FHIR Implementation Guide for Allergy / ADR Records exchange with eHealth

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) by using Fast Healthcare Interoperability Resources (FHIR) version 4. This document describes the interface requirements for implementing eHR Allergy(AL1) and eHR Adverse Drug Reaction(ADR) upload based on HL7-HK Standards. Readers who prefer more in-depth study FHIR may refer to the HL7 website https://hl7.org/fhir/ for further details.

2. 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 Bundle resource by eHRSS	1..1
eHRSS Patient	This profile represents the constraints and localization applied to the Patient resource by eHRSS.	1..1
eHRSS Allergy Intolerance	This profile defines an allergy intolerance structure which includes eHR Adverse drug reaction / allergy data mapping.	1..*
eHRSS Encounter	This profile defines an Encounter structure which related to the Allergy Intolerance.	0..1

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.*
NA:	*Data Field in concern is not used.*
[S]:	*Must Support*
1..1	*Indicates Mandatory and exists only once*
0..1	*Indicates Optional and exists only once, please refer to Remarks for rules. 0..1* denotes conditional Mandatory*
*0..**	*Indicates Optional and exists multiple times, please refer to Remarks for rules. 0..** denotes conditional Mandatory*

3. Type of Upload

Data materialization (DM) (First data upload for an HCR)

- When an HCR gives sharing consent to an HCP, HCP's registered EMR system can query a PMI 'Give sharing consent' event (ADT^A28) from eHRSS;

- Upon receiving this event, the EMR system should upload all available clinical data related to the HCR to eHRSS, either immediately or with the next scheduled upload;
- Data should be the point in time image, thus will only involve 'Insert' transactions to eHRSS. Update and Delete transactions to eHRSS will be rejected for DM upload;
- DM upload is packaged by individual data domain for multiple HCR; and
- **DM mode** is denoted in the interface by a fixed value **BL-M** in extension Element "99999999-UploadMode" *in Composition Resource* (details of FHIR message will be described in later section).

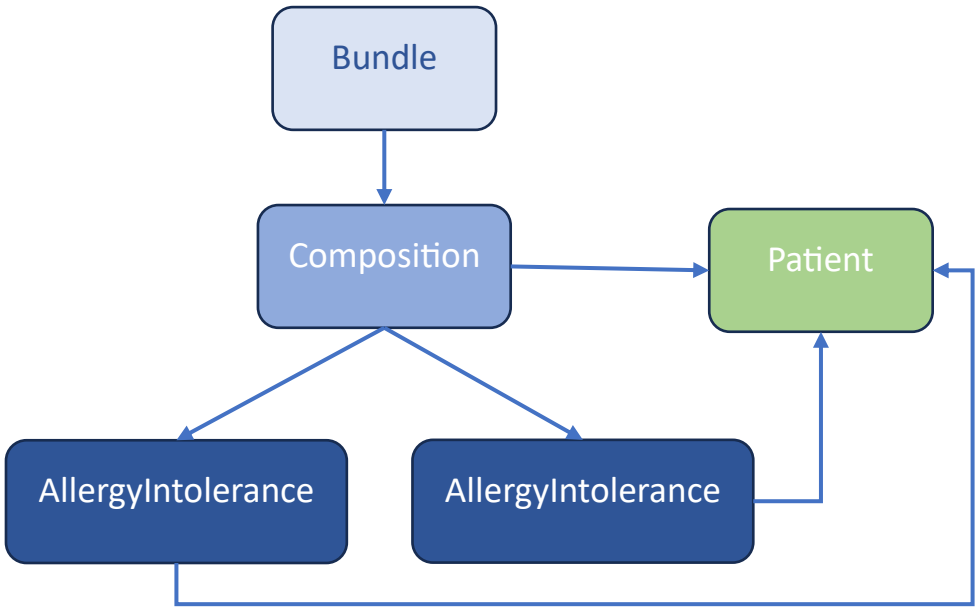
Incremental Load (INC) (Sub-sequent data upload)

- All subsequent record creations (insert), updates and deletes of all the consented HCRs should be uploaded to eHRSS at regular intervals via the INC data packages;
- **INC** upload is packaged by individual data domain for multiple HCRs; and
- **INC mode** is denoted in the interface by a fixed value **BL** in in extension Element "99999999-UploadMode" *in Composition Resource*

4. Resources

Notes :
In actual exchange, resources will be represented in JSON formats.
Resource and Element names are case-sensitive

The following diagram shows FHIR Resource components used for AL1 and ADR domain in this specification:



4.1 eHRSS Bundle

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

+ Rule: A document must have a date

+ Rule: A document must have a Composition as the first resource

The resources be accessed directly using the RESTful API. For other technical details, a supplementary section will be added later.

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	Card.	Remarks
Bundle	eHR Bundle Contains a collection of resources	Bundle string(6)	0..1	*Fixed Value:* "resourceType":"**Bundle**"
id	Logical id of this artifact A f represented as a URI (RFC 4122) Please see reference website in appendix	uuid	1..1	*E.g.* urn:uuid:c757873d-ec9a-4326-a141-556f43239520

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

type	The type is always “document”	code	1..1	*Fixed Value:* "type":"**document**"

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	Card.	Remarks
timestamp[S]	When the bundle was assembled [current time]	instant	1..1	In format: YYYY-MM-DDThh:mm:ss.sss+zz:zz *E.g.* "timestamp": "2022-12-01T15:04:48.865+08:00"
Entry fullUrl	The Resource for the entry. The purpose/meaning of the resource is determined by the "Bundle.type". A UUID represented as a URI (RFC 4122)	BackboneElement uri		URI for UUID/OID *E.g.* "fullUrl": "urn:uuid:21c6828c-b175-4a3b-b6de-6eaf69335021"
resource	The Resource for the entry. The purpose/meaning of the resource is determined by the "Bundle.type". A document must have a Composition as the first resource. Please refer to Composition resource requirements	BackboneElement.Resource	1..*	The 1st resource must be "Composition" resource.

4.2 eHRSS Composition

A Composition is the basic structure from which FHIR Documents are built. The Composition resource - defines a set of healthcare-related information that is assembled together into a single logical document that provides a single coherent statement of meaning, establishes its own context and that has clinical attestation with regard to who is making the statement. The Composition resource provides the basic structure of a FHIR document. The full content of the document is expressed using a Bundle containing the Composition and its entries.

