BLS Technical Interface Specification For eHR Laboratory Result (General Result) Record

Version 1.3.1

Sep 2016

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DOCUMENT SUMMARY

Document Item	Current Value
Document Title	BLS Technical Interface Specification for eHR Laboratory Result (General Result) Record
Creation Date	20 Mar 2012
Date Last Modified	15 Sep 2016
Current Document Issue	Version 1.3.1
Document Description	The document describes the interface specification for bulk upload standards of Laboratory Result (General Result) Record for Hong Kong Special Administrative Region eHR. The document should be read in conjunction with other related documents suggested by the eHR Information Standards Office.
Prepared by	eHR Information Standards Office
Contact Information	eHR@fhb.gov.hk

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AMENDMENT HISTORY

Version No.	Summary of Changes	Date
1.0.0	Original version	20 Mar 2012
1.1.0	Enhanced according to the dataset as of Feb 2013 defined by eHR Information Standards Office	08 Mar 2013
1.2.0	• Added section 'XML PREDEFINED ENTITIES' • Updated data requirement of following data fields from mandatory to optional in scenario S1 and S2 of data compliance level 3: o Laboratory test request healthcare institution identifier o Laboratory test request healthcare institution long name • Updated data requirement notes of following data field: o Laboratory report (text) o Transaction type o Laboratory test order number • Added remarks in section 'Data Upload Requirements' and added remarks in data field 'Transaction type' in section 'Structured data file' • Updated data requirement of data field 'Last update datetime' from optional to mandatory • Updated data requirement of data field 'Laboratory test order number' from N/A to optional in scenario S3 of all data compliance levels • Update the template of cover page and descriptions in footer • Update the contents in section 'Intellectual Property Rights Notice' • Aligned the terms used in eHR Sharing System (eHRSS) Bill: o Participant -> eHR Healthcare Recipient: o Enroll -> Register o Re-join -> Re-register	19 Jun 2014
1.3.0	• Updated data requirement for the following fields in scenario S1 and S2 of data compliance level 2 and 3 - Laboratory test reportable result - Laboratory test numeric result	30 Jun 2015

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	- Laboratory test enumerated result - Laboratory test text result - Laboratory test result note - Laboratory report comment • Updated data requirement for the following fields in scenario S1 and S2 of data compliance level 1 - Panel local code - Panel local description	
1.3.1	• 2016 Release	15 Sep 2016

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1 PURPOSE

1.1 OBJECTIVE

This document describes the technical interface requirements for implementing Health Level Seven (HL7) version 2.5 standards messaging for transferring Laboratory Result (General Result) record in bulk upload standards from trusted healthcare providers to eHR system.

There are TWO data exchange standards for uploading clinical records to eHR system:

- HL7-HK Message Standards
- HL7-HK Localised Bulk Load Standards

HL7-HK Localised Bulk Load Standards will be described in detail in this document. For the HL7-HK Message Standards, please refer to 'Technical Interface Specification for eHR Record'.

1.2 INTENDED READERS

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

2 SCOPE

This reference defines the interface format, interface name for different upload mode and the message of the HL7 version 2.5 messaging. Specifically, this document contains:

- Data File Naming Convention
- Data File Content with delimiter
- Data definition and mapping

This document defines the data requirement of laboratory general results for Biochemical, Haematology, Serology, Immunology and Toxicology laboratory tests.

The recognised terminology set applied in Laboratory Result (General Result) Sharable Dataset include:

Laboratory Test Name:

- Logical Observation Identifiers Names and Codes (LOINC)
- Hong Kong Clinical Terminology Table (HKCTT)

Specimen Type:

- Systematized Nomenclature of Medicine - Clinical Terms (SNOMED CT)
- Hong Kong Clinical Terminology Table (HKCTT)

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

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For details of scenarios, please refer to Data Requirement Specification for eHR Laboratory Result (General Result) Record.

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3 REFERENCES

- Data Interface Requirement Document
  - Data Requirement Specification for eHR Laboratory Result (General Result) Record
  - Communication Protocol Specification

- eHR Information Standards Document
  - eHR Content Standards Guidebook
  - eHR Data Interoperability Standards
  - eHR Contents
  - eHR Codex

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4 DEFINITIONS AND CONVENTIONS

4.1 ABBREVIATION

Term	Description
CDR	Clinical Data Repository
eHR	eHealth Record
EMR	Electronic Medical Record
HCP	Healthcare Provider
HL7	Health Level Seven
LABGEN	Laboratory Result (General Result)
ORU	HL7 message type of "Unsolicited Observation Message"
HCR	eHR Healthcare Recipient

4.2 NOTATION

Value	Description
#	HL7 Mandatory Field
✓	Required HL7 Segment
"quoted"	Fixed value
N/A	Not Applicable
S0 - S99	Scenario numbering
RP/#	Repeatable Indicator [Y:Yes N: No] of HL7 element
TBL#	HL7 Table Reference Number
[ ]	Optional
YYYY	Year
MM	Month
DD	Day
hh	Hour (24-Hour)
mm	Minute
ss	Second
.sss	Millisecond

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5 ASSUMPTIONS

- HCP is responsible for ensuring the integrity, accuracy and completeness of structured data when sending it to eHR.
- It is recommended that HCP should send the updated clinical record to eHR as soon as possible when there are any changes or new records of the eHR Healthcare Recipient (HCR).
- To ensure the integrity of the Laboratory Result (General Result) record, the complete set of structured data should be sent for any amendment.

6 DELIVERY REQUIREMENTS

- HL7 version 2.5 message standards in XML format and data files (HCR list file and structured data file) will be implemented for delivering Laboratory Result (General Result) event messages defined by eHR.
- The sharable dataset domain Laboratory Result (General Result) supports eHR Data Compliance Level 1, 2 and 3. Before sending clinical record to eHR, HCP has to register which data compliance levels she can comply to.
- A complete set of updated Laboratory Result (General Result) data with a unique record key of the record is expected to be uploaded to eHR. eHR will use the HCP unique record key for subsequence data amendments in eHR repository.
- HCP must make sure the data submitted to eHR is complied with the data compliance levels she declared in the message. The detail definition of the Data Compliance Level is stated in eHR Content Standards Guidebook posted in eHR Office website.
- There are different statuses for different stages of report such as preliminary report, final report, amended report and supplement report. For general result, only Provisional Report and Preliminary Report, Final Report, Amended Report and Supplement Report will be accepted to eHR.
- For laboratory tests of general results, it is assumed that each observation including test and result has its record key. Only one specimen is included in each observation.
- More than one test panels with the same identifier can be displayed in each laboratory physical

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7 DATA UPLOAD REQUIREMENTS

7.1 TYPES OF FILE UPLOAD MODE

There are three types of file upload mode: incremental mode, materialisation mode, ad-hoc mode:

1. **Incremental mode** is the format for HCP to upload sharable data in ONE batch.
2. **Materialisation mode** is the format for HCP to upload a HCR's specific sharable dataset that exists in EMR, e.g new registered HCR and re-registered HCR.

The following table shows the files required for different upload mode and its schedule:

	HCR List File	**Data File**	**Schedule**
Incremental Mode	Required	Required	Within agreed period
Materialisation Mode	Required	Required	Within agreed period

Remarks:
For Materialisation Mode, 'Update' and 'Delete' transaction types are not accepted. If 'Update' or 'Delete' transaction type is uploaded using materialisation mode, the record will be rejected by eHR.

7.2 SHARABLE DATASET CODE

Sharable dataset code is a standardised short term to distinguish the sharable dataset. Please refer to the Interoperability Guide for details in eHR Office website.

For Laboratory Result (General Result) Record, the sharable dataset code is "**LABGEN**".

7.3 COMPLIANCE LEVEL

eHR partner's applications must be certified for three levels of inter-operability: data inter-operability, security compliance and system inter-operability. Data inter-operability will focus on the EMR system's capability to send and receive messages in the defined standard.

A partner's systems will be certified as a compliance level, according to the message structure, format, content and coding validity for the type of message. Only the certified types of interfaces of partner's systems are permitted for on-going information exchange with the eHR Core.

The general definition of data compliance level is explained in Content Guidebook in eHR Office website.

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7.4 MESSAGE COMPONENTS

There are three main data file types used to carry the clinical information of 'LABGEN' domain:

File Type	Usage
HL7 Message (ORU^R01)	It serves as delivery list which records the list of file names of 'HCR list' and 'Structured Data File' and 'Image File'.
HCR list	It contains the identity of those HCRs whose clinical data records are updated and already included in the 'Structured Data File'.
Structured Data File	It contains the eHR required data fields defined in the 'Data Requirement Specification for Laboratory Result (General Result) Record'. The data mapping format must follow the requirements described in this document.
Image File (if applicable)	Image file will be sent to eHR after the structured data. It is the Clinical Note / Summary report in Portable Document Format (PDF).

The details of the above file types will be further explained in subsequent sections.

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8 HL7 MESSAGE

HL7 message 'ORU^R01' will be applied in exchanging of eHR clinical records. In the segment of OBX of 'ORU^R01', OBX.4 in HL7 message is used to indicate the file upload mode, whether it is in incremental and materialisation.

