



**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	Technical Interface Specification for eHR Laboratory Result (General Result) Record
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Document Description	The document explains the technical interface for implementing Health Level Seven (HL7) version 2.5 standards messaging and Clinical Document Architecture (CDA) for transferring Laboratory Result (General Result) records from healthcare providers (HCP) to eHR system 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

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	7 Mar 2013
1.2.0	<ul style="list-style-type: none"> • Added the remarks in XML PREDEFINED ENTITIES: ‘The prefix of namespace in XML in HL7 message is not expected.’ • Updated data requirement length of following field from string(80) to string(255) <ul style="list-style-type: none"> ◦ Laboratory test reportable result • Updated remarks in <MSH.4>, <OBR.4> and <OBX.3> • Added remarks in data field ‘Transaction type’ in section ‘CDA DOCUMENT’ and updated HL7 samples of ‘Delete’ scenario • Updated section 9.2, Cardinality of ‘detail/labgen_result_data/record_key’ of level 2, S1 and S2 from ‘N/A’ to ‘1..1’ • Updated section 9.2, Cardinality of ‘Laboratory test order number’ of all levels, S3 from ‘N/A’ to ‘0..1’ • Updated section 9.2, Remarks of <ul style="list-style-type: none"> ◦ Laboratory test order number ◦ Transaction type • Updated the template of cover page and description in footer • Updated the contents in section ‘Intellectual Property Notice’ • Updated section 9.2 Cardinality of ‘Last update datetime’ from ‘0..1’ to ‘1..1’ • Aligned the terms used in eHR Sharing System (eHRSS) Bill: <ul style="list-style-type: none"> ◦ Participant -> eHR Healthcare Recipient 	19 Jun 2014
1.3.0	<ul style="list-style-type: none"> • Section 7 Data Upload Requirement is added to state the 3 message upload mode 	30 Jun 2015

	<ul style="list-style-type: none"> • Section 14.3.7 Re-materialisation message is added to provide the re-materialisation message example • Updated Section 9.4.3 OBX - Observation/Result Segment OBX.4's remarks • Updated section 10.5.2, Cardinality of the following fields in scenario S1 and S2 of data compliance level 2 and 3 <ul style="list-style-type: none"> - Laboratory test reportable result - Laboratory test numeric result - Laboratory test enumerated result - Laboratory test text result - Laboratory test result note - Laboratory report comment • Updated section 10.5.2, tag name for following fields to align with message samples <ul style="list-style-type: none"> - Report text - Abnormal result indicator code - Abornmal result indicator description - Laboratory category local description • For update and delete scenario HL7 samples in Section 14, OBX.4 data upload format should be "NBL" • Updated section 10.5.2, Cardinality of the following fields in scenario S1 and S2 of data compliance level 2 and 3 level 1 <ul style="list-style-type: none"> - Panel local code - Panel local description 	
1.3.1	<ul style="list-style-type: none"> • Updated section 10.5.2, Cardinality of the following fields in scenario S1 and S2 of data compliance level 3 <ul style="list-style-type: none"> - Laboratory test request healthcare institution identifier - Laboratory test request healthcare institution long name 	15 Sep 2016

1 PURPOSE

1.1 OBJECTIVE

This document describes the technical interface for implementing Health Level Seven (HL7) version 2.5 standards messaging and Clinical Document Architecture (CDA) for transferring Laboratory Result (General Result) records from healthcare providers (HCP) 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 Message Standards will be described in detail in this document. For the HL7-HK Localised Bulk Load Standards, please refer to ‘Bulk Load Standards Specification for eHR Record’.

1.2 INTENDED READERS

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

2 SCOPE

This reference defines the implementation of HL7 version 2.5 messaging and CDA for the communication of HL7-HK Message Standards between EMR applications and eHR system. The structure of a HL7 message and CDA document, data mapping specification of eHR Healthcare Recipient (HCR) identity data, healthcare provider data, clinical data and transaction data and the mechanism of creating a HL7 message for transferring Laboratory Result (General Result) record data will be covered in this document.

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

The recognized terminology sets 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.

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

4 DEFINITIONS AND CONVENTIONS

4.1 HL7 MESSAGE STANDARDS

Health Level Seven (HL7) version 2.5 message standards will be implemented for healthcare records exchange under eHR programme. HL7 provides a framework and related standards for the exchange, integration, sharing, and retrieval of electronic health-related information. Each HL7 message contains information about a particular event such as patient admission, laboratory records, etc. CDA, which contains structured clinical data, can be embedded in the HL7 message for transmission.

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

4.2 ABBREVIATION

Term	Description
CDA	Clinical Document Architecture
CDR	Clinical Data Repository
eHR	Electronic Health 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

4.3 NOTATION

Value	Description
“quoted”	Fixed Value
#	HL7 Mandatory Field
✓	Required HL7 Segment
0..1	Zero to One occurrence
1..1	Exact One occurrence
0..*	Zero to Many occurrence
1..*	One to Many occurrence
N/A	Not Applicable
S1 - S99	Scenario numbering
RP/#	Repeatable Indicator [Y:Yes N: No] of HL7 element
TBL#	HL7 Table Reference Number
[]	Optional
{ }	Repeatable
YYYY	Year
MM	Month

Value	Description
DD	Day
hh	Hour (24-Hour)
mm	Minute
ss	Second
.sss	Millisecond

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), 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 CDA release 2.0 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 only. 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 subsequent 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 report.