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	Card.	Remarks
Composition	eHR Composition Contains a collection of resources	DomainReosource	0..1	*Fixed Value:* "resourceType":" **Composition** "

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	Card.	Remarks
id	Logical id of this artifact A UUID represented as a URI (RFC 4122);	string	1..1	*E.g.* urn:uuid: 722a41f9-e392-425d-b912-aab77d988e15
status	The status is always “final”. Other codes are not accepted by eHRSS.	code	1..1	*Fixed Value:* "**final**"

type	Kind of composition
	
	A coding object is required.
	system: http://ehealth.gov.hk/fhir
	display/text: Hong Kong eHR Healthcare Document
		CodeableConcept
		coding.system
		coding.display
			1..1	*Fixed Value:*
				"type": {
				"coding": [
				{
				"system": "http://ehealth.gov.hk/fhir",
				"display": "Hong Kong eHR Healthcare Document"
				}
				],
				"text": "Hong Kong eHR Healthcare Document"
				}

subject	Healthcare Recipient(HCR) the composition is about	Reference(Patient)	1..1	<u>In format:</u>
				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

date	Message generation time *eHRSS will use this value and record key for overriding records uploaded in eHRSS*	dateTime(25)	1..1	<u>In format:</u> YYYY-MM-DDThh:mm:ss+zz:zz *E.g.* "date":"2022-12-01T15:04:48.865+08:00"

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	Card.	Remarks
author	Who and/or what authored the composition Name of healthcare institution who created/update the record HCP could use either the value of the following 2 fields: [Record Create Institution Name] [Record Update institution name] *eHRSS will not interpret this value*	Reference(Organization)	1..1	Fixed value: Organization/author *E.g.* "author": [{ "reference" : "Organization/author", "display" : "ABC Clinic" }]
title	Human Readable name/title *eHR will not interpret this value*	string(33)	0..1	*Fixed Value:* title:"Hong Kong eHR Healthcare Document"
section	Composition is broken into sections	BackboneElement	0..*	
title	A human readable label for this section For Allergy records, the title is always "Allergy Records" For Adverse Drug Reaction Records, the title is always "Adverse Drug Reaction Records"	varchar(255)	0..1	*Fixed Value for AL1:* title:"Allergy Records" *Fixed Value for ADR:* title:"Adverse Drug Reaction Records"

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	Card.	Remarks

code	A code identifying the kind of content contained within the section. This must be consistent with the section title.
	
	[eHR Record Type]
	For Allergy records, the code is always “AL1”
	
	For Adverse Drug Reaction Records, the code is always “ADR”
		CodeableConcept
		coding.system
		coding.code
		coding.display
			1..1	*Fixed Value for AL1:*
				
				"code": {
				"coding": [
				{
				"system": "http://ehealth.gov.hk/fhir/datadomain",
				"code": "AL1",
				"display": "Allergy Records"
				}
				]}
				
				Fixed Value for ADR:
				"code": {
				"coding": [
				{
				"system": "http://ehealth.gov.hk/fhir/datadomain",
				"code": "ADR",
				"display": "Adverse Drug Reaction Records"
				}
				]}

entry	A reference to data that supports this section Each entry represents each record	Reference(AllergyIntolerance)	0..*	Reference Format: AllergyIntolerance/<resource id> This resource id is the same value of the AllergyIntolerance resource id Refer to the section 4.4 eHRSS AllergyIntolerance

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	Card.	Remarks

identifier	[Record key]
	A unique identifier for each AL1 record or ADR record
		varchar(40)	1..1	*E.g.*
				"identifier": {
				"system": "http://ehealth.gov.hk/HCP/Recordkey",
				"value": "**[Record key]**"
				}

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)
			1..1	Permissible Values:
				I: Insert
				U: Update
				D: Delete
				
				E.g.:
				"extension": [
				{
				"url": "http://ehealth.gov.hk/FHIR/99999999-TransactionType",
				"valueString": "**[Transaction Type]**"
				}
				]

99999999-LastUpdateDateTime	[Last Update Date Time]
	The last update datetime for HCP system
	
	The url is always "http://ehealth.gov.hk/FHIR/99999999-LastUpdateDateTime".
		BackboneElement.Reference.Extension
		dateTime(25)
			0..1	In format:
				YYYY-MM-DDThh:mm:ss+zz:zz
				E.g: 2017-03-04T08:30:00+11:00
				
				E.g:
				"extension": [
				{
				"url": "http://ehealth.gov.hk/FHIR/99999999-LastUpdateDateTime",
				"valueDateTime": "**[Last Update Date Time]**"
				}
				]

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	Card.	Remarks

99999999-TransactionDateTime	[Transaction Date Time]
	The datetime indicates the transaction sequence
	
	The url is always "http://ehealth.gov.hk/FHIR/99999999-TransactionDateTime".
		BackboneElement.Reference.Extension
		dateTime(25)
			0..1	In format:
				YYYY-MM-DDThh:mm:ss+zz:zz
				E.g. "2017-03-04T08:30:00+11:00"
				
				E.g.
				"extension": [
				{
				"url": "http://ehealth.gov.hk/FHIR/99999999-TransactionDateTime",
				"valueDateTime": "**[Transaction Date Time]**"
				}
				]

99999999-ComplianceLevel	[Compliance Level]
	Data Compliance level defined by ADR and AL1
	
	The url is always "http://ehealth.gov.hk/FHIR/99999999-ComplianceLevel".
		BackboneElement.Reference.Extension
		string(1)
			1..1	Permissible Value:
				2,3
				
				E.g.
				"extension": [
				{
				"url": "http://ehealth.gov.hk/FHIR/99999999-ComplianceLevel",
				"valueString": "**[Compliance Level]**"
				}
				]

99999999-UploadMode	Bulk Load Type	varchar(4)	1..1	Permissible values:
				BL: INC Bulk load
				BL-M: DM Bulk load
				
				E.g:
				"extension": [
				{
				"url": "http://ehealth.gov.hk/FHIR/99999999-UploadMode",
				"valueString": "**[99999999-UploadMode]**"
				}
				]