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

  - HL7 version 2.5 ORU – Unsolicited Observation Message (Event R01):

  ORU^R01 event includes 3 mandatory segments
    - MSH – Message Header Segment
    - OBR – Observation Request Segment
    - OBX – Observation related to OBRs

  - The file upload mode will be assigned to the fourth field of OBX. For the <OBX.4> tag, the fields can either be "BL" and "BL-M", which represents whether it is in daily batch, materialisation or ad-hoc mode. For the data mapping of OBX in HL7 message, please refer to Section 8.3.3 - OBX - Observation/Result Segment.

  - The batch file name will be assigned to the <OBX.5> tag. The detail will be described in following section.

  - XML digital signature:

  In order to ensure the integrity, reputation and authenticity of the message exchange, a XML digital signature is required to digitally sign the whole HL7 document. The eHR system will not accept messages that are not digitally signed.

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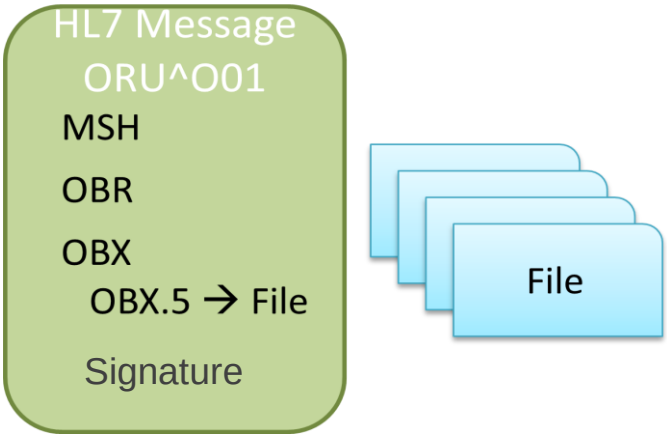

Figure 1 describes the overview structure of BLS in HL7 standards. (Please refer to HL7 official website for HL7 standards details.)

8.1 FILE NAME

The naming convention of the file which is carrying the HL7 message is specified as below:

Format

With Sending Location Code,

<HCP ID>.<Sending Location code>.<Record Type>.HL7.<Message Control ID>

Example
e.g. 8088450656.BRANCHA.LABGEN.HL7.20110701230000

Naming Convention

1. The file name should be in capital letters.
2. The value of each file name component should not contain dot "."
3. Message Control ID refers to the value MSH.10.
4. If the **<*Sending Location code*>** cannot be provided, its value can be set as same as **<*HCP ID*>**.
5. The value of the <***Sending Location code***> can be in any combination of alphanumeric characters i.e. [A-Z][0-9][-_]

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8.2 CHARACTER SET AND ENCODING

A Unicode Transformation Format (UTF) is an algorithmic mapping from every Unicode code point to a unique byte sequence. Among the several UTF scheme, UTF-8 is the most common Unicode encoding used and it has become the main storage encoding on most Unix-like operating systems since it is a relatively easy replacement of traditional extended ASCII character sets.

Therefore, UTF-8 will be used in eHR Clinical Data Sharing data exchange. HCP is required to ensure the file that sent to eHR should use UTF-8 encoding.

8.3 XML PREDEFINED ENTITIES

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

Name	Character	Entity Reference	Description
gt	>	>	Greater than
lt	<	<	Less than
amp	&	&	Ampersand
apos	‘	'	Apostrophe
quot	“	"	Quotation mark

The prefix of namespace in XML in HL7 message is not expected.

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8.4 DATA MAPPING

8.4.1 MSH - Message Header Segment

Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
#<MSH.1>	1	ST			Field Separator	"|"	• Fixed value
#<MSH.2>	4	ST			Encoding Characters	"^~\&"	• Fixed value
<MSH.3> <HD.1>	227	HD		0361	Sending Application Namespace ID	System Version	HCP's system name and version for data exchange
<MSH.4> <HD.1>	227	HD		0362	Sending Facility Namespace ID	Healthcare Provider Identifier	A unique identifier assigned by eHR Healthcare Provider Index to each healthcare institution for participation in eHR Sharing System
<MSH.5> <HD.1>	227	HD		0361	Receiving Application Namespace ID	"EIF"	• Fixed value
<MSH.6> <HD.1>	227	HD		0362	Receiving Facility Namespace ID	"eHR"	• Fixed value
#<MSH.7> <TS.1>	26	TS DTM			Date/Time Of Message Time	Message generation datetime	In format: YYYYMMDDhhmmss
<MSH.8>	40	ST			Security	Data Compliance Level e.g. 1	Possible value: **1**: Level 1 **2**: Level 2 **3**: Level 3

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Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
#<MSH.9> <MSG.1> <MSG.2> <MSG.3>	15	MSG			Message Type Message Type Trigger Event Message Structure	 “ORU” “R01” “ORU_R01”	 • Fixed value • Fixed value • Fixed value
#<MSH.10>	20	ST			Message Control ID	Unique message identifier in sending application	Values can be in any combination of alphanumeric characters i.e. [A-Z][0-9][-_]
#<MSH.11> <PT.1>	3	PT			Processing ID Processing ID	 “P”	• Fixed value • **P**: Production
#<MSH.12> <VID.1>	60	VID			Version ID Version ID	 “2.5”	Fixed value
<MSH.13>	15	NM			Sequence Number	NOT USE	
<MSH.14>	180	ST			Continuation Pointer	NOT USE	
<MSH.15>	2	ID		0155	Accept Acknowledgment Type	“NE”	• Fixed value • **NE**: Never
<MSH.16>	2	ID		0155	Application Acknowledgment Type	NOT USE	
<MSH.17>	3	ID		0399	Country Code	NOT USE	
<MSH.18>	16	ID	Y	0211	Character Set	NOT USE	

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Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
<MSH.19>	250	CE			Principal Language Of Message	NOT USE	
<MSH.20>	20	ID		0356	Alternate Character Set Handling Scheme	NOT USE	
<MSH.21>	427	EI	Y		Message Profile Identity	NOT USE	

8.4.2 OBR - Observation Request Segment

Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
<OBR.1>	4	SI			Set ID – OBR	NOT USE	
<OBR.2>	22	EI			Placer Order Number	NOT USE	
<OBR.3>	22	EI			Filler Order Number	NOT USE	
#<OBR.4> <CE.1>	250	CE			Universal Service Identifier	"LABGEN"	• Fixed value • Sharable Dataset Code (eHR Record Type)
<OBR.5>	2	ID			Priority – OBR	NOT USE	
<OBR.6>	26	TS			Requested Date/Time	NOT USE	
<OBR.7>	26	TS			Observation Date/Time #	NOT USE	
<OBR.8>	26	TS			Observation End Date/Time #	NOT USE	

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Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
<OBR.9>	20	CQ			Collection Volume *	NOT USE	
<OBR.10>	250	XCN	Y		Collector Identifier *	NOT USE	
<OBR.11>	1	ID		0065	Specimen Action Code *	NOT USE	
<OBR.12>	250	CE			Danger Code	NOT USE	
<OBR.13>	300	ST			Relevant Clinical Information	NOT USE	
<OBR.14>	26	TS			Specimen Received Date/Time *	NOT USE	
<OBR.15>	300	SPS			Specimen Source	NOT USE	
<OBR.16>	250	XCN	Y		Ordering Provider	NOT USE	
<OBR.17>	250	XTN	Y/2		Order Callback Phone	NOT USE	
<OBR.18>	60	ST			Placer Field 1	NOT USE	
<OBR.19>	60	ST			Placer Field 2	NOT USE	
<OBR.20>	60	ST			Filler Field 1 +	NOT USE	
<OBR.21>	60	ST			Filler Field 2 +	NOT USE	
<OBR.22>	26	TS			Results Rpt/Status Chng –	NOT USE	
<OBR.23>	40	MOC			Charge to Practice +	NOT USE	

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Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
<OBR.24>	10	ID		0074	Diagnostic Serv Sect ID	NOT USE	
<OBR.25>	1	ID		0123	Result Status +	NOT USE	
<OBR.26>	400	PRL			Parent Result +	NOT USE	
<OBR.27>	200	TQ	Y		Quantity/Timing	NOT USE	
<OBR.28>	250	XCN	Y		Result Copies To	NOT USE	
<OBR.29>	200	EIP			Parent	NOT USE	
<OBR.30>	20	ID		0124	Transportation Mode	NOT USE	
<OBR.31>	250	CE	Y		Reason for Study	NOT USE	
<OBR.32>	200	NDL			Principal Result Interpreter +	NOT USE	
<OBR.33>	200	NDL	Y		Assistant Result Interpreter +	NOT USE	
<OBR.34>	200	NDL	Y		Technician +	NOT USE	
<OBR.35>	200	NDL	Y		Transcriptionist +	NOT USE	
<OBR.36>	26	TS			Scheduled Date/Time +	NOT USE	
<OBR.37>	4	NM			Number of Sample Containers *	NOT USE	
<OBR.38>	250	CE	Y		Transport Logistics of Collected Sample *	NOT USE	

