid ICPC2 codes - excluding those with last 2 digits in the range of 30-69	http://hl7.org/fhir/sid/icpc-2	use [Code]	use [Full Description]

9. Data variable

Variable	Variable Value	Remark
eHR FHIR URL	https://ehealth.gov.hk/FHIR	
HCP FHIR URL	https://ehealth.gov.hk/FHIR/HCP/local	

10. Appendix

Reference to generate the UUD URI

Online UUID generator : https://www.uuidgenerator.net/
Python uuid module documentation: https://docs.python.org/3/library/uuid.html
Java UUID Class Documentation:
https://docs.oracle.com/en/java/javase/14/docs/api/java.base/java/util/UUID.html

FHIR Reference

Bundle Resource: https://hl7.org/fhir/R4/bundle.html

Composition Resource: https://hl7.org/fhir/R4/composition.html

Patient Resource: https://hl7.org/fhir/R4/patient.html

Condition Resource: https://hl7.org/fhir/R4/condition.html

Encounter Resource : https://hl7.org/fhir/R4/encounter.html