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	Card.	Remarks

99999999-RecordCreateDatetime	[Record Create Datetime]
	Datetime when the record was created in source system of HCP
	
	The url is always "http://ehealth.gov.hk/FHIR/99999999-RecordCreateDatetime".
		BackboneElement.Reference.Extension
		dateTime(25)
			0..1	In format:
				YYYY-MM-DDThh:mm:ss+zz:zz
				E.g."2021-01-25T08:30:00+11:00"
				
				E.g.
				"extension": [
				{
				"url": "http://ehealth.gov.hk/FHIR/99999999-RecordCreateDatetime",
				"valueDateTime": "**[Record Create Datetime]**"
				}
				]

extension
99999999-RecordCreateInstIdentifier
	[Record Create Institution Identifier]
	A unique identifier assigned by eHR Healthcare Provider Index to each healthcare institution who created the record
	
	The url is always "http://ehealth.gov.hk/FHIR/99999999-RecordCreateInstIdentifier".
		BackboneElement.Reference.Extension
		string(10)
			0..1	*E.g.*
				"extension": [
				{
				"url": "http://ehealth.gov.hk/FHIR/99999999-RecordCreateInstIdentifier",
				"valueString": **"[Record Create Institution Identifier]"**
				}
				]

extension
99999999-RecordCreateInstName
	[Record Create Institution Name]
	Name of healthcare institution who created the record
	
	The url is always "http://ehealth.gov.hk/FHIR/99999999-RecordCreateInstName".
		BackboneElement.Reference.Extension
		varchar(255)
			0..1	*E.g.*:
				"extension": [
				{
				"url": "http://ehealth.gov.hk/FHIR/99999999-RecordCreateInstName",
				"valueString": "**[Record Create Institution Name]**"
				}
				]

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	Card.	Remarks

extension
99999999-RecordLastUpdateDatetime
	[Record Last Update Datetime]
	Datetime when the record was last updated in source system of HCP
	
	The url is always "http://ehealth.gov.hk/FHIR/99999999-RecordLastUpdateDatetime".
		BackboneElement.Reference.Extension
		dateTime(25)
			0..1	In format:
				YYYY-MM-DDThh:mm:ss+zz:zz
				E.g. 2017-03-04T08:30:00+11:00
				
				E.g.
				"extension": [
				{
				"url": "http://ehealth.gov.hk/FHIR/99999999-RecordLastUpdateDatetime",
				"valueDateTime": "**[Record Last Update Datetime]**"
				}
				]

extension
99999999-RecordUpdateInstIdentifier
	[Record Update Institution Identifier]
	A unique identifier assigned by eHR Healthcare Provider Index to each healthcare institution who updated the record
	
	The url is always "http://ehealth.gov.hk/FHIR/99999999-RecordUpdateInstIdentifier".
		BackboneElement.Reference.Extension
		string(10)
			0..1	*E.g.*
				"extension": [
				{
				"url": "http://ehealth.gov.hk/FHIR/99999999-RecordCreateInstIdentifier",
				"valueString": "**[Record Update Institution Identifier]**"
				}
				]

extension
99999999-RecordUpdateInstName
	[Record Update Institution Name]
	
	The url is always "http://ehealth.gov.hk/FHIR/99999999-RecordUpdateInstName".
		BackboneElement.Reference.Extension
		varchar(255)
				E.g.
				"extension": [
				{
				"url": "http://ehealth.gov.hk/FHIR/99999999-RecordUpdateInstName",
				"valueString": "**[Record Update Institution Name]**"
				}
				]

4.3 eHRSS Patient

The information about an individual receiving health care services.

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	Card.	Remarks
Patient	eHR Patient Information about an individual receiving health care services	DomainReosource	..1	*Fixed Value:* "resourceType" : "**Patient**"
id	Logical id of this artifact A UUID represented as a URI (RFC 4122);	string	1..1	E.g. urn:uuid: 6e480262-978c-49f0-a793-468293932fc2

identifier
type
system
code
value
	An identifier for this patient
	
	[eHR number]
		Identifier
		CodeableConcept
		uri
		code
		string(12)
			1..1	*E.g.*
				{
				"type": {
				"coding": [{
				"system": "http://ehealth.gov.hk/FHIR/typeofID-ext",
				"code": "EHRNO"}]
				}, "value": "**[eHR number]**"
				}

identifier
type
system
code
value
	An identifier for this patient
	
	[Type of identity document]
	[HKIC number]
	The Hong Kong Identity Card number or the Registration Number printed on Hong Kong Birth Certificate (post-1981) or the Consular Corps Identity Card number issued by HKSAR Immigration Department, include the check digit
	
	Please refer to the Appendix for the codex of [Type of identity document].
	
	For participants with Certificate of Exemption, if the HKIC exists, please use "ECID"
		Identifier
		CodeableConcept
		uri
		code
		string(12)
			0...1*	M if [Type of identity document] = ID / BC / CD or [Identity document number] is blank O if [Identity document number] is given
				
				<u>Permissible Value:</u>
				ID, BC, CD, ECID
				
				E.g.
				{
				"type": {
				"coding": [
				{"system": "http://ehealth.gov.hk/FHIR/typeofID-ext",
				"code": "**[Type of identity document]**"
				}]
				}, "value": "**[HKIC number]**"
				}

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	Card.	Remarks

identifier
type
system
code
value
	An identifier for this patient
	
	[Type of identity document]
	[Identity document number]
		Identifier
		CodeableConcept
		uri
		code
		string(20)
			0..1	*E.g.*
				{
				"type": {
				"coding": [
				{"system": "http://ehealth.gov.hk/FHIR/typeofID-ext",
				"code": "**[Type of identity document]**"
				}]
				}, "value": "**[Identity document number]** "
				}

name	A name associated with the patient			
text	[English full name] Patient's full name in English uppercase letters	varchar(100)	0..1*	In format: [English surname] + [,] + 1 white space + [English given name] O if [English surname] and [English given name] are not blank M if [English surname] and [English given name] are blank * If patient has either English surname or given name stored in local EMR system, full name should be filled.
family	[English surname] Patient's surname in English uppercase letters For single name cases, the single name can be specified in either [Surname] or [Given Name]	varchar(40)	0..1*	O if [English full name] is not blank M if [English full name] is blank

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	Card.	Remarks
given	[English given name] Given name should be English uppercase letters	varchar(40)	0..1*	O if [English full name] is not blank M if [English full name] is blank
gender	The Administrative Gender defined in FHIR eHR will convert the FHIR gender to eHR [Sex] according to the Section 7 conversion table	code	1..1	Permissible Value: - male - female - unknown *E.g.*: "gender": " **[Sex]**"
birthdate	[Date of birth] The patient's date of birth	Date(10)	1..1	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".