7. Data Upload Requirements

7.1 Types of File Upload Mode

There are three types of file upload 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.
3. **Re-materialisation mode** is the format for HCP to clear the clinical data uploaded in eHR. It is required to upload the re-materialisation message before HCP next materialisation message for same HCR.

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

	HCR information	Clinical Data	Schedule
Incremental Mode	Required	Required	Within agreed period
Materialisation Mode	Required	Required	Within agreed period
Re-materialisation Mode	Required	Not required	

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.

8 MESSAGE FORMAT OVERVIEW

8.1 DATA COMPONENTS FOR HL7-HK MESSAGE STANDARDS

According to HL7-HK Message Standards, there are three major components used to carry the clinical information related to the Laboratory Result (General Result) records when transferring data from healthcare providers to eHR. The three 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
- Clinical Document Architecture (CDA) Document
- XML 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.

HL7 version 2.5 ORU will be described in detail in Section 8 *HL7 v2.5 Unsolicited Observation Message* and Clinical Document Architecture will be described in Section 9 *CDA Document*.

8.2 OVERVIEW OF UNSOLICITED OBSERVATION MESSAGE

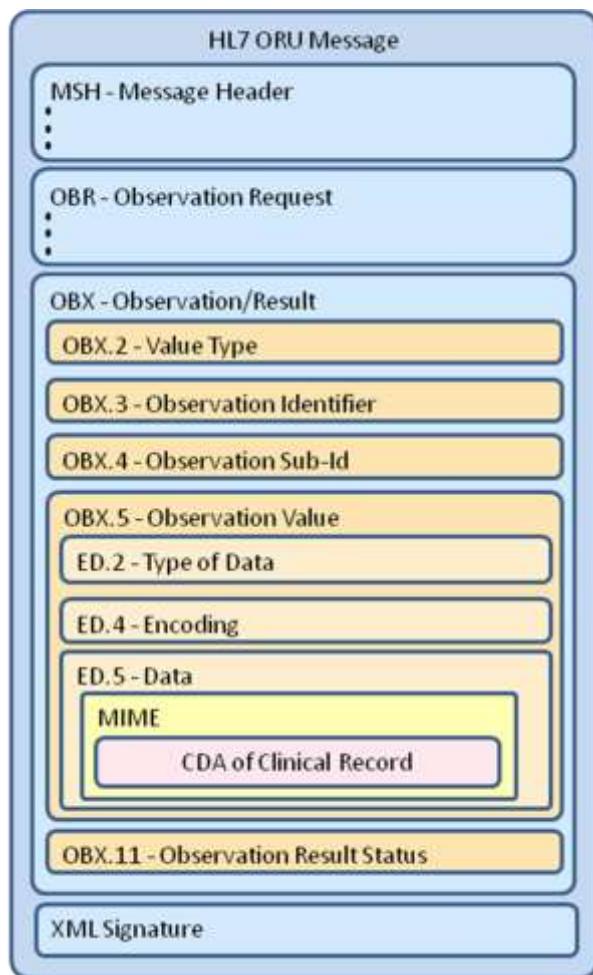


Figure 1- *HL7 v2.5 Unsolicited Observation Message for Laboratory Result (General Result) Record Transfer*

Figure 1 describes the overview structure of the Laboratory Result (General Result) record HL7 v2.5 ORU Message. In order to exchange a Laboratory Result (General Result) record, data mapping in the HL7 v2.5 Unsolicited Observation Message has to be complied.

And for the clinical information, the CDA and document reports (e.g. PDF), if any, are first Base64-encoded and embedded in MIME format, and then mapped to OBX.5 - ED.5 of ORU Message. In the following section, CDA will be explained in detail.

XML digital signature must be applied in eHR message communication. Since XML Signature is not the element in the schema of HL7 v2.5 ORU Message, it should be applied and located in the last section of the message. The components and example of XML signature are explained in *Section 8.5 - XML Digital Signature on HL7*.

(Please refer to ‘eHR Data Interoperability Standards’ in eHealth Record Office website for further elaboration.)

9 HL7 V2.5 UNSOLICITED OBSERVATION MESSAGE

9.1 HL7 MESSAGE

In eHR environment, HL7 v2.5 message in XML format and CDA release 2.0 will be used for message interchange. An HL7 message is composed of ‘Message Type’, ‘Message Event’ and ‘Message Structure’. Message Type identifies the business purpose of a message. ‘Message Event’ is a unique identifier to the context in which message is generated. And, ‘Message Structure’ is a data structure used to express an association of a message type with an event for a class of messages.

For eHR Laboratory Result (General Result) Record exchange, the following message event will be applied:

Message Type	ORU (Unsolicited Observation Message)
Message Event	R01
Message Structure	ORU_R01
Usage	To carry structured HCR-oriented clinical data from local EMR system to eHR.

CDA is used to contain most of the data elements required in ‘Laboratory Result (General Result)’ domain. Then, the CDA containing structured data and the document image in PDF format can be attached in the HL7 V2.5 messages for data exchange.