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Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
<OBR.39>	250	CE	Y		Collector's Comment *	NOT USE	
<OBR.40>	250	CE			Transport Arrangement Responsibility	NOT USE	
<OBR.41>	30	ID		0224	Transport Arranged	NOT USE	
<OBR.42>	1	ID		0225	Escort Required	NOT USE	
<OBR.43>	250	CE	Y		Planned Patient Transport Comment	NOT USE	
<OBR.44>	250	CE		0088	Procedure Code	NOT USE	
<OBR.45>	250	CE	Y	0340	Procedure Code Modifier	NOT USE	
<OBR.46>	250	CE	Y	0411	Placer Supplemental Service Information	NOT USE	
<OBR.47>	250	CE	Y	0411	Filler Supplemental Service Information	NOT USE	
<OBR.48>	250	CWE		0476	Medically Necessary Duplicate Procedure Reason	NOT USE	
<OBR.49>	2	IS		0507	Result Handling	NOT USE	

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8.4.3 OBX - Observation/Result Segment

Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
<OBX.1>	4	SI			Set ID – OBX	NOT USE	
<OBX.2>	2	ID		0125	Value Type	"RP"	• Fixed value • **RP**: Reference Pointer
#<OBX.3> <CE.1>	250	CE			Observation Identifier Identifier	"LABGEN"	• Fixed value • Sharable Dataset Code (eHR Record Type)
<OBX.4>	20	ST			Observation Sub-Id	e.g. BL	Possible value of data upload format: **BL**: Bulk load; **BL-M**: Bulk load for materialisation *Remarks:* ***Materialisation*** - HCP upload a HCR's specific sharable dataset that exists in EMR.

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Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
<OBX.5> <RP.1>	99999	Varies	Y		Observation Value Data	Filename of the batch file:checksum (Please refer to Section 13 – File Name Samples for examples of filename)	Colon ":" is used as field delimiter. Filename of two types of files will be included: - HCR list file - Structured data file For filename of the batch file, please see the file format in the related section. Repeat OBX.5 if more than one batch file. For data file checksum value, the checksum algorithm will use SHA-256. For SHA standard document, please refer to "Secure Hash Standard (SHS) of Federal Information Processing Standards Publication" provided by Information Technology Laboratory of National Institute of Standards and Technology in Gaithersburg (MD 20899-8900)
<OBX.6>	250	CE			Units	NOT USE	
<OBX.7>	60	ST			References Range	NOT USE	
<OBX.8>	5	IS	Y	0078	Abnormal Flags	NOT USE	
<OBX.9>	5	NM			Probability	NOT USE	
<OBX .10>	2	ID	Y	0080	Nature of Abnormal Test	NOT USE	
#<OBX. 11>	1	ID		0085	Observation Result Status	"F"	• Fixed value • F: Final Result

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Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
<OBX .12>	26	TS			Effective Date of Reference Range	NOT USE	
<OBX .13>	20	ST			User Defined Access Checks	NOT USE	
<OBX .14>	26	TS			Date/Time of the Observation	NOT USE	
<OBX .15>	250	CE			Producer's ID	NOT USE	
<OBX .16>	250	XCN	Y		Responsible Observer	NOT USE	
<OBX .17>	250	CE	Y		Observation Method	NOT USE	
<OBX .18>	22	EI	Y		Equipment Instance Identifier	NOT USE	
<OBX .19>	26	TS			Date/Time of the Analysis	NOT USE	

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8.5 HL7 MESSAGE SAMPLE

The following HL7 sample in XML format shows materialisation case:

```
<?xml version="1.0" encoding="UTF-8"?>
<ORU_R01 xsi:schemaLocation="urn:hl7-org:v2xml ORU_R01.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="urn:hl7-
org:v2xml">
      <MSH>
            <MSH.1>|</MSH.1>
            <MSH.2>^~\&amp;</MSH.2>
            <MSH.3>
                  <HD.1>CMS 3.0</HD.1>
            </MSH.3>
            <MSH.4>
                  <HD.1>8088450656</HD.1>
            </MSH.4>
            <MSH.5>
                  <HD.1>EIF</HD.1>
            </MSH.5>
            <MSH.6>
                  <HD.1>eHR</HD.1>
            </MSH.6>
            <MSH.7>
                  <TS.1>20120301230001</TS.1>
            </MSH.7>
            <MSH.8>2</MSH.8>
            <MSH.9>
                  <MSG.1>ORU</MSG.1>
                  <MSG.2>R01</MSG.2>
                  <MSG.3>ORU_R01</MSG.3>
            </MSH.9>
            <MSH.10>20120301230001</MSH.10>
            <MSH.11>
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            </MSH.11>
            <MSH.12>
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            </MSH.12>
            <MSH.15>NE</MSH.15>
      </MSH>
      <ORU_R01.PATIENT_RESULT>
            <ORU_R01.ORDER_OBSERVATION>
                  <OBR>
                        <OBR.4>
                              <CE.1>LABGEN</CE.1>
                        </OBR.4>
                  </OBR>
                  <ORU_R01.OBSERVATION>
                        <OBX>
                              <OBX.2>RP</OBX.2>
                              <OBX.3>
                                    <CE.1>LABGEN</CE.1>
                              </OBX.3>
                              <OBX.4>BL</OBX.4>
                              <OBX.5>
                                    <RP.1>
      8088450656.BRANCHA.LABGEN.DF_REQ.1.20110101020600:332be2c46e1a0a632610e
8bf63bde57851374c583aaf84b3769d7eb2d67f8bcc2b0c356c4972aa49c444860c3e00104b50
d24907b86a6e3c6927e61bd3ecfc24
```

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```
                                    </RP.1>
                                </OBX.5>
                                <OBX.5>
                                    <RP.1>
      8088450656.BRANCHA.LABGEN.DF_RST.1.20110101020600:332be2c46e1a0a632610e
8bf63bde57851374c583aaf84b3769d7eb2d67f8bcc2b0c356c4972aa49c444860c3e00104b50
d24907b86a6e3c6927e61bd3ecfc24
                                    </RP.1>
                                </OBX.5>
                                <OBX.5>
                                    <RP.1>
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1.20110101020600:332be2c46e1a0a632610e8bf63bde57851374c583aaf84b3769d7eb2d67f
8bcc2b0c356c4972aa49c444860c3e00104b50d24907b86a6e3c6927e61bd3ecfc24
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                                </OBX.5>
                                <OBX.5>
                                    <RP.1>
      8088450656.BRANCHA.LABGEN.PL.1.20110101020600:dba2a0463da72f264677ba6e8
3fb8eecdce1454e17cea6ec5dcf41a11f1a94e28bbbabbb11e3441de0da7ea741cb175527fff4
1558062c9f0691c7c463a186b6
                                    </RP.1>
                                </OBX.5>
                                <OBX.11>F</OBX.11>
                            </OBX>
                        </ORU_R01.OBSERVATION>
                    </ORU_R01.ORDER_OBSERVATION>
      </ORU_R01.PATIENT_RESULT>
</ORU_R01>
```

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8.6 XML DIGITAL SIGNATURE ON HL7

XML digital signature is required the components of XML digital signature are listed below:

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

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

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

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Example

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

XML Digital Signature

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9 HEALTHCARE RECIPIENT LIST

When a HCP uploads the sharable data to eHR, it is assumed that a daily HCR identity list will be sent **for each sharable dataset** in advance. The HCR identity list consists of the identity of those HCRs who have clinical data records changes.

There are four major keys: Document ID with Document Type, English Name, Sex and Date of Birth of the HCR which are mandatory. They are used to refer to information that can be uniquely identified as an individual. Therefore, four major keys are needed to verify and match the eHR number which is assigned to HCR when one registered to eHR program during the data upload and verification processing.

A HCR list file is required which contains the four major keys and eHR number for every data batch upload. To standardise the HCR list, the file name, content and trailer should be strictly controlled. Besides, the size of the file should not exceed the maximum upload file size according to eHR Localised Bulk Load Standard Specification. The data file should be split into smaller files within the file size limit and Sequence ID could be used to specify each smaller file.

9.1 FILE NAME

The naming convention of the file which is carrying the HCR List is specified as below:

Format

With Sending Location Code,

<HCP ID>.<Sending location code>.<Record Type>.PL.<sequence ID>.<Generation Date>

Example

e.g. 8088450656.BRANCHA.LABGEN.PL.1.20110702084530

Naming Convention

1. The file name should be in capital letters.
2. Generation date provided in the file name should be in YYYYMMDDhhmmss format (YYYY:year; MM:month; DD:day; hh:hour; mm:minute; ss:second).
3. The value of each file name component should not contain dot “.”
4. If the ***<Sending Location code>*** cannot be provided, its value can be set as same as ***<HCP ID>***.
5. The value of the ***<Sending Location code>*** can be in any combination of alphanumeric characters i.e. [A-Z][0-9][-_]

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The following table shows the components of file name and the respective definitions:

Sequence	Component	Definition	Maximum Length	Remarks
1	HCP ID	A unique identifier assigned by eHR Healthcare Provider Index to each healthcare institution for participation in eHR Sharing System	string(10)	• Fixed length
2	Sending Location Code	A code to indicate the location where the data is sending from. The format should be agreed before the interface is on production.	string(20)	
3	Record Type	A standardised short term to distinguish the sharable dataset	string(20)	Fixed value: LABGEN
4	PL	HCR List	string(2)	Fixed value : PL
5	Sequence ID	Sequence of the file generated in the same generation date	string(3)	• In format: 1-999
6	Generation Date	File generation date	string(14)	In format: YYYYMMDDhhmmss

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9.2 FILE CONTENT

Format