4.4 eHRSS AllergyIntolerance

The information about an individual who has Allergy or Intolerance. There are two eHR defined dataset: Allergy Records and Adverse Drug Reaction Records. Both of them would use AllergyIntolerance Resource and the details mapping will be see in below two tables

4.4.1 eHRSS AllergyIntolerance for AL1

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	L2 Card.	L3 Card.	Delete Scenario	Remarks
AllergyIntolerance	Allergy or Intolerance	DomainReosource	1..1	1..1	1..1	Fixed Value: "resourceType":"**AllergyIntolerance** "
id	Logical id of this artifact A UUID represented as a URI (RFC 4122);	uuid	1..1	1..1	1..1	E.g. urn:uuid: 947a8c5c-3ef2-46ba-b819-e2c6d936d75e

identifier	[Record key]
	A unique identifier for each AL1 record
		varchar(40)	1..1	1..1	1..1	This [Record Key] is reference to the same [Record Key] in Composite Resource entry
						
						"identifier": {
						"system": "http://ehealth.gov.hk/HCP/Recordkey",
						"value": "**[Record key]**"
						}

clinicalStatus	Possible values active | inactive | resolved	CodeableConcept	0..1	0..1	0..1	Permissible value: **active** : without [Delete allergen reason] **inactive**: with [Delete allergen reason]
verificationStatus		CodeableConcept	0..1	0..1	NA	Please refer to the section 7 Code table

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	L2 Card.	L3 Card.	Delete Scenario	Remarks

coding.system
coding.code
coding.display
coding.text
	uri
	
	[Level of certainty code]
	eHR value of the "Allergy level of certainty" code table
	
	[Level of certainty description]
	eHR description of the "Allergy level of certainty" code table. It is the corresponding description of the selected [Level of certainty code].
	
	[Level of certainty local description]
	Local description created by the healthcare provider for the level of certainty of an allergen which caused an allergic reaction
		uri
		
		code(2)
		
		varchar(255)
		
		varchar(255)
			0..1
			
			0..1
			
			0..1
			
			0..1
				0..1
				
				0..1
				
				0..1*
				
				0..1*
					NA
					
					NA
					
					NA
					
					NA
						
						[Level of certainty description] is mandatory if [Level of certainty code] is given
						
						[Level of certainty local description] is mandatory if [Level of certainty code] is given
						
						E.g.
						{
						"coding": {
						"system":"http://eHealth.gov.hk/FHIR/LevelofCertainty",
						"code": **"[Level of certainty code]"**,
						"display": **"[Level of certainty description]"**
						},
						"text": **"[Level of certainty local description]"**
						}
						
						Please refer the section 7 Code tables

type	allergy | intolerance - Underlying mechanism (if known)	code	1..1	1..1	1..1	Fixed Value: **allergy**
code	Code that identifies the allergy or intolerance	CodeableConcept	1..1	1..1	NA	

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	L2 Card.	L3 Card.	Delete Scenario	Remarks

coding.system
coding.code
coding.display
	[Allergen - recognised terminology name]
	Name of the recognised terminology set for the reported allergen
	
	[Allergen identifier - recognised terminology]
	Unique identifier in the recognised terminology for the reported allergen
	
	[Allergen description - recognised terminology]
	Description in the recognised terminology for the reported allergen
		uri
		
		code
		varchar(20)
		
		varchar(2000)
			NA
			
			NA
			
			NA
				1..1
				
				1..1
				
				1..1
					NA
					
					NA
					
					NA
						For HKCTT, fixed uri:
						http://ehealth.gov.hk/HKCTT
						For RPP, fixed uri:
						http://ehealth.org.hk/RPP
						
						E.g.
						{
						"system": "**[uri for Allergy - recognised terminology name]**",
						"code": "**[Allergen identifier - recognised terminology]**",
						"display": "**[Allergen description - recognised terminology]**"
						}

coding.system
coding.code coding.display
	[Allergen local code]
	Local code created by the healthcare provider for the reported allergen
	
	[Allergen local Description]
	Local description created by the healthcare provider for the reported allergen
		code
		varchar(20)
		
		varchar(255)
			0..1
			
			1..1
				0..1
				
				1..1
					NA
					
					NA
						Fixed uri:
						{
						"system":"http://ehealth.gov.hk/local/allergenCode",
						"code": "**[Allergen local code]**",
						"display": "**[Allergen local description]**"
						}

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	L2 Card.	L3 Card.	Delete Scenario	Remarks

patient	Who the sensitivity is for	Reference(Patient)	1..1	1..1	1..1	In format:
						Patient/<resource id>
						
						This resource id is the same value of the Patient resource id
						
						E.g.
						"subject": {
						"reference": "Patient/d58dd75b-cf09-4a1c-b913-c9e867f27616"
						}
						
						Refer to the section 4.3 eHRSS patient

Encounter	Encounter when the allergy or intolerance was asserted	Reference(Encounter)	0..1	0..1	NA	In format:
						Encounter/<resource id>
						
						This resource id is the same value of the Encounter resource id
						
						E.g.
						"encounter": {
						"reference": "Encounter/169281c8-fb76-4e9c-b30f-3dfb3a7f53f2"
						}
						
						Refer to the section 4.5 eHRSS Encounter

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	L2 Card.	L3 Card.	Delete Scenario	Remarks

reaction
manifestation
	[Allergic reaction code]
	eHR value of the "Allergic reaction" code table which includes the common hypersensitivity response of the immune system to a substance, situations, or physical states
	
	[Allergic reaction description]
	eHR description of the "Allergic reaction" code table, which includes the common hypersensitivity response of the immune system to a substance, situations, or physical states. It should match with the selected [Allergic reaction code]
	
	[Allergic reaction local description]
		CodeableConcept
		Coding
		code
		varchar(2)
		
		display
		varchar(255)
		