9.2 ORU - UNSOLICITED OBSERVATION MESSAGE (EVENT R01)

The ORU message is for transmitting Laboratory Result (General Result) record from healthcare provider to eHR. Under HL7-HK Message Standards, clinical data, clinical images and transaction data are embedded in the three segments of the ORU Message. They are: Message Header (MSH), Observation Request (OBR) and Observation/Result (OBX). In the following sections, the message structure of ORU Message and the data mapping of ORU message among clinical and functional information will be shown.

9.3 MESSAGE STRUCTURE OF UNSOLICITED OBSERVATION MESSAGE

<u>Required eHR Segment</u>	<u>ORU^R01^ORU_R01</u>	<u>ORU Message</u>	<u>Chapter in HL7 Specification</u>
✓	MSH	Message Header	2
	[{ SFT }]	Software Segment	2
	{	--- PATIENT_RESULT begin	
	[--- PATIENT begin	
	PID	Patient Identification	3

[PD1]	Additional Demographics	3
[{NTE}]	Notes and Comments	2
[{NK1}]	Next of Kin/Associated Parties	3
[--- VISIT begin	
PV1	Patient Visit	3
[PV2]	Patient Visit – Additional Info	3
]	--- VISIT end	
]	--- PATIENT end	
{	--- ORDER_OBSERVATION begin	
[ORC]	Order common	4
✓ OBR	Observations Request	7
{[NTE]}	Notes and comments	2
{ {	--- TIMING_QTY begin	
TQ1	Timing/Quantity	4
[{TQ2}]	Timing/Quantity Order Sequence	4
}]	--- TIMING_QTY end	
[CTD]	Contact Data	11
{ {	--- OBSERVATION begin	
OBX	Observation related to OBR	7
{[NTE]}	Notes and comments	2
}]	--- OBSERVATION end	
[{FT1}]	Financial Transaction	6
{[CTI]}	Clinical Trial Identification	7
{ {	--- SPECIMEN begin	
SPM	Specimen	
✓ [{OBX}]	Observation related to Specimen	
}]	--- SPECIMEN end	
}	--- ORDER_OBSERVATION end	
}	--- PATIENT_RESULT end	
[DSC]	Continuation Pointer	2
✓ [Signature]	XML Digital Signature	

9.4 DATA MAPPING IN UNSOLICITED OBSERVATION MESSAGE

In order to exchange Laboratory Result (General Result) record, data mapping in the HL7 v2.5 Unsolicited Observation Message has to be complied.

9.4.1 MSH - Message Header

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

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Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
#<MSH.7> <TS.1>	26	TS			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
#<MSH.9> <MSG.1>	15	MSG			Message Type Message Type	“ORU”	Fixed value
<MSG.2>					Trigger Event	“R01”	Fixed value
<MSG.3>					Message Structure	“ORU_R01”	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”	<ul style="list-style-type: none"> • 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	

Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
<MSH .15>	2	ID		0155	Accept Acknowledgment Type	“NE”	<ul style="list-style-type: none"> • 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	
<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	

9.4.2 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>	250	CE			Universal Service Identifier Identifier	“LABGEN”	Fixed value
<CE.1>							

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Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
<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	
<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	

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Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
<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	
<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	

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Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
<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	
<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	

Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
<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	

9.4.3 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	“ED”	<ul style="list-style-type: none"> • Fixed value • This field defines the datatype of OBX.5 ED: Encapsulated Data
#<OBX.3> <CE.1>	250	CE			Observation Identifier Identifier	“LABGEN”	Fixed value

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Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
<OBX.4>	20	ST			Observation Sub-Id	e.g. NBL	<p>Possible value of data upload format: NBL: Non-Bulk load; NBL-M: Non-Bulk load for materialisation; NBL-R: Non-Bulk load for re-materialisation</p> <p><i>Remarks:</i> Materialisation - HCP upload a HCR's specific sharable dataset that exists in EMR.</p>
<OBX.5>	99999	Varies	Y		Observation Value Type of Data	“multipart”	Fixed value
<ED.2>					Encoding	“A”	Fixed value A: ASCII text
<ED.4>					Data	MIME package	Encapsulated data values of embedded CDA and image file
<ED.5>							
<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	

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Tag	Len	HL7 Data Type	RP/#	TBL#	Element Name	Fields	Remarks
<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
<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	

9.5 XML DIGITAL SIGNATURE ON HL7

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 <i>(Please refer to “XML Signature Syntax and Processing (Second Edition)” provided by W3C Recommendation 10 June 2008)</i>
			@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 ”

Technical Interface Specification for eHR Laboratory Result (General Result) Record

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: “” (<i>Empty String</i>). 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

Technical Interface Specification for eHR Laboratory Result (General Result) Record

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 <i>(Please refer to the content of X509Data in “XML Signature Syntax and Processing (Second Edition)” provided by W3C Recommendation 10 June 2008)</i>