```
<eHR Number>|<Sex>|<Birth Date>|<HKIC Number>|<Type of Identity
Document>|<Identity Document Number>|<English Surname>|<English
Given Name>|<English Full Name>\CR\
<eHR Number>|<Sex>|<Birth Date>|<HKIC Number>|<Type of Identity
Document>|<Identity Document Number>|<English Surname>|<English
Given Name>|<English Full Name>\CR\
EOF.<#Total Number of HCRs>.<File Name of HCR List>
```

Naming Convention

For file content,

1. Each record should be on a new line. \CR\ should be used as record terminator.
2. Pipe line "|" should be used as field delimiter. If data content contains pipe line, pipe line should be replaced by \F\ before sending to eHR.
3. A trailer is required at the bottom of each data file. The convention is explained in the next paragraph.

For file trailer,

1. A trailer is required at the bottom of each file.
2. Dot "." should be used as field delimiter.
3. Generation date provided in the file name should be in YYYYMMDDhhmmss format (YYYY:year; MM:month; DD:day; hh:hour; mm:minute; ss:second).

The following table shows the components of file content and trailer and the respective definitions:

Sequence	Data Field	Definition	Maximum Length	Remarks
File Content				
1	eHR number	A unique eHR healthcare recipient identifier assigned to each patient for each participation in the Hong Kong eHR	string(12)	Fixed length
2	Sex	[eHR value] of the "Sex" code table. It is used to identify the sex of the patient	string(1)	Refer to the code set of "Sex" in eHR Office website

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Sequence	Data Field	Definition	Maximum Length	Remarks
3	Date of birth	The patient's date of birth	string(23)	In format: YYYY-MM-DD hh:mm:ss.sss Milliseconds should be in ".000" format e.g. 2010-01-31 00:00:00.000 (Birth time is not required.) Remarks: • If date is exact to 'Year' (e.g. 2010), the unknown month and day is suggested to be set as '01-01' E.g. 2010-**01-01** 0:00:00.000 • If date is exact to 'Month'(e.g. 2010-12), the unknown day is suggested to be set as '01' E.g. 2010-12-**01** 0:00:00.000
4	HKIC number	The Hong Kong Identity Card number or the Registration Number printed on Hong Kong Birth Certificate (post-1981) issued by HKSAR Immigration Department, include the check digit	string(12)	
5	Type of identity document	[eHR value] of the "Type of identity document" code table. It is the type of patient's identity / travel document presented during registration / enrolment / update of the patient's identity / demographic data	string(6)	Refer to the code set of "Type of identity document" in eHR Office website
6	Identity document number	The document number of the [Type of identity document - patient]	string(30)	

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Sequence	Data Field	Definition	Maximum Length	Remarks
7	English surname	Patient's surname in English	string(40)	Surname should be in uppercase letters. Optional if [English full name] is not blank Mandatory if [English full name] is blank
8	English given name	Patient's given name in English	string(40)	Given name should be in uppercase letters. Optional if [English full name] is not blank Mandatory if [English full name] is blank
9	English full name	Patient's full name in English	string(100)	Full name should be in uppercase letters. In format of : [Surname]+[,]+ 1 white space +[Given Name] e.g. CHAN, TAI MAN Optional if [English surname] and [English given name] are not blank Mandatory 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.*
File Trailer				
1	EOF	File trailer indicator	string(3)	Fixed length
2	Total Number of HCRs	Total number of records in this batch being processed excluding the trailer	string(10)	Numeric value: 0-9999999999
3	File Name of HCR List	File name of HCR list	string(83)	Please refer to Section 9.1 - File Name for naming convention of HCR list file name.

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Example

The following is a sample file of HCR list:

```
201000000001|M|2009-01-01|A1234563|ID|A1234563|CHAN|TAI MAN|CHAN, TAI
MAN\CR\
201000000002|F|2001-01-01|A7654321|OC|10234567890|LEE|HO|LEE, HO\CR\
EOF.2.8088450656.BRANCHA.LABGEN.PL.1.20110702084530
```

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10 STRUCTURED DATA FILE

Data loading will use a standardised file naming convention, data content and the trailer. With the standardised format, it takes less time and is easier to interpret the data.

For LABGEN, structured data file are divided into THREE interfaces: Request (DF_REQ), General Result (DF_RST) and Report (DF_RPT). Data field "Record Key" exists in all three interfaces and will be used as the key to cross-reference data files.

A set of three data file interfaces should be sent together. Request data file (DF_REQ) should include all request information of the clinical data of result data files (DF_RST and DF_RPT). For scenario (e.g. Delete) that no record exists in DF_RST and DF_RPT, DF_RST and DF_RPT files with a proper file trailers should also be sent. (Please refer to the structured data files examples at the end of this section.)

The record/recordset should not be duplicated in all data file so that only one snapshot of the record/recordset exists in the interface.

For details of the implementation requirements for transferring clinical records, please refer the 'Communication Protocol Specification'.

10.1 FILE NAME

The naming convention of the file which is carrying the Structured Data File is specified as below:

Format

With Sending Location Code,

<HCP ID>.<Sending Location code>.<Record Type>.DF.<sequence ID>.<Generation Date>

Example

Request data file,

8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530

Result data file,

8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530

Report data file,

8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530

Naming Convention

1. The file name should be in capital letters.
2. Generation date provided in the file name should be in YYYYMMDDhhmmss format (YYYY:year; MM:month; DD:day; hh:hour; mm:minute; ss:second).

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3. The value of each file name component should not contain dot "."
4. If the **<*Sending Location code*>** cannot be provided, its value can be set as same as **<*HCP ID*>**.
5. The value of the **<*Sending Location code*>** can be in any combination of alphanumeric characters i.e. [A-Z][0-9][-_]
6. There are three DF File Types for LABGEN: DF_REQ, DF_RST and DF_RPT. The file content is described below one by one.

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The following table shows the components of file name and the respective definitions:

Sequence	Component	Definition	Maximum Length	Remarks
1	HCP ID	A unique identifier assigned by eHR Healthcare Provider Index to each healthcare institution for participation in eHR Sharing System	string(10)	• Fixed length
2	Sending Location Code	A code to indicate the location where the data is sending from. The format should be agreed before the interface is on production.	string(20)	
3	Record Type	A standardised short term to distinguish the sharable dataset	string(20)	Fixed value : LABGEN
4	DF	Data File	string(2)	Fixed value : DF
5	Sequence ID	Sequence of the file generated in the same generation date	string(3)	• In format: Numeric: 1-999
6	Generation Date	File generation date	string(14)	In format: YYYYMMDDhhmmss

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10.2 FILE CONTENT

Format

DF_REQ:

```
<eHR Number>|<Record Key>|<Transaction Datetime>|<Transaction Type>|field
1|field 2|field 3|…|field n\CR\
<eHR Number>|<Record Key>|<Transaction Datetime>|<Transaction Type>|field
1|field 2|field 3|…|field n\CR\
EOF.<#Total Number of Records>.<File Name of Data File>
```

DF_RST and DF_RPT:

```
<Record Key>|field 1|field 2|field 3|…|field n\CR\
<Record Key>|field 1|field 2|field 3|…|field n\CR\
EOF.<#Total Number of Records>.<File Name of Data File>
```

Naming Convention

For file content,

1. Each record should be on a new line. \CR\ should be used as record terminator.
2. Pipe line "|" should be used as field delimiter. If data content contains pipe line, pipe line should be replaced by \F\ before sending to eHR.
3. A trailer is required at the bottom of each data file. The convention is explained in the next paragraph.

For file trailer,

1. A trailer is required at the bottom of each file.
2. Dot "." should be used as field delimiter.
3. Generation date provided in the file name should be in YYYYMMDDhhmmss format (YYYY:year; MM:month; DD:day; hh:hour; mm:minute; ss:second).

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Data Component

The following table shows the components of file content and trailer and the cardinality of LABGEN Record for each compliance level (Level 1, 2 and 3) in the three scenarios (S1, S2 and S3).

Data file: DF_REQ (Request)

Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
1	eHR number	A unique eHR healthcare recipient identifier assigned to each patient for each participation in the Hong Kong eHR	string(12)		M								
2	Record key	A unique identifier for each laboratory result record within HCP	string(50)		M								
3	Transaction datetime	The datetime indicates the transaction sequence	string(23)	In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005	M								

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
4	Transaction type	Insert/Update/Delete	string(1)	I : Insert operation U : Update operation D : Delete operation ***Remarks:*** ***'U' and 'D' are not accepted in materialisation mode.***	M								
5	Last update datetime	The last update datetime for HCP system	string(23)	In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005	M								
6	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)		O								
7	Attendance institution identifier	A unique identifier assigned by eHR Healthcare Provider Index to each healthcare institution for participant attendance	string(10)	Fixed length	O								

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
8	Laboratory test request number	A unique identifier assigned by the Laboratory Information System (LIS) of the performing laboratory to identify the laboratory test request.	string(40)		M		N/A	M		N/A	M		N/A
9	Laboratory test requesting doctor	Full name (with title) of the clinician who requested the laboratory investigations.	string(100)		N/A		N/A	O		N/A	O		N/A
10	Laboratory test request healthcare institution identifier	The healthcare institution who requested the laboratory test. It is the [HCI identifier] in the eHR Healthcare Provider Index.	string(10)	Fixed length	O		N/A	O		N/A	O		N/A
11	Laboratory test request healthcare institution long name	The healthcare institution who requested the laboratory test. It is the [HCI displayed English long name] or the [HCI displayed Chinese long name] in the eHR Healthcare Provider Index.	string(255)		O		N/A	O		N/A	O		N/A
12	Laboratory test request healthcare institution local name	Local description of the healthcare institution who requested the laboratory test.	string(255)		M		N/A	M		N/A	M		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
13	Laboratory category code	[eHR value] of the "Laboratory Category" code table which indicates the category of the laboratory from which the report was produced.	string(10)	Refer to the code set of "Laboratory category" in eHR Office website	M		N/A	M		N/A	M		N/A
14	Laboratory category description	[eHR description] of the "Laboratory Category" code table which indicates the category of the laboratory from which the report was produced. The [Laboratory category description] should be the corresponding description of the selected [Laboratory category code].	string(255)		M		N/A	M		N/A	M		N/A
15	Laboratory category local description	Description created by the performing laboratory for the category of the laboratory from which the report was produced.	string(255)		M		N/A	M		N/A	M		N/A
16	Laboratory test request performing laboratory name	Name of the laboratory who produced or coordinated the creation of the laboratory report.	string(100)		M		N/A	M		N/A	M		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
17	Laboratory report reference datetime	The reference date or datetime which is used to determine the display sequence of a specific laboratory report in the eHR. The laboratory reports are displayed in the eHR according to the following rule : i. Specimen collection datetime, if any ii. Specimen arrival datetime, if any iii. Laboratory request registration datetime.	string(23)	In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005	M		N/A	M		N/A	M		N/A
18	Laboratory test request clinical information	Clinical information about the patient, e.g. clinical findings, or specimen. The information will assist the laboratory to interpret the diagnostic studies.	string(2000)		N/A		N/A	O		N/A	O		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
19	Laboratory report comment	The additional information about the laboratory report as a whole.	string(2000)		O		N/A	M if [Laboratory test reportable result] and [Laboratory test result note] are ALL blank O if [Laboratory test reportable result] or [Laboratory test result note] is not blank		N/A	M if [Laboratory test reportable result] and [Laboratory test result note] are ALL blank O if [Laboratory test reportable result] or [Laboratory test result note] is not blank		N/A
20	Specimen type - recognised terminology name	Name of recognised terminology set for [Specimen type]	string(20)	• HKCTT • SNOMED CT	N/A		N/A	N/A		N/A	N/A if [Specimen type identifier - recognised terminology] is blank M if [Specimen type identifier - recognised terminology] is not blank		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
21	Specimen type identifier - recognised terminology	Unique identifier of [Specimen type] in the recognised terminology	string(30)		N/A		N/A	N/A		N/A	O		N/A
22	Specimen type description - recognised terminology	Description of [Specimen type] in the recognised terminology. It should be the corresponding description of the selected [Specimen type identifier - recognised terminology].	string(255)	For HKCTT, use "eHR Description" For SNOMED CT, use "Preferred Name"	N/A		N/A	N/A		N/A	N/A if [Specimen type identifier - recognised terminology] is blank M if [Specimen type identifier - recognised terminology] is not blank		N/A
23	Specimen type local code	Local code for the [Specimen type] issued by the performing laboratory	string(30)		N/A		N/A	O		N/A	O		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
24	Specimen type local description	Local description for the [Specimen type] issued by the performing laboratory	string(255)		N/A		N/A	O		N/A	N/A if [Specimen type identifier - recognised terminology] is blank M if [Specimen type identifier - recognised terminology] is not blank		N/A
25	Specimen arrival datetime	The date/time when the specimen was received at the laboratory. The actual time that is recorded is based on how specimen receipt is managed and may correspond to the time the sample is logged in. This is different from [Specimen Collection Datetime].	string(23)	In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005	N/A		N/A	O		N/A	O		N/A
26	Specimen collection datetime	The date and time when the specimen was collected.	string(23)	In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005	N/A		N/A	O		N/A	O		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
27	File indicator	Indicator of Laboratory report (PDF) data (0: no Laboratory report (PDF) provided 1: Laboratory report (PDF) provided)	string(1)		M		N/A	M		N/A	M		N/A
28	Record creation datetime	Datetime when the record was created in source system of HCP	string(23)	In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005	O		N/A	O		N/A	O		N/A
29	Record creation institution identifier	A unique identifier assigned by eHR Healthcare Provider Index to each healthcare institution who created the record	string(10)	Fixed length	O		N/A	O		N/A	O		N/A
30	Record creation institution name	Name of healthcare institution who created the record	string(255)		O		N/A	O		N/A	O		N/A
31	Record last update datetime	Datetime when the record was last updated in source system of HCP	string(23)	In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005	O		N/A	O		N/A	O		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
32	Record update institution identifier	A unique identifier assigned by eHR Healthcare Provider Index to each healthcare institution who updated the record	string(10)	Fixed length	O		N/A	O		N/A	O		N/A
33	Record update institution name	Name of healthcare institution who updated the record	string(255)		O		N/A	O		N/A	O		N/A
34	Specimen details	Additional information about [Specimen type]. For example, an anatomical site 'Left lower lobe' for biopsy, or any specimen qualifier in free text, such as, "Red cap of the Hickman line"	string(255)		N/A		N/A	O		N/A	O		N/A
35	Laboratory test order number	A unique identifier issued by the healthcare institution who made the laboratory test order.	string(40)	If this laboratory request is referred by other HCP, please follow the convention : Referrring HCP ID:Referral document reference number e.g 8088450656:123456789000000003 06	O		O	O		O	O		O
File Trailer													

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
1	EOF	File trailer indicator	string(3)		M								
2	Total number of records	Total number of records in this batch being processed excluding the trailer	string(10)	Numeric value: 0-9999999999	M								
3	File name of data file	File name of data file	string(83)	Please refer to Section 10.1 - File Name for naming convention of data file filename.	M								

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Data file: DF_RST (Result)

Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
1	Record key	A unique identifier for each laboratory result record within HCP	string(50)		N/A		N/A	M		N/A	M		N/A
2	Laboratory test name - recognised terminology name	Name of the recognised terminology set for general laboratory test name.	string(20)	• HKCTT • LOINC	N/A		N/A	N/A		N/A	M		N/A
3	Laboratory test name identifier - recognised terminology	Unique identifier of general laboratory test name in the recognised terminology.	string(50)		N/A		N/A	N/A		N/A	M		N/A
4	Laboratory test name description - recognised terminology	Description of General Laboratory Test Name in the recognised terminology. It should be the corresponding description of the [Laboratory test name identifier - recognised terminology].	string(255)	For HKCTT, use "eHR Description" For LOINC, use "Long Common Name"	N/A		N/A	N/A		N/A	M		N/A
5	Laboratory test name local code	Local code for the general laboratory test name issued by the performing laboratory.	string(50)		N/A		N/A	O		N/A	O		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
6	Laboratory test name local description	Local description for the general laboratory test name issued by the performing laboratory.	string(255)		N/A		N/A	M		N/A	M		N/A
7	Laboratory Test Result Type	Result type in laboratory result as below : 1:Numeric 2:Enumerated 3:Text	string(2)		N/A		N/A	M		N/A	M		N/A
8	Laboratory test numeric result	The value observed by the performing laboratory in numerical format.	string(16)		N/A		N/A	O		N/A	O		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