		Text
		varchar(255)
			NA
			
			NA
			
			0..1
				0..1
				
				0..1*
				
				0..1*
					NA
					
					NA
					
					NA
						[Allergic reaction description] is mandatory if [Allergic reaction code] is given
						
						[Allergic reaction local description] is mandatory if [Allergic reaction code] is given
						
						E.g.
						"coding": {
						"system": "http://ehealth.gov.hk/FHIR/AllergyReaction",
						"code": "**[Allergic reaction code]**",
						"display": "**[Allergic reaction description]**"
						},
						"text": "**[Allergic reaction local description]**"
						}
						
						Please refer the section 7 Code tables

note	[Allergen remark] Additional information about the allergen	varchar(4000)	0..1	0..1	NA	*E.g.* "text": "**[Allergen remark]**"
1003138-Typeofallergencode	[Type of allergen code] Type of allergen is to indicate whether the allergen is drug related or not. Please	varchar(20)	NA	0..1	NA	Please refer to the section 7 code table

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	L2 Card.	L3 Card.	Delete Scenario	Remarks
1003139-TypeofAllergenDesc	[Type of allergen description] It should be the corresponding description of the selected [Type of allergen code]. Type of allergen is to indicate whether the allergen is drug related or not.	varchar(255)	NA	0..1*	NA	[Type of allergen description] is mandatory if [Type of allergen code] is given Please refer to the section 7 code table
1003140-TypeofAllergenLocalDesc	[Type of allergen local description]	varchar(255)	NA	0..1*	NA	[Type of allergen local description] is mandatory if [Type of allergen code] is given
1003145-DeleteAllergyReason	[Delete Allergy Reason]	varchar(255)	NA	NA	0..1	*Remarks: if 'Delete allergen reason' is uploaded in 'Insert' or 'Override' scenario, the whole record will be rejected*

4.4.2 eHRSS AllergyIntolerance for ADR

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	L2 Card.	L3 Card.	Delete Scenario	Remarks
AllergyIntolerance	Allergy or Intolerance	DomainReosource	1..1	1..1	1..1	Fixed Value: "resourceType":"**AllergyIntolerance**"
id	Logical id of this artifact A UUID represented as a URI (RFC 4122);	uuid	1..1	1..1	1..1	E.g. urn:uuid: 947a8c5c-3ef2-46ba-b819-e2c6d936d75e

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	L2 Card.	L3 Card.	Delete Scenario	Remarks

identifier	[Record key]
	A unique identifier for each ADR record
		varhcar(40)	1..1	1..1	1..1	This [Record Key] is reference to the same [Record Key] in Composite Resource entry
						
						"identifier": {
						"system": "http://ehealth.gov.hk/HCP/Record key",
						"value": "**[Record key]**"
						}

clinicalStatus	Possible values active | inactive | resolved	CodeableConcept	0..1	0..1	0..1	Fixed value: **active**: without [Delete adverse drug reason causative agent reason] **inactive**: with [Delete adverse drug reaction causative agent reason]
type	allergy | intolerance - Underlying mechanism (if known)	code	1..1	1..1	1..1	Fixed Value: **intolerance**
code	Code that identifies the allergy or intolerance	CodeableConcept	1..1	1..1	NA	

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	L2 Card.	L3 Card.	Delete Scenario	Remarks

coding.system
coding.code
coding.display
	[Adverse drug reaction causative agent - recognised terminology name]
	Name of the recognised terminology set for the reported adverse drug reaction causative agent
		uri	NA	1..1	NA	For HKCTT, fixed uri:
						http://ehealth.org.hk/HKCTT
						For RPP, fixed uri:
						http://ehealth.org.hk/RPP
						{
						"system": "**[uri for Adverse drug reaction causative agent - recognised terminology name]**",
						"code": "**[Adverse drug reaction causative agent identifier - recognised terminology]**",
						"display": "**[Adverse drug reaction causative agent description - recognised terminology]**"
						}

	[Adverse drug reaction causative agent identifier - recognised terminology] Unique identifier in the recognised terminology for the reported adverse drug reaction causative agent	code varhar(20)	NA	1..1	NA	
	[Adverse drug reaction causative agent description - recognised terminology] Description in the recognised terminology for the reported adverse drug reaction causative agent	display varchar(255)	NA	1..1	NA	

coding.system
coding.code coding.display
	[Adverse drug reaction causative agent local code]
	Local code created by the healthcare provider for the reported adverse drug reaction causative agent
		code
		varchar(20)
			0..1	0..1	NA	*E.g.*
						{
						"system": "http://ehealth.org.hkk/local/causativeAgent",
						"code": "**[Adverse drug reaction causative agent local code]**",
						"display": "**[Adverse drug reaction causative agent local description]**"
						}

	[Adverse drug reaction causative agent local description] Local description developed by the healthcare organisation for the reported adverse drug reaction causative agent	display varchar(255)	1..1	1..1	NA	

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	L2 Card.	L3 Card.	Delete Scenario	Remarks

patient	Who the sensitivity is for	Reference(Patient)	1..1	1..1	1..1	In format:
						Patient/<resource id>
						
						This resource id is the same value of the Pateint resource id
						
						E.g.
						"subject": {
						"reference": "Patient/d58dd75b-cf09-4a1c-b913-c9e867f27616"
						}
						
						Refer to the section 4.3 eHRSS patient

Encounter	Encounter when the allergy or intolerance was asserted	Reference(Encounter)	0..1	0..1	NA	Refer to the section 4.5 eHRSS Encounter
						
						"encounter": {
						"reference": "Encounter/169281c8-fb76-4e9c-b30f-3dfb3a7f53f2"
						}

reaction
manifestation
	[Adverse drug reaction description]
	Description of the adverse drug reaction
		CodeableConcept
		text varchar(255)
			0..1	0..1	NA	*E.g.*
						"text": {
						"value": "**[Adverse drug reaction description]**"
						}