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>xxxxxx</DigestValue>
      </Reference>
    </SignedInfo>
    <SignatureValue>xxxxxxxxxxxx</SignatureValue>
    <KeyInfo>
      <X509Data>
        <X509SubjectName>xxxxxx</X509SubjectName>
        <X509Certificate>xxxxxxxxxxxx</X509Certificate>
      </X509Data>
    </KeyInfo>
  </Signature>
</ORU_R01>
```

**XML Digital
Signature**

10 CDA DOCUMENT

The HL7 Clinical Document Architecture (CDA) is a document mark-up standard that specifies the structure and semantics of "clinical documents" for the purpose of exchanging clinical information. It can be exchanged as a Multipurpose Internet Mail Extensions (MIME, RFC 2046) package, encoded as an encapsulated data type (ED). For the preparation of encoded MIME, please refer to Section 11 – *Preparation of Message for Data Transfer*.

10.1 CDA DOCUMENT STRUCTURE OVERVIEW

Under HL7-HK Message Standards, two types of information will be included in CDA document, which are:

- CDA General Information
- Clinical Information related to HCR Identity Information, Healthcare Provider Information and Laboratory Result (General Result) Data

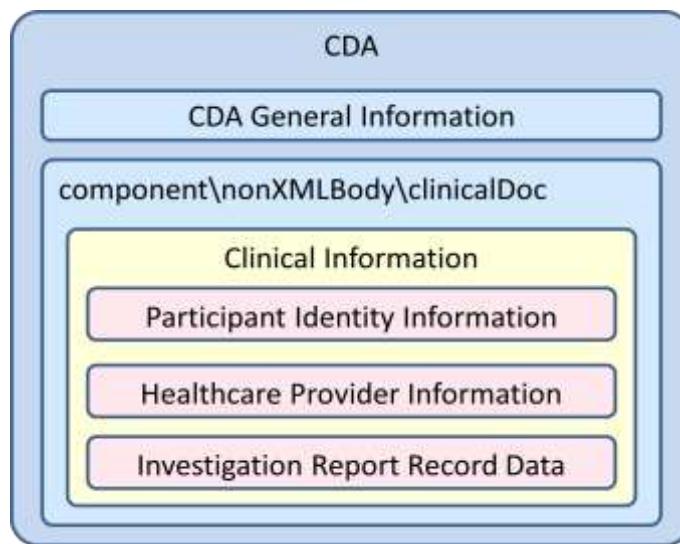


Figure 2 – *Overview of CDA for Laboratory Result (General Result) Record*

Clinical data of subject domain will be wrapped by the <nonXMLBody> element within the <component> element. In the *Section 9.4 - CDA Document Skeleton* will introduce the structure and contents required in Laboratory Result (General Result) Record.

10.2 LABGEN DATASET

Laboratory Result (General Result) record may be constituted of laboratory test request data, more than one laboratory test general result data and more than one laboratory test result report data. Each laboratory result record will have a unique record number.

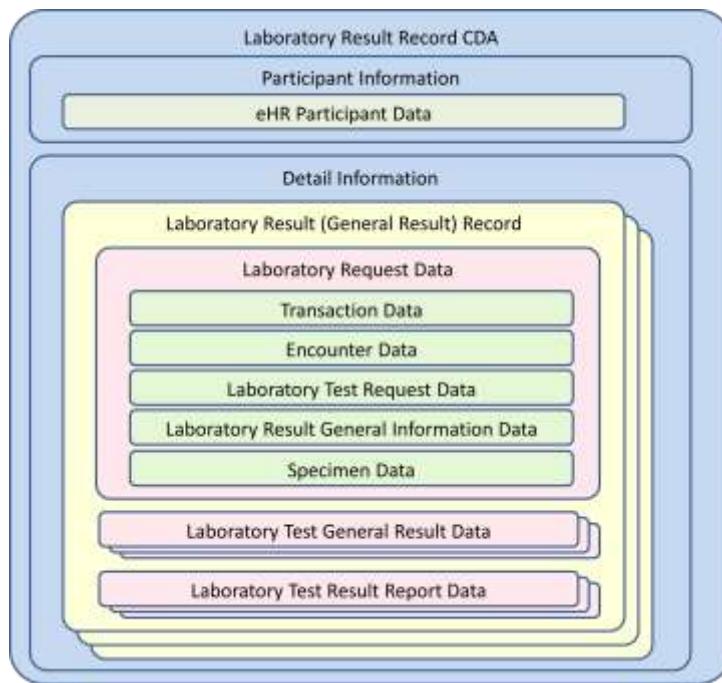


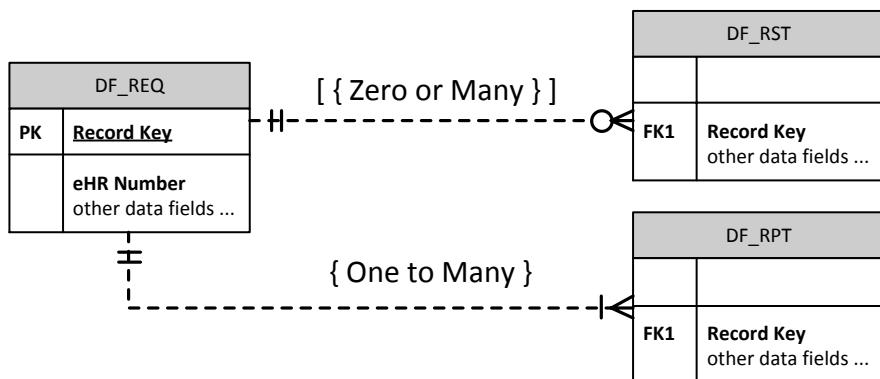
Figure 3- Overview of Laboratory Test General Result CDA

Final laboratory general result record and final amended laboratory general result record will be accepted by eHR. These two kinds of result records belonging to the same laboratory request (record number) may be uploaded together to eHR within a single ORU HL7 Message in the OBX.5 segment. HL7 v2.5 Unsolicited Observation Message for Laboratory Result (General Result) Record Transfer for the message structure.

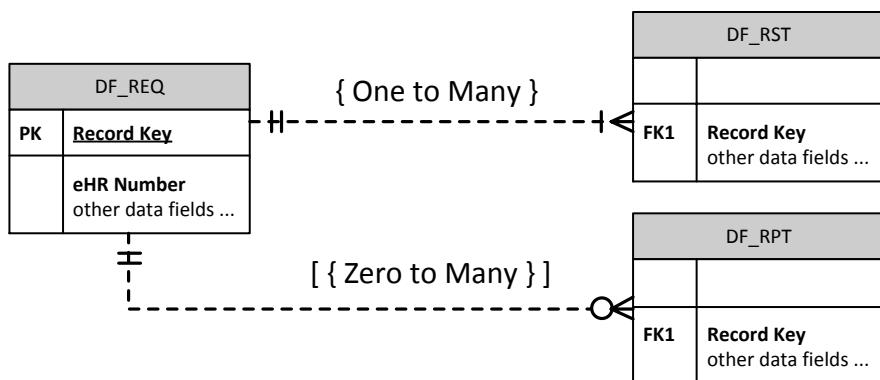
10.3 LABGEN INTERFACE RELATIONSHIP DIAGRAMS

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 (laboratory request data), DF_RST (laboratory test general result data) and DF_RPT (laboratory report data). And data field “eHR Number” is used as the key to cross-reference HCR list PL and data file DF_REQ.

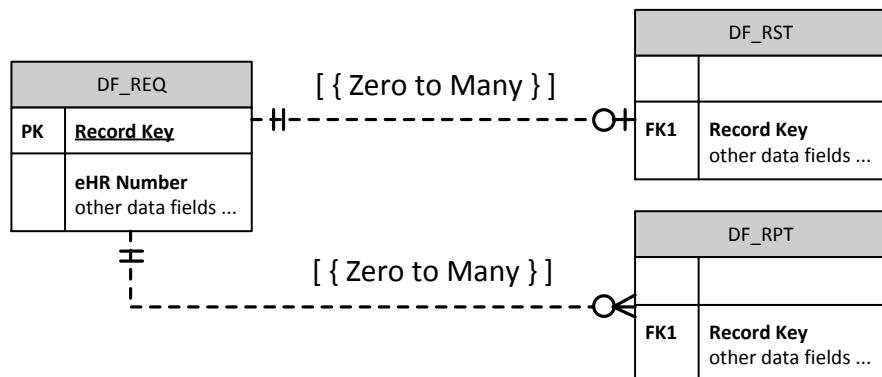
Interface Relationship Diagram on “New (S1)” / “Update (S2)” LABGEN records in Data Compliance Level 1



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



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



10.4 CDA DOCUMENT SKELETON

CDA Document Skeleton of LABGEN for “New (S1) / Update (S2)” in Data Compliance Level 1