9	Laboratory test reportable result	The reporting result to be displayed in the eHR Viewer. This includes results in numeric and string data.	string(255)	If [Laboratory test text result] is provided, the first 255 character should be copied to [Laboratory test reportable result]	N/A		N/A	M if [Laboratory test result note] and [Laboratory report comment] are ALL blank M if [Laboratory test numeric result] or [Laboratory test enumerated result] or [Laboratory test text result] is not blank O if [Laboratory test result note] or [Laboratory report comment] is not blank O if [Laboratory test numeric result] and [Laboratory test enumerated result] and [Laboratory test text result] are ALL blank		N/A	M if [Laboratory test result note] and [Laboratory report comment] are ALL blank M if [Laboratory test numeric result] or [Laboratory test enumerated result] or [Laboratory test text result] is not blank O if [Laboratory test result note] or [Laboratory report comment] is not blank O if [Laboratory test numeric result] and [Laboratory test enumerated result] and [Laboratory test text result] are ALL blank		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
10	Laboratory test enumerated result	The enumerated result identifier reported by the performing laboratory. For example, positive, negative, +, ++, +++, present, absent.	string(80)		N/A		N/A	O		N/A	O		N/A
11	Laboratory test text result	The laboratory test result observable value component in text format	string(32768)		N/A		N/A	O		N/A	O		N/A
12	Laboratory test result note	The additional information of individual test. For example, Sodium test repeated.	string(2000)		N/A		N/A	M if [Laboratory test reportable result] and [Laboratory report comment] are ALL blank O if [Laboratory test reportable result] or [Laboratory report comment] is not blank		N/A	M if [Laboratory test reportable result] and [Laboratory report comment] are ALL blank O if [Laboratory test reportable result] or [Laboratory report comment] is not blank		N/A
13	Laboratory test result unit	Local description of the test result unit.	string(50)		N/A		N/A	O		N/A	O		N/A
14	Laboratory test reference range	Information about appropriate reference range for a specific result observable	string(2000)		N/A		N/A	O		N/A	O		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
15	Detection limit indicator code	[eHR value] of the "Detection limit indicator" code table to identify whether the result is out of the detection limit of the test. For example, < Less than; > Greater than.	string(5)	Refer to the code set of "Detection limit indicator" in eHR Office website	N/A		N/A	O		N/A	O		N/A
16	Detection limit indicator description	[eHR description] of the "Detection Limit Indicator" code table. This field contains a description from a table lookup indicating whether the result is out of the detection limit of the test. The [Detection limit indicator description] should match with [Detection limit indicator code].	string(255)		N/A		N/A	O		N/A	O		N/A
17	Detection limit indicator local description	The local description issued by the performing laboratory indicating whether the result is out of the detection limit of the test.	string(255)		N/A		N/A	O		N/A	O		N/A
18	Abnormal result indicator code	[eHR value] of the "Abnormal Result Indicator" code table, indicating the normality status of the result. For example, L = Low; H = High.	string(5)	Refer to the code set of "Abnormal result indicator" in eHR Office website	N/A		N/A	O		N/A	O		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
19	Abnormal result indicator description	[eHR description] of the "Abnormal Result Indicator" code table indicating the normality status of the result. The [Abnormal result indicator description] should be the corresponding description of the selected the selected [Abnormal result indicator code].	string(255)		N/A		N/A	O		N/A	O		N/A
20	Abnormal result indicator local description	The local description issued by the performing laboratory indicating the normality status of the result.	string(255)		N/A		N/A	O		N/A	O		N/A
21	Panel local code	The requesting test/profile abbreviations for the laboratory request which was issued by the performing laboratory.	string(50)		O		N/A	O		N/A	O		N/A
22	Panel local description	The requesting test or profile description which was issued by the performing laboratory. This field describes the requested observation/test/profile	string(255)		O		N/A	O		N/A	M		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
23	Laboratory report authorized datetime	The date or datetime when a specific version of the laboratory report was authorized and ready to be issued.	string(23)	In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005	N/A		N/A	O		N/A	O		N/A
24	Laboratory report authorized healthcare staff identifier *(Retained for backward compatibility to v1.0.1)*	A unique identifier of the healthcare staff who authorized the laboratory report	string(10)		N/A								
25	Laboratory report authorized healthcare staff English name	Full English name (with title, if applicable) of the healthcare staff who authorized the laboratory report.	string(100)		N/A		N/A	O		N/A	O		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
26	Laboratory report authorized healthcare staff English given name *(Retained for backward compatibility to v1.0.1)*	Given name in English of the healthcare staff who authorized the laboratory report	string(40)		N/A								
27	Laboratory report authorized healthcare staff English name prefix *(Retained for backward compatibility to v1.0.1)*	eHR value of the "Healthcare staff English name prefix" code table, to define the prefix of the English name of the healthcare staff who authorized the laboratory report	string(10)	Refer to the code set of "Healthcare staff English name prefix" in eHR Office website	N/A								
28	Laboratory report authorized healthcare staff Chinese name	Full Chinese name (with title, if applicable) of the healthcare staff who authorized the laboratory report. Encoding method: Unicode	string(10)	Maximum 10 Chinese characters	N/A		N/A	O		N/A	O		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
29	Laboratory report authorized healthcare staff Chinese name suffix *(Retained for backward compatibility to v1.0.1)*	eHR value of the "Healthcare staff Chinese name suffix" code table, to define the suffix of the Chinese name of the healthcare staff who authorized the laboratory report	string(10)	Refer to the code set of "Healthcare staff Chinese name suffix" in eHR Office website	N/A								
File Trailer													
1	EOF	File trailer indicator	string(3)		M								
2	Total number of records	Total number of records in this batch being processed excluding the trailer	string(10)	Numeric value: 0-9999999999	M								
3	File name of data file	File name of data file	string(83)	Please refer to Section 10.1 - File Name for naming convention of data file filename.	M								

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Data file: DF_RPT (Report)

Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
1	Record key	A unique identifier for each laboratory result record within HCP	string(50)		M		N/A	M		N/A	M		N/A
2	Laboratory report status code	[eHR value] of the "Laboratory Report Status" code table which indicates the status of the laboratory report.	string(5)	Refer to the code set of "Laboratory report status" in eHR Office website	M		N/A	M		N/A	M		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
3	Laboratory report status description	[eHR description] of the "Laboratory Report Status" code table which indicates the status of the laboratory report. The [Laboratory report status description] should be the corresponding description of the selected [Laboratory report status code]. The status of the laboratory report, including : - *Provisional Report*: A provisional report is issued when provisional or partial results become available and report is submitted to eHR. A final report will always follow after the provisional report. - *Final Report*: A completed report for the laboratory request. - *Amended Report*: An Amended report is issued when the final report of diagnosis or test result(s) have been changed or amended. Amended report includes information with the latest submitted provisional report/final report/supplementary report. - *Supplementary Report*: A supplementary report is issued when additional information is available when final/amended report has been submitted to eHR. Supplementary report includes information with the latest submitted provisional report/final report/amended report.	string(255)		M		N/A	M		N/A	M		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
4	Laboratory report status local description	A local description issued by the performing laboratory for indicating the status of the laboratory report.	string(255)		M		N/A	M		N/A	M		N/A
5	Laboratory report date	The documentation date of the laboratory report	string(23)		O		N/A	O		N/A	O		N/A
6	File name	File name of Laboratory Report – Image without <Generation Date> of the corresponding structured data file.	string(255)	Please refer to Section 11 – Image Handling for naming convention of image file name *<HCP ID>.<Sending Location Code>.<Record Type>.<Record Key>.<Original File Name>.<File Extension>.<eHR Number>*	M if [File Indicator] = 1 N/A if [File Indicator] = 0		N/A	M if [File Indicator] = 1 N/A if [File Indicator] = 0		N/A	M if [File Indicator] = 1 N/A if [File Indicator] = 0		N/A

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Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
7	Laboratory report (text)	The free text of the laboratory report.	string(32768)	For Level 1: [Laboratory report (PDF)] is mandatory and [Laboratory report (text)] is optional For level 2 and level 3: [Laboratory report (PDF)] and [Laboratory report (text)] are optional	O if [File Indicator] = 1 M if [File Indicator] = 0		N/A	O		N/A	O		N/A
File Trailer													
1	EOF	File trailer indicator	string(3)		M								
2	Total number of records	Total number of records in this batch being processed excluding the trailer	string(10)	Numeric value: 0-9999999999	M								

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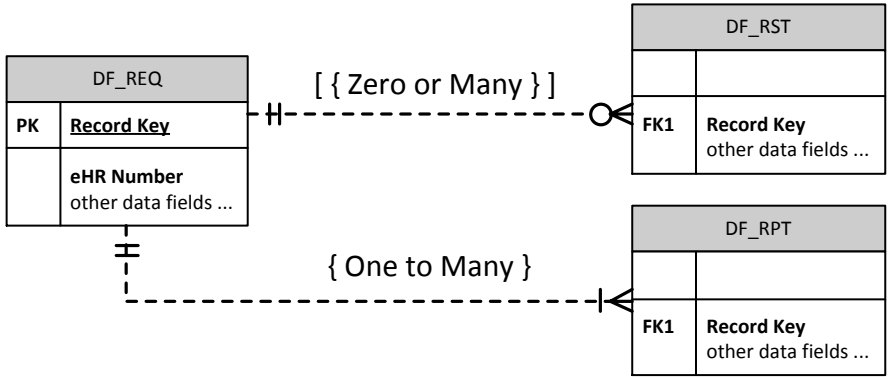
Number	Data Field	Definition	Maximum Length	Notes	Mandatory (M) Optional (O) Not Applicable (N/A – Data field should not be submitted)								
					Level 1			Level 2			Level 3		
					S1	S2	S3	S1	S2	S3	S1	S2	S3
3	File name of data file	File name of data file	string(83)	Please refer to Section 10.1 - File Name for naming convention of data file filename.	M								

10.3 LABGEN INTERFACE RELATIONSHIP DIAGRAMS

Below interface relationship diagrams describes the conceptual of data relationship in each data file of different scenarios in data compliance level 1, 2 and 3. In general, data field "Record Key" is used as the key to cross-reference data files DF_REQ, DF_RST and DF_RPT. And data field "eHR Number" is used as the key to cross-reference HCR list PL and data file DF_REQ.

Interface Relationship Diagram on "New (S1)" / "Update (S2)" LABGEN records in Data Compliance Level 1



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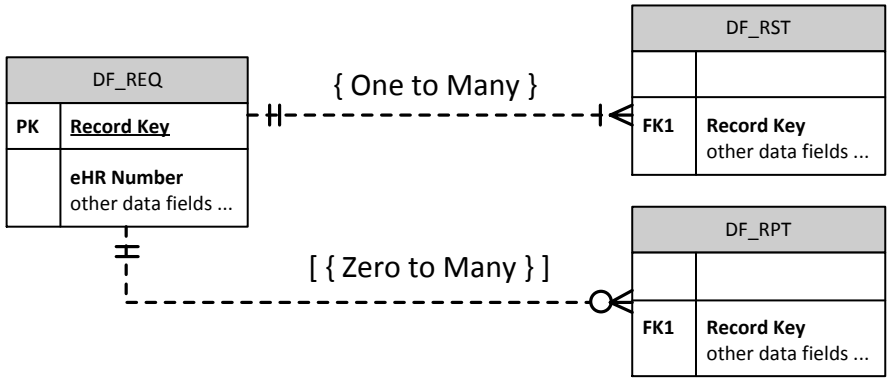
Interface Relationship Diagram on "New (S1)" / "Update (S2)" LABGEN records in Data Compliance Level 2 and 3



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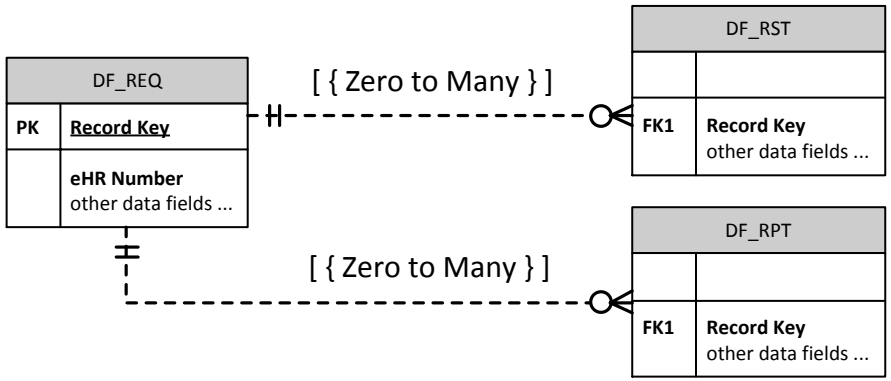
Interface Relationship Diagram on "Delete (S3)" LABGEN records in Data Compliance Level 1, 2 and 3



10.4 STRUCTURED DATA FILE EXAMPLES

Sample data file of "New (S1)" in Data Compliance Level 1:

Request Data File Name: 8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530