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	L2 Card.	L3 Card.	Delete Scenario	Remarks

description	[Adverse drug reaction description]
	Description of the adverse drug reaction
		varchar(255)	0..1	0..1	NA	*E.g.*
						"description": {
						"value": "**[Adverse drug reaction description]**"
						}

severity	[Level of severity code] Adverse drug reaction severity level is the severity level of the adverse drug reaction. eHR will convert the FHIR severity to eHR [Level of severity code] according to the Section 7 conversion table	Code varchar(20)	NA	0..1	NA	Permissible values: mild | severe
note	[Adverse drug reaction causative agent remark] The additional information about the causative agent of adverse drug reaction	varchar(4000)	0..1	0..1	NA	*E.g.* "text": "**[Adverse drug reaction causative agent remark]**"
1003159-LevelofserverityDesc	[Level of severity description] eHR description of the "Adverse drug reaction severity level" code table, it should be the corresponding description of the selected [Level of severity code]. Adverse drug reaction severity level is the severity level of the adverse drug reaction.	varchar(255)	NA	0..1*	NA	[Level of severity description] is Mandatory if [Level of severity code] is given Please refer the section 7 Code tables
1003160-LevelofserverityLocalDesc	[Level of severity local description] Local description created by the healthcare provider for the severity level of the adverse drug reaction	varchar(255)	0..1	0..1*	NA	[Level of severity local description] is Mandatory if [Level of severity code] is given

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	L2 Card.	L3 Card.	Delete Scenario	Remarks
1003165-deleteADRcausativeAgentReason	[Delete adverse drug reaction causative agent reason]	varchar(255)	NA	NA	0..1	*Remarks: if 'Delete adverse drug reaction causative agent reason' is uploaded in 'Insert' or 'Override' scenario, the whole record will be rejected*

4.5 eHRSS Encounter

The information about an encounter which related to Allergy or Intolerance reported.

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	L2 Card.	L3 Card.	Delete Scenario	Remarks
Encounter	An interaction during which services are provided to the patient	DomainReosource	1..1	1..1	NA	Fixed Value: "resourceType":" **Encounter**"
id	Logical id of this artifact A UUID represented as a URI (RFC 4122);	uuid	1..1	1..1	NA	*E.g.* urn:uuid: 169281c8-fb76-4e9c-b30f-3dfb3a7f53f2

99999999-AttendanceInstIdentifier	[Attendance institution identifier]
	A unique identifier assigned by eHR Healthcare Provider Index to each healthcare institution for participant attendance
		string(10)	0..1	0..1	0..1	*E.g.*
						"extension": [
						{
						"url": "http://ehealth.gov.hk/FHIR/99999999-AttendanceInstIdentifier",
						"valueString": "**[Attendance institution identifier]**"
						}
						]

FHIR Structure	FHIR Definition / eHR Definition	FHIR Data Type	L2 Card.	L3 Card.	Delete Scenario	Remarks

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
		varchar(20)	0..1	0..1	0..1	*E.g.*
						{
						"system": "http://ehealth.gov.hk/HCP/EpisodeNum",
						"value": "**[Episode number]**"
						}

status	Encounter Status *eHRSS will not interpret the value.*	code	1..1	1..1	1..1	Fixed Value : **finished**

Class	Classification of patient encounter
	eHRSS will not interpret the value.
		Coding	1..1	1..1	1..1	Fixed Value:
						"class": {
						"system": "http://ehealth.gov.hk/FHIR/class",
						"code": "UNKNOWN",
						"display": "Unknown status"
						}

5. 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 for AL1 and ADR JOSON file 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.