```
<?xml version="1.0" encoding="UTF-8"?>
<ClinicalDocument xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd" xmlns="urn:hl7-org:v3"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <!--
  ****
  CDA Header
  ****
  -->
  <typeId root="2.16.840.1.113883.1.3" extension="POCD_HD000040"/>
  <id/>
  <code code="LABGEN"/>
  <title>Laboratory General Result</title>
  <effectiveTime/>
  <confidentialityCode/>
  <recordTarget>
    <patientRole>
      <id/>
    </patientRole>
  </recordTarget>
  <author>
    <time/>
    <assignedAuthor>
      <id/>
    </assignedAuthor>
  </author>
  <custodian>
    <assignedCustodian>
      <representedCustodianOrganization>
        <id/>
      </representedCustodianOrganization>
    </assignedCustodian>
  </custodian>
  <!--
  ****
  Clinical Information
  ****
  -->
  <component>
    <nonXMLBody>
      <clinicalDoc>
        <participant>
          <ehr_no/>
          <hkid/>
          <doc_type/>
          <doc_no/>
          <person_eng_surname/>
          <person_eng_given_name/>
          <person_eng_full_name/>
          <sex/>
          <birth_date/>
        </participant>
        <detail>
          <lab_req_data>
            <record_key/>
            <transaction_dtm/>
            <transaction_type/>
            <last_update_dtm/>
            <episode_no/>
            <attendance_inst_id/>
            <request_no/>
            <order_no/>
        </detail>
      </clinicalDoc>
    </nonXMLBody>
  </component>

```

```
<lab_category_cd/>
<lab_category_desc/>
<lab_category_lt_desc/>
<report_reference_dtm/>
<file_ind/>
</lab_req_data>
<lab_report_data>
<record_key/>
<report_status_cd/>
<report_status_desc/>
<report_status_lt_desc/>
<report_dtm/>
<file_name/>
<report_text/>
</lab_report_data>
</detail>
</clinicalDoc>
<text/>
</nonXMLBody>
</component>
</ClinicalDocument>
```

CDA Document Skeleton of LABGEN for “New (S1) / Update (S2)” in Data Compliance Level 2