```
201000000001|PYN_LAB_HMS_000999|2010-06-08 15:22:00.000|I|2010-06-08 15:22:00.000|||11-CC123456|||Kowloon
Bay Laboratory|HAEM|Haematology Laboratory|Haematology Laboratory||2009-11-20
14:10:00.000||||||||||1|||||||\CR\
EOF.1.8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530
```

General Result Data File Name: 8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530

```
EOF.0.8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530
```

Report Data File Name: 8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530

```
PYN_LAB_HMS_000999|F|Final report|Final report|2010-06-08
15:22:00.000|8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000999.123.pdf.201000000001|\CR\
EOF.1.8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530
```

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Sample data file of "Update (S2)" in Data Compliance Level 1:

Request Data File Name: 8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530

```
201000000001|PYN_LAB_HMS_000999|2010-06-08 15:22:00.000|U|2010-06-08 15:22:00.000|||11-CC123456|||Kowloon
Bay Laboratory|HAEM|Haematology Laboratory|Haematology Laboratory||2009-11-20
14:10:00.000||||||||||1|||||||\CR\
EOF.1.8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530
```

General Result Data File Name: 8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530

```
EOF.0.8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530
```

Report Data File Name: 8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530

```
PYN_LAB_HMS_000999|F|Final report|Final report|2010-06-08
15:22:00.000|8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000999.123.pdf.201000000001|\CR\
EOF.1.8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530
```

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Sample data file of "New (S1)" in Data Compliance Level 2:

Request Data File Name: 8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530

```
201000000001|PYN_LAB_HMS_000999|2010-06-08 15:22:00.000|I|2010-06-08 15:22:00.000|||11-CC123456|Dr. TM
Chan|1256348965| Prince of Wales Hospital| Prince of Wales Hospital|HAEM|Haematology
Laboratory|Haematology Laboratory|Kowloon Bay Clinical Laboratory|2009-11-20 14:10:00.000|Ca
Lung|Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level of <7%.|SNOMED
CT|258497007|Abscess swab (specimen)|ASB00168|Abscess swab|2009-11-11 16:15:00.000|2009-11-12
18:30:00.000|1|2010-06-08 15:22:00.000|PMH|Princess Margaret Hospital|2010-06-08
15:22:00.000|PMH|Princess Margaret Hospital||\CR\
EOF.1.8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530
```

General Result Data File Name: 8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530

```
PYN_LAB_HMS_000999|LOINC|2823-3|Potassium, Serum or Plasma|PSP152368|Potassium or Serum or
Plasma|1|3.5|>3.4|||mmol/L|"3.0-5.2;
LDL-chol (calc) - Acceptable   Borderline    High
                               <2.8             2.8 - 3.3       >=3.4
"|>|Greater than|>>|H|High|HH|LFT|Liver Function Test|2009-11-20 14:10:00.000||Jack Lee|||李傑克|\CR\
PYN_LAB_HMS_000999|LOINC|2777-1|Phosphate, Serum or Plasma|PSP152369|Phosphate or Serum or
Plasma|1|3.7|3.7|||mg/dL|Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level
of <7%. At levels >9.0% treatment should be re-evaluated|||||||RFT|Renal Function Test|2009-11-20
14:10:00.000||Jack Lee|||李傑克|\CR\
EOF.2.8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530
```

Report Data File Name: 8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530

```
PYN_LAB_HMS_000999|F|Final report|Final report|2010-06-08
15:22:00.000|8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000999.123.pdf.201000000001|\CR\
PYN_LAB_HMS_000999|F|Final report|Final report|2010-06-08
15:22:00.000|8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000999.124.pdf.201000000001|\CR\
PYN_LAB_HMS_000999|F|Final report|Final report|||Report Text Example 123\CR\
EOF.3.8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530
```

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Sample data file of "Update (S2)" in Data Compliance Level 2:

Request Data File Name: 8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530

```
201000000001|PYN_LAB_HMS_000999|2010-06-08 15:22:00.000|U|2010-06-08 15:22:00.000|||11-CC123456|Dr. TM
Chan|1256348965| Prince of Wales Hospital| Prince of Wales Hospital|HAEM|Haematology
Laboratory|Haematology Laboratory|Kowloon Bay Clinical Laboratory|2009-11-20 14:10:00.000|Ca
Lung|Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level of
<7%.||||ASB00168|Abscess swab|2009-11-11 16:15:00.000|2009-11-12 18:30:00.000|1|2010-06-08
15:22:00.000|PMH|Princess Margaret Hospital|2010-06-08 15:22:00.000|PMH|Princess Margaret Hospital||\CR\
EOF.1.8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530
```

General Result Data File Name: 8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530

```
PYN_LAB_HMS_000999||||PSP152368|Potassium or Serum or Plasma|1|3.5|>3.4||||mmol/L|"3.0-5.2;
LDL-chol (calc) - Acceptable   Borderline    High
                               <2.8              2.8 - 3.3       >=3.4
"|>|Greater than|>>|H|High|HH|LFT|Liver Function Test|2009-11-20 14:10:00.000||Jack Lee|||李傑克|\CR\
PYN_LAB_HMS_000999||||PSP152369|Phosphate or Serum or Plasma|1|3.7|3.7||||mg/dL|Clinical Guideline Note:
The goal of diabetes therapy should be an HbA1c level of <7%. At levels >9.0% treatment should be re-
evaluated|||||||RFT|Renal Function Test|2009-11-20 14:10:00.000||Jack Lee|||李傑克|\CR\
EOF.2.8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530
```

Report Data File Name: 8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530