AL1 template:

```
{
    "resourceType": "Bundle",
```

```
    "id": "[Logical id of this artifact]",
    "identifier": {
        "system": "urn:ietf:rfc:3986",
        "value": "urn:uuid:[UUID/OID for Bundle]"
    },
    "type": "document",
    "timestamp": "[current time]",
    "entry": [
        {
            "fullUrl": "urn:uuid:[UUID/OID for Composition]",
            "resource": {
                "resourceType": "Composition",
                "id": "[UUID/OID for Composition]",
                "status": "final",
                "type": {
                    "coding": [
                        {
                            "system": "http://ehealth.gov.hk/fhir",
                            "display": "Hong Kong eHR Healthcare Document"
                        }
                    ],
                    "text": "Hong Kong eHR Healthcare Document"
                },
                "subject": {
                    "reference": "Patient/[UUID/OID for Patient]"
                },
                "date": "[Message generation time]",
                "author": [
                    {
                        "reference": "Organization/author",
                        "display": "[Record Creation institution name]"
                    }
```

```
        ],
        "title": "Hong Kong eHR Healthcare Document",
        "section": [
            {
                "title": "Allergy Records",
                "code": {
                    "coding": [
                        {
                            "system": "http://ehealth.gov.hk/FHIR/datadomain",
                            "code": "AL1",
                            "display": "Allergy Records"
                        }
                    ]
                },
                "entry": [
                    {
                        "extension": [
                            {
                                "url": "http://ehealth.gov.hk/FHIR/99999999-TransactionType",
                                "valueString": "[Transaction Type]"
                            },
                            {
                                "url": "http://ehealth.gov.hk/FHIR/99999999-LastUpdateDateTime",
                                "valueDateTime": "[Last Update Date Time]"
                            },
                            {
                                "url": "http://ehealth.gov.hk/FHIR/99999999-TransactionDateTime",
                                "valueDateTime": "[Transaction Date Time]"
                            },
                            {
                                "url": "http://ehealth.gov.hk/FHIR/99999999-ComplianceLevel",
                                "valueString": "[Compliance Level]"
```

```
                    },
                    {
                        "url": "http://ehealth.gov.hk/FHIR/99999999-UploadMode",
                        "valueString": "[Bulk Load Type]"
                    },
                    {
                        "url": "http://ehealth.gov.hk/FHIR/99999999-RecordCreateDatetime",
                        "valueDateTime": "[Record Create Datetime]"
                    },
                    {
                        "url": "http://ehealth.gov.hk/FHIR/99999999-RecordCreateInstIdentifier",
                        "valueString": "[Record Create Institution Identifier]"
                    },
                    {
                        "url": "http://ehealth.gov.hk/FHIR/99999999-RecordCreateInstName",
                        "valueString": "[Record Create Institution Name]"
                    },
                    {
                        "url": "http://ehealth.gov.hk/FHIR/99999999-RecordLastUpdateDatetime",
                        "valueDateTime": "[Record Last Update Datetime]"
                    },
                    {
                        "url": "http://ehealth.gov.hk/FHIR/99999999-RecordUpdateInstIdentifier",
                        "valueString": "[Record Update Institution Identifier]"
                    },
                    {
                        "url": "http://ehealth.gov.hk/FHIR/99999999-RecordUpdateInstName",
                        "valueString": "[Record Update Institution Name]"
                    }
                ],
                "reference": "AllergyIntolerances/[UUID for AllergyIntolerance]",
                "identifier": {
```

```
                                "system": "http://ehealth.gov.hk/HCP/Recordkey",
                                "value": "[Record key]"
                            }
                        }
                    ]
                }
            ]
        }
    },
    {
        "fullUrl": "urn:uuid:[UUID for Patient]",
        "resource": {
            "resourceType": "Patient",
            "id": "[UUID for Patient]",
            "identifier": [
                {
                    "type": {
                        "coding": [
                            {
                                "system": "http://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:[UUID for Encounter]",
        "resource": {
            "resourceType": "Encounter",
            "id": "[UUID for Encounter]",
            "extension": [
                {
                    "url": "http://ehealth.gov.hk/FHIR/99999999-AttendanceInstIdentifier",
                    "valueString": "[Attendance institution identifier]"
                }
            ],
            "identifier": [
                {
```

```
                    "system": "http://ehealth.gov.hk/HCPID/EpisodeNum",
                    "value": "[Episode Number]"
                }
            ],
            "status": "finished",
            "class": {
                "system": "http://ehealth.gov.hk/FHIR/class",
                "code": "UNKNOWN",
                "display": "Unknown status"
            }
        }
    },
    {
        "fullUrl": "urn:uuid:[UUID for AllergyIntolerance]",
        "resource": {
            "resourceType": "AllergyIntolerance",
            "id": "[UUID for AllergyIntolerance]",
            "extension": [
                {
                    "url": "http://ehealth.gov.hk/FHIR/1003138-Typeofallergencode",
                    "valueString": "[Type of allergen code]"
                },
                {
                    "url": "http://ehealth.gov.hk/FHIR/1003139-TypeofAllergenDesc",
                    "valueString": "[Level of severity description]"
                },
                {
                    "url": "http://ehealth.gov.hk/FHIR/1003140-TypeofAllergenLocalDesc",
                    "valueString": "[Level of severity local description]"
                },
                {
                    "url": "http://ehealth.gov.hk/FHIR/1003145-DeleteAllergyReason",
```

```
                "valueString": "[Delete allergen reason]

            }
        ],
        "clinicalStatus": {
            "coding": [
                {
                    "code": "active"
                }
            ]
        },
        "verificationStatus": {
            "coding": [
                {
                    "system": "http://eHealth.gov.hk/FHIR/LevelofCertainty",
                    "code": "[Level of certainty code]",
                    "display": "[Level of certainty description]"
                }
            ],
            "text": "[Level of certainty local description]"
        },
        "type": "allergy",
        "code": {
            "coding": [
                {
                    "system": "[uri for Allergy - recognised terminology name]",
                    "code": "[Allergen identifier - recognised terminology]",
                    "display": "[Allergen description - recognised terminology]"
                },
                {
                    "system": "http://ehealth.gov.hk/local/allergenCode",
                    "code": "[Allergen local code]",
                    "display": "[Allergen local description]"
```

```
                        }
                    ]
                },
                "patient": {
                    "reference": "Patient/[UUID for Patient]"
                },
                "reaction": [
                    {
                        "manifestation": [
                            {
                                "coding": [
                                    {
                                        "system": "http://ehealth.gov.hk/FHIR/AllergyReaction",
                                        "code": "[Allergic reaction code]",
                                        "display": "[Allergic reaction description]"
                                    }
                                ],
                                "text": "[Allergic reaction local description]"
                            }
                        ],
                        "note": [
                            {
                                "text": "[Allergen remark]"
                            }
                        ]
                    }
                ]
            }
        }
    ]
}
```