```
<?xml version="1.0" encoding="UTF-8"?>
<ClinicalDocument xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd" xmlns="urn:hl7-org:v3"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<!--
*****
CDA Header
*****
-->
<typeId root="2.16.840.1.113883.1.3" extension="POCD_HD000040"/>
<id/>
<code code="LABGEN"/>
<title>Laboratory General Result</title>
<effectiveTime/>
<confidentialityCode/>
<recordTarget>
<patientRole>
<id/>
</patientRole>
</recordTarget>
<author>
<time/>
<assignedAuthor>
<id/>
</assignedAuthor>
</author>
<custodian>
<assignedCustodian>
<representedCustodianOrganization>
<id/>
</representedCustodianOrganization>
</assignedCustodian>
</custodian>
<!--
*****
Clinical Information
*****
-->
<component>
<nonXMLBody>
<clinicalDoc>
<participant>
<ehr_no/>
```

```
<hkid/>
<doc_type/>
<doc_no/>
<person_eng_surname/>
<person_eng_given_name/>
<person_eng_full_name/>
<sex/>
<birth_date/>
</participant>
<detail>
<lab_req_data>
<record_key/>
<transaction_dtm/>
<transaction_type/>
<last_update_dtm/>
<episode_no/>
<attendance_inst_id/>
<request_no/>
<request_doctor/>
<request_participant_inst_id/>
<request_participant_inst_name/>
<request_participant_inst_lt_desc/>
<order_no/>
<lab_category_cd/>
<lab_category_desc/>
<lab_category_lt_desc/>
<perform_lab_name/>
<report_reference_dtm/>
<clinical_info/>
<lab_report_comment/>
<specimen_type_rt_name/>
<specimen_type_rt_id/>
<specimen_type_rt_desc/>
<specimen_type_lt_id/>
<specimen_type_lt_desc/>
<specimen_arrival_dtm/>
<specimen_collect_dtm/>
<specimen_details/>
<file_ind/>
<record_creation_dtm/>
<record_creation_inst_id/>
<record_creation_inst_name/>
<record_update_dtm/>
<record_update_inst_id/>
<record_update_inst_name/>
</lab_req_data>
<labgen_result_data>
<record_key/>
<test_lt_id/>
<test_lt_desc/>
<result_type/>
<numeric_result/>
<reportable_result/>
<enumerated_result/>
<text_result/>
<result_note/>
<result_unit/>
<reference_range/>
<detection_limit_ind_cd/>
<detection_limit_ind_desc/>
<detection_limit_ind_lt_desc/>
<abnormal_ind_cd/>
<abnormal_ind_desc/>
<abnormal_ind_lt_desc/>
<panel_lt_cd/>
<panel_lt_desc/>
<report_auth_dtm/>
```

```
<report_auth_staff_eng_name/>
<report_auth_staff_eng_given_name/> <!--Retained for backward compatibility to v1.0.1-->
<report_auth_staff_chi_name/>
</labgen_result_data>
<lab_report_data>
<record_key/>
<report_status_cd/>
<report_status_desc/>
<report_status_lt_desc/>
<report_dtm/>
<file_name/>
<report_text/>
</lab_report_data>
</detail>
</clinicalDoc>
<text/>
</nonXMLBody>
</component>
</ClinicalDocument>
```

CDA Document Skeleton of LABGEN for “New (S1) / Update (S2)” in Data Compliance Level 3

```
<?xml version="1.0" encoding="UTF-8"?>
<ClinicalDocument xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd" xmlns="urn:hl7-org:v3"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<!--
*****
CDA Header
*****
-->
<typeId root="2.16.840.1.113883.1.3" extension="POCD_HD000040"/>
<id/>
<code code="LABGEN"/>
<title>Laboratory General Result</title>
<effectiveTime/>
<confidentialityCode/>
<recordTarget>
<patientRole>
<id/>
</patientRole>
</recordTarget>
<author>
<time/>
<assignedAuthor>
<id/>
</assignedAuthor>
</author>
<custodian>
<assignedCustodian>
<representedCustodianOrganization>
<id/>
</representedCustodianOrganization>
</assignedCustodian>
</custodian>
<!--
*****
Clinical Information
*****
-->
<component>
<nonXMLBody>
<clinicalDoc>
<participant>
<ehr_no/>
<hkid/>
<doc_type/>
```