```
PYN_LAB_HMS_000999|F|Final report|Final report|2010-06-08
15:22:00.000|8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000999.123.pdf.201000000001|\CR\
PYN_LAB_HMS_000999|F|Final report|Final report|2010-06-08
15:22:00.000|8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000999.124.pdf.201000000001|\CR\
PYN_LAB_HMS_000999|F|Final report|Final report|||Report Text Example 123\CR\
EOF.3.8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530
```

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Sample data file of "New (S1)" in Data Compliance Level 3:

Request Data File Name: 8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530

```
201000000001|PYN_LAB_HMS_000999|2010-06-08 15:22:00.000|I|2010-06-08 15:22:00.000|||11-CC123456|Dr. TM
Chan|1256348965| Prince of Wales Hospital| Prince of Wales Hospital|HAEM|Haematology
Laboratory|Haematology Laboratory|Kowloon Bay Clinical Laboratory|2009-11-20 14:10:00.000|Ca
Lung|Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level of <7%.|SNOMED
CT|258497007|Abscess swab (specimen)|ASB00168|Abscess swab|2009-11-11 16:15:00.000|2009-11-12
18:30:00.000|1|2010-06-08 15:22:00.000|PMH|Princess Margaret Hospital|2010-06-08
15:22:00.000|PMH|Princess Margaret Hospital||\CR\
EOF.1.8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530
```

General Result Data File Name: 8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530

```
PYN_LAB_HMS_000999|LOINC|2823-3|Potassium, Serum or Plasma|PSP152368|Potassium or Serum or
Plasma|1|3.5|>3.4||||mmol/L|"3.0-5.2;
LDL-chol (calc) - Acceptable   Borderline    High
                               <2.8             2.8 - 3.3       >=3.4
"|>|Greater than|>>|H|High|HH|LFT|Liver Function Test|2009-11-20 14:10:00.000||Jack Lee|||李傑克|\CR\
PYN_LAB_HMS_000999|LOINC|2777-1|Phosphate, Serum or Plasma|PSP152369|Phosphate or Serum or
Plasma|1|3.7|3.7||||mg/dL|Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level
of <7%. At levels >9.0% treatment should be re-evaluated|||||||RFT|Renal Function Test|2009-11-20
14:10:00.000||Jack Lee|||李傑克|\CR\
EOF.2.8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530
```

Report Data File Name: 8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530

```
PYN_LAB_HMS_000999|F|Final report|Final report|2010-06-08
15:22:00.000|8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000999.123.pdf.201000000001|\CR\
PYN_LAB_HMS_000999|F|Final report|Final report|2010-06-08
15:22:00.000|8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000999.124.pdf.201000000001|\CR\
PYN_LAB_HMS_000999|F|Final report|Final report|||Report Text Example 123\CR\
EOF.3.8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530
```

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Sample data file of "Update (S2)" in Data Compliance Level 3:

Request Data File Name: 8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530

```
201000000001|PYN_LAB_HMS_000999|2010-06-08 15:22:00.000|U|2010-06-08 15:22:00.000|||11-CC123456|Dr. TM
Chan|1256348965| Prince of Wales Hospital| Prince of Wales Hospital|HAEM|Haematology
Laboratory|Haematology Laboratory|Kowloon Bay Clinical Laboratory|2009-11-20 14:10:00.000|Ca
Lung|Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level of <7%.|SNOMED
CT|258497007|Abscess swab (specimen)|ASB00168|Abscess swab|2009-11-11 16:15:00.000|2009-11-12
18:30:00.000|1|2010-06-08 15:22:00.000|PMH|Princess Margaret Hospital|2010-06-08
15:22:00.000|PMH|Princess Margaret Hospital||\CR\
EOF.1.8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530
```

General Result Data File Name: 8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530

```
PYN_LAB_HMS_000999|LOINC|2823-3|Potassium, Serum or Plasma|PSP152368|Potassium or Serum or
Plasma|1|3.5|>3.4||||mmol/L|"3.0-5.2;
LDL-chol (calc) - Acceptable   Borderline    High
                               <2.8             2.8 - 3.3       >=3.4
"|>|Greater than|>>|H|High|HH|LFT|Liver Function Test|2009-11-20 14:10:00.000||Jack Lee|||李傑克|\CR\
PYN_LAB_HMS_000999|LOINC|2777-1|Phosphate, Serum or Plasma|PSP152369|Phosphate or Serum or
Plasma|1|3.7|3.7||||mg/dL|Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level
of <7%. At levels >9.0% treatment should be re-evaluated|||||||RFT|Renal Function Test|2009-11-20
14:10:00.000||Jack Lee|||李傑克|\CR\
EOF.2.8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530
```

Report Data File Name: 8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530

```
PYN_LAB_HMS_000999|F|Final report|Final report|2010-06-08
15:22:00.000|8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000999.123.pdf.201000000001|\CR\
PYN_LAB_HMS_000999|F|Final report|Final report|2010-06-08
15:22:00.000|8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000999.124.pdf.201000000001|\CR\
PYN_LAB_HMS_000999|F|Final report|Final report|||Report Text Example 123\CR\
EOF.3.8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530
```

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Sample data file of "Delete (S3)" in Data Compliance Level 1, 2 and 3:

Request Data File Name: 8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530

```
201000000001|PYN_LAB_HMS_000999|2010-06-08 15:22:00.000|D|2010-06-08 15:22:00.000|||11-
CC123456|||||||||||||||||||||||||\CR\
EOF.1.8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530
```

General Result Data File Name: 8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530

```
EOF.0.8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530
```

Report Data File Name: 8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530

```
EOF.0.8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530
```

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11 IMAGE HANDLING

In all eHR sharable dataset, image file or plain text will be accepted in all level of data interoperability. As the file naming convention is different among institutes, the files should be renamed as standardised format.

11.1 ASSUMPTIONS

Image file will be sent to eHR after the structured data.

11.2 FILE NAME

Format

With file extension,

<HCP ID>.<Sending Location Code>.<Record Type>.<Record Key>.<Original File Name>.<File Extension>.<eHR Number>.<Generation Date>

Example
e.g.
8088450656.BRANCHA.LABGEN.PWH019999.123.pdf.201000000001.20110702084530

Naming Convention

1. The file name should be in capital letters except file extension.
2. Generation date provided in the file name should be in YYYYMMDDhhmmss format (YYYY:year; MM:month; DD:day; hh:hour; mm:minute; ss:second).
3. The value of each file name component should not contain dot ".".
4. If the ***<Sending Location code>*** cannot be provided, its value can be set as same as ***<HCP ID>***.
5. The value of the ***<Sending Location Code>*** , <Record Key> and <Original File Name> can be in any combination of alphanumeric characters i.e. [A-Z][0-9][-_]

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The following table shows the components of file name and the respective definitions:

Sequence	Component	Definition	Maximum Length	Remarks
1	HCP ID	A unique identifier assigned by eHR Healthcare Provider Index to each healthcare institution for participation in eHR Sharing System	string(10)	Fixed length
2	Sending Location Code	A code to indicate the location where the data is sending from. The format should be agreed before the interface is on production.	string(20)	
3	Record Type	A standardised short term to distinguish the sharable dataset	string(20)	Fixed value : LABGEN
4	Record Key	The key to identify and map the structured data record	string(50)	
5	Original File Name	The file name used in source institution	string(100)	
6	File Extension	pdf (Portable Document Format File)	string(3)	
7	eHR Number	A unique eHR healthcare recipient identifier assigned to each patient for each participation in the Hong Kong eHR	string(12)	Fixed length
8	Generation Date	File generation date	string(14)	In format: YYYYMMDDhhmmss

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12 FILE NAME SAMPLES

The following provides some file name samples for different file upload modes:

Sample Values

Component	Sample Value	Full Form
HCP ID	8088450656	Hospital Authority
Sending Location Code	BranchA	Branch A of HCP
	BranchB	Branch B of HCP
	Gateway1	Gateway 1 system of HCP
	Gateway2	Gateway 2 system of HCP

The following table lists examples of file name of HCR list, data file and image, for each file upload mode:

	HCR List File	Data File	Image (if applicable)
Daily Batch Mode	8088450656.BRANCHA.LABGEN.PL.1.20110702084530	8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530 8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530 8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530	8088450656.BRANCHA.LABGEN.PWH019999.123.pdf.100002010001.20110702084530
Materialisation Mode	8088450656.BRANCHA.LABGEN.PL.1.20110702084530	8088450656.BRANCHA.LABGEN.DF_REQ.2.20110702084530 8088450656.BRANCHA.LABGEN.DF_RST. 2.20110702084530 8088450656.BRANCHA.LABGEN.DF_RPT.2.20110702084530	8088450656.BRANCHA.LABGEN.PWH019999.123.pdf.100002010001.20110702084530
Ad-hoc Mode	8088450656.BRANCHA.LABGEN.PL.1.20110702084530	8088450656.BRANCHA.LABGEN.DF_REQ.1.20110702084530 8088450656.BRANCHA.LABGEN.DF_RST.1.20110702084530 8088450656.BRANCHA.LABGEN.DF_RPT.1.20110702084530	8088450656.BRANCHA.LABGEN.PWH019999.123.pdf.100002010001.20110702084530

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