ADR template:

```
{
    "Bundle": {
        "id": "[Logical id of this artifact]",
        "identifier": {
            "system": "urn:ietf:rfc:3986",
            "value": "urn:uuid:[UUID for Bundle]"
        },
        "type": "document",
        "timestamp": "[current time]",
        "entry": [
            {
                "fullUrl": "urn:uuid:[UUID for Composition]",
                "resource": {
                    "Composition": {
                        "id": "[UUID for Composition]",
                        "status": "final",
                        "type": {
                            "coding": {
                                "system": "http://ehealth.gov.hk/fhir",
                                "display": "Hong Kong eHR Healthcare Document"
                            },
                            "text": "Hong Kong eHR Healthcare Document"
                        },
                        "subject": {
                            "reference": "Patient/[UUID for Patient]"
                        },
                        "date": "[Message Generation Date]",
                        "author": {
                            "reference": "Organization/author",
                            "display": "[Record creation institution name]"
                        },
```

```
                        "title": "Hong Kong eHR Healthcare Document",
                        "section": {
                            "title": "Allergy Records",
                            "code": {
                                "coding": {
                                    "system": "http://ehealth.gov.hk/FHIR/datadomain",
                                    "code": "ADR",
                                    "display": "Adverse Drug Reaction Records"
                                }
                            },
                            "entry": {
                                "extension": [
                                    {
                                        "url": "http://ehealth.gov.hk/FHIR/99999999-RecordCreateDatetime",
                                        "valueDateTime": "[Record Create Datetime]"
                                    },
                                    {
                                        "url": "http://ehealth.gov.hk/FHIR/99999999-
RecordCreateInstIdentifier",
                                        "valueDateTime": "[Record Create Institution Identifier]"
                                    },
                                    {
                                        "url": "http://ehealth.gov.hk/FHIR/99999999-RecordCreateInstName",
                                        "valueDateTime": "[Record Create Institution Name]"
                                    },
                                    {
                                        "url": "http://ehealth.gov.hk/FHIR/99999999-
RecordLastUpdateDatetime",
                                        "valueDateTime": "[Record Last Update Datetime]"
                                    },
                                    {
```

```
                                    "url": "http://ehealth.gov.hk/FHIR/99999999-
RecordUpdateInstIdentifier",
                                    "valueString": "[Record Update Institution Identifier]"
                                },
                                {
                                    "url": "http://ehealth.gov.hk/FHIR/99999999-RecordUpdateInstName",
                                    "valueString": "[Record Update Institution Name]"
                                },
                                {
                                    "url": "http://ehealth.gov.hk/FHIR/99999999-TransactionType",
                                    "valueString": "[Transaction Type]"
                                },
                                {
                                    "url": "http://ehealth.gov.hk/FHIR/99999999-LastUpdateDateTime",
                                    "valueDateTime": "[Last Update Date Time]"
                                },
                                {
                                    "url": "http://ehealth.gov.hk/FHIR/99999999-TransactionDateTime",
                                    "valueDateTime": "[Transaction Date Time]"
                                },
                                {
                                    "url": "http://ehealth.gov.hk/FHIR/99999999-ComplianceLevel",
                                    "valueString": "[Compliance Level]"
                                },
                                {
                                    "url": "http://ehealth.gov.hk/FHIR/99999999-UploadMode",
                                    "valueString": "[Bulk Load Type]"
                                }
                            ],
                            "reference": "AllergyIntolerances/[UUID for AllergyIntolerances]",
                            "identifier": {
                                "system": "http://ehealth.gov.hk/HCP/Recordkey",
```

```
                            "value": "[Record key]"
                        }
                    }
                }
            }
        }
    },
    {
        "fullUrl": "urn:uuid:[UUID for Patient]",
        "resource": {
            "Patient": {
                "id": "[UUID for Patient]",
                "identifier": [
                    {
                        "type": {
                            "coding": {
                                "system": "http://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]"
                }
            }
        },
        {
            "entry": {
                "fullUrl": "urn:uuid:[UUID for Encounter]",
                "resource": {
                    "Encounter": {
                        "id": "[UUID for Encounter]",
                        "extension": {
                            "url": "http://ehealth.gov.hk/FHIR/99999999-AttendanceInstIdentifier",
                            "valueString": "[Attendance institution identifier]"
                        }
                    },
                    "identifier": {
                        "system": "http://ehealth.gov.hk/HCPID/EpisodeNum",
                        "value": "[Episode Number]"
                    },
                    "status": "finished",
                    "class": {
                        "system": "http://ehealth.gov.hk/FHIR/class",
                        "code": "UNKNOWN",
                        "display": "Unknown status"
                    }
                }
```

```
                }
            },
            {
                "fullUrl": "urn:uuid:[UUID for AllergyIntolerance]",
                "resource": {
                    "AllergyIntolerance": {
                        "id": "[UUID for AllergyIntolerance]",
                        "extension": [
                            {
                                "url": "http://ehealth.gov.hk/FHIR/1003159-LevelofserverityDesc",
                                "valueString": "[Level of severity description]"
                            },
                            {
                                "url": "http://ehealth.gov.hk/FHIR/1003160-LevelofserverityLocalDesc",
                                "valueString": "[Level of severity local description]"
                            },
                            {
                                "url": "http://ehealth.gov.hk/FHIR/1003145-DeleteAllergyReason",
                                "valueString": "[Delete Allergy Reason]"
                            }
                        ],
                        "clinicalStatus": {
                            "coding": {
                                "code": "active"
                            }
                        },
                        "type": "allergy",
                        "code": {
                            "coding": [
                                {
                                    "system": "[uri for Adverse drug reaction causative agent - recognised
terminology name]",
```

```
                                    "code": "[Adverse drug reaction causative agent identifier - recognised
terminology]",
                                    "display": "[Adverse drug reaction causative agent description -
recognised terminology]"
                                },
                                {
                                    "system": "http://ehealth.org.hkk/local/causativeAgent",
                                    "code": "[Adverse drug reaction causative agent local code]",
                                    "display": "[Adverse drug reaction causative agent local description]"
                                }
                            ]
                        },
                        "patient": {
                            "reference": "Patient/[UUID for Patient]"
                        },
                        "reaction": {
                            "manifestation": {
                                "text": {
                                    "value": "[Adverse drug reaction description]"
                                }
                            },
                            "description": {
                                "value": "[Adverse drug reaction description]"
                            },
                            "severity": {
                                "value": "[Level of severity code]"
                            },
                            "note": {
                                "text": "[Adverse drug reaction causative agent remark]"
                            }
                        }
                    }
```

```
                }
            }
        ]
    }
}
```

6. Mapping Tables

6.1 FHIR Administrative Gender

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

6.2 FHIR AllergyIntoleranceSeverity

AllergyIntoleranceSeverity	eHR Value of "Adverse drug reaction severity level"
mild	M
Moderate (not used by eHRSS)	
severe	S

7. 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	香港特別行政區簽證身份書	HKSAR Document of Identity for Visa Purposes

	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

Type of allergen

eHR Value	eHR Description
Drug	Drug allergen
Non-drug	Non-drug allergen
Unclassify	Unclassify type of allergen

Level of certainty code

eHR Value	eHR Description
S	Suspected
C	Certain

Adverse drug reaction

eHR Value	eHR Description
1	Allergic contact dermatitis
s2	Allergic rhinitis
3	Anaphylaxis

4	Angioedema
5	Aplastic anaemia
6	Asthma
7	Atopic dermatitis
8	Cholestasis
9	Eczema
10	Erythema multiforme
11	Erythema nodosum
12	Erythroderma
13	Exfoliative dermatitis
14	Fever
15	Fibrosing alveolitis
16	Fixed drug eruptions
17	Generalised liver damage
18	Haemolytic anaemia
19	Photosensitivity
20	Pruritus
21	Rash
22	Serum sickness
23	Stevens-Johnson syndrome
24	Toxic erythema
25	Urticaria
26	Other allergic reaction
27	Manifestation uncertain
28	Dyspnoea
29	Eyelid swelling
30	Facial swelling
31	Lip swelling
32	Other swelling
33	Stevens-Johnson syndrome, toxic epidermal necrolysis spectrum
34	Acute generalised exanthematous pustulosis
35	Blister
36	Cytopenia
37	Drug reaction with eosinophilia and systemic symptoms
38	Hypotension
39	Vasculitis

8. 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

Allergyintolerance Resource: https://hl7.org/fhir/R4/allergyintolerance.html

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