```
<doc_no/>
<person_eng_surname/>
<person_eng_given_name/>
<person_eng_full_name/>
<sex/>
<birth_date/>
</participant>
<detail>
<lab_req_data>
<record_key/>
<transaction_dtm/>
<transaction_type/>
<last_update_dtm/>
<episode_no/>
<attendance_inst_id/>
<request_no/>
<request_doctor/>
<request_participant_inst_id/>
<request_participant_inst_name/>
<request_participant_inst_lt_desc/>
<order_no/>
<lab_category_cd/>
<lab_category_desc/>
<lab_category_lt_desc/>
<perform_lab_name/>
<report_reference_dtm/>
<clinical_info/>
<lab_report_comment/>
<specimen_type_rt_name/>
<specimen_type_rt_id/>
<specimen_type_rt_desc/>
<specimen_type_lt_id/>
<specimen_type_lt_desc/>
<specimen_arrival_dtm/>
<specimen_collect_dtm/>
<specimen_details/>
<file_ind/>
<record_creation_dtm/>
<record_creation_inst_id/>
<record_creation_inst_name/>
<record_update_dtm/>
<record_update_inst_id/>
<record_update_inst_name/>
</lab_req_data>
<labgen_result_data>
<record_key/>
<test_rt_name/>
<test_rt_id/>
<test_rt_desc/>
<test_lt_id/>
<test_lt_desc/>
<result_type/>
<numeric_result/>
<reportable_result/>
<enumerated_result/>
<text_result/>
<result_note/>
<result_unit/>
<reference_range/>
<detection_limit_ind_cd/>
<detection_limit_ind_desc/>
<detection_limit_ind_lt_desc/>
<abnormal_ind_cd/>
<abnormal_ind_desc/>
<abnormal_ind_lt_desc/>
<panel_lt_cd/>
<panel_lt_desc/>
```

```
<report_auth_dtm/>
<report_auth_staff_id/> <!--Retained for backward compatibility to v1.0.1-->
<report_auth_staff_eng_name/>
<report_auth_staff_eng_given_name/> <!--Retained for backward compatibility to v1.0.1-->
<report_auth_staff_eng_name_prefix/> <!--Retained for backward compatibility to v1.0.1-->
<report_auth_staff_chi_name/>
<report_auth_staff_chi_name_suffix/> <!--Retained for backward compatibility to v1.0.1-->
</labgen_result_data>
<lab_report_data>
<record_key/>
<report_status_cd/>
<report_status_desc/>
<report_status_lt_desc/>
<report_dtm/>
<file_name/>
<report_text/>
</lab_report_data>
</detail>
</clinicalDoc>
<text/>
</nonXMLBody>
</component>
</ClinicalDocument>
```

CDA Document Skeleton of LABGEN for “Delete (S3)” in Data Compliance Level 1, 2 and 3

```
<?xml version="1.0" encoding="UTF-8"?>
<ClinicalDocument xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd" xmlns="urn:hl7-org:v3"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<!--
*****
CDA Header
*****
-->
<typeId root="2.16.840.1.113883.1.3" extension="POCD_HD000040"/>
<id/>
<code code="LABGEN"/>
<title>Laboratory General Result</title>
<effectiveTime />
<confidentialityCode/>
<recordTarget>
<patientRole>
<id/>
</patientRole>
</recordTarget>
<author>
<time/>
<assignedAuthor>
<id/>
</assignedAuthor>
</author>
<custodian>
<assignedCustodian>
<representedCustodianOrganization>
<id/>
</representedCustodianOrganization>
</assignedCustodian>
</custodian>
<!--
*****
Clinical Information
*****
-->
<component>
<nonXMLBody>
<clinicalDoc>
```

```
<participant>
<ehr_no/>
<hkid/>
<doc_type/>
<doc_no/>
<person_eng_surname/>
<person_eng_given_name/>
<person_eng_full_name/>
<sex/>
<birth_date/>
</participant>
<detail>
<lab_req_data>
<record_key/>
<transaction_dtm/>
<transaction_type/>
<last_update_dtm/>
<episode_no/>
<attendance_inst_id/>
</lab_req_data>
</detail>
</clinicalDoc>
<text/>
</nonXMLBody>
</component>
</ClinicalDocument>
```

10.5 DATA MAPPING IN CDA FOR HL7-HK MESSAGE STANDARDS

The CDA document is divided into two sections: ‘CDA General Information’ and ‘Clinical Information’. The data mapping of each CDA component will be described in following sections:

10.5.1 CDA General Information

A CDA document is wrapped by the <ClinicalDocument> element. Under HL7-HK Message Standards, same set of ‘CDA General Information’ of CDA is required for ALL Subject Domains. The following table shows the data requirements of CDA document requested by eHR. All the following tag elements and information are necessary to be present in the CDA.

No.	XML Tag	XPath	Attribute	Definition	Maximum Length	Cardinality	Remarks
1	ClinicalDocument	ClinicalDocument		A CDA document is wrapped by the <ClinicalDocument> element		1..1	
1.1			@xmlns	Message namespace	string(500)	1..1	Fixed value: xmlns="urn:hl7-org:v3"
1.2			@xmlns:xsi	XML schema instance namespace	string(500)	1..1	Fixed value: xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
1.3			@xsi:schemaLocation	Physical location of schema documents	string(500)	1..1	Fixed value: xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd"

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No.	XML Tag	XPath	Attribute	Definition	Maximum Length	Cardinality	Remarks
2	typeId	ClinicalDocument/typeId		A technology-neutral explicit reference to the CDA, Release 2 specification		1..1	
2.1			@root	The OID for HL7 Registered models	string(500)	1..1	Fixed value: “2.16.840.1.113883.1.3”
2.2			@extension	The unique identifier for the CDA, Release 2 Hierarchical description	string(255)	1..1	Fixed value: “POCD_HD000040”
3	id	ClinicalDocument/id		It represents the unique instance identifier (UID) of a clinical document		1..1	Leave the tag blank, i.e. <id/>. Please refer to Section 9.6 <i>Additional Mandatory Elements in CDA for HL7-HK Message Standards</i> .
4	code	ClinicalDocument/code		The code specifying the particular kind of document		1..1	
4.1			@code	The code specifying the particular kind of document	string(20)	1..1	Fixed value: “LABGEN”
5	title	ClinicalDocument/title			string(100)	1..1	Fixed value: “Laboratory General Result”

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No.	XML Tag	XPath	Attribute	Definition	Maximum Length	Cardinality	Remarks
<hr/>							
6	effectiveTime	ClinicalDocument/effectiveTime				1..1	Leave the tag blank, i.e. <effectiveTime />. Please refer to Section 9.6 Additional Mandatory Elements in CDA for HL7-HK Message Standards
<hr/>							
7	confidentialityCode	ClinicalDocument/confidentialityCode		Confidentiality of the clinical document		1..1	Leave the tag blank, i.e. <confidentialityCode/>. Please refer to Section 9.6 Additional Mandatory Elements in CDA for HL7-HK Message Standards.
<hr/>							
8	recordTarget	ClinicalDocument/recordTarget		The recordTarget represents the medical record that this document belongs to		1..1	Please refer to Section 9.6 Additional Mandatory Elements in CDA for HL7-HK Message Standards.
<hr/>							
9	patientRole	ClinicalDocument/recordTarget/patientRole		A recordTarget is represented as a relationship between a person and an organisation, where the person is in a patient role		1..1	Please refer to Section 9.6 Additional Mandatory Elements in CDA for HL7-HK Message Standards.
<hr/>							
10	id	ClinicalDocument/recordTarget/patientRole/id		Unique identifier of the patient role		1..1	Leave the tag blank, i.e. <id/>. Please refer to Section 9.6 Additional Mandatory Elements in CDA for HL7-HK Message Standards.

Technical Interface Specification for eHR Laboratory Result (General Result) Record

No.	XML Tag	XPath	Attribute	Definition	Maximum Length	Cardinality	Remarks
<hr/>							
11	author	ClinicalDocument/author		It represents the humans and/or machines that authored the document		1..1	Please refer to Section 9.6 Additional Mandatory Elements in CDA for HL7-HK Message Standards.
12	time	ClinicalDocument/author/time		It represents the day and time of the authoring of the original content		1..1	Leave the tag blank, i.e. <time/>. Please refer to Section 9.6 Additional Mandatory Elements in CDA for HL7-HK Message Standards.
13	assignedAuthor	ClinicalDocument/author/assignedAuthor		An author is a person in the role of an assigned author		1..1	Please refer to Section 9.6 Additional Mandatory Elements in CDA for HL7-HK Message Standards.
14	id	ClinicalDocument/author/assignedAuthor/id		Unique identifier of the assigned author		1..1	Leave the tag blank, i.e. <id/>. Please refer to Section 9.6 Additional Mandatory Elements in CDA for HL7-HK Message Standards.
<hr/>							
15	custodian	ClinicalDocument/custodian		The custodian is the steward that is entrusted with the care of the document		1..1	Please refer to Section 9.6 Additional Mandatory Elements in CDA for HL7-HK Message Standards.
16	assignedCustodian	ClinicalDocument/custodian/assignedCustodian		A custodian is a scoping organisation in the role of an assigned custodian. The steward organisation is an entity scoping the role of AssignedCustodian.		1..1	Please refer to Section 9.6 Additional Mandatory Elements in CDA for HL7-HK Message Standards.

Technical Interface Specification for eHR Laboratory Result (General Result) Record

No.	XML Tag	XPath	Attribute	Definition	Maximum Length	Cardinality	Remarks
17	representedCustodianOrganization	ClinicalDocument/custodian/assignedCustodian/representedCustodianOrganization		It is the represented custodian organisation that is entrusted with the care of the document.		1..1	Please refer to Section 9.6 <i>Additional Mandatory Elements in CDA for HL7-HK Message Standards</i> .
18	id	ClinicalDocument/custodian/assignedCustodian/representedCustodianOrganization/id		Unique identifier of represented custodian organisation		1..1	Leave the tag blank, i.e. <id/>. Please refer to Section 9.6 <i>Additional Mandatory Elements in CDA for HL7-HK Message Standards</i> .
19	text	ClinicalDocument/component/nonXMLElement/text		It is used to reference data that is stored externally to the CDA document or to encode the data directly inline		1..1	Leave the tag blank, i.e. <text/>. Please refer to Section 9.6 <i>Additional Mandatory Elements in CDA for HL7-HK Message Standards</i> .

10.5.2 Clinical Information

In general, the clinical information can be divided into two sections: ‘HCR’ and ‘Detail’.

In the ‘HCR’ section, information includes:

- HCR Identity Data

In the ‘Detail’ section, clinical information of the subject domain will be included:

- Transaction Data
- Laboratory Request and General Information Data
- Laboratory General Result Data
- Laboratory Report Data
- Record Creation and Update Data

It is assumed that only three scenarios will trigger the transfer of Laboratory Result (General Result) data. They are:

- Uploading a new Laboratory General Result Record (S1)
- Overriding an existing Laboratory General Result Record (S2)
- Deletion of existing Laboratory General Result Record (S3)

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

Technical Interface Specification for eHR Laboratory Result (General Result) Record

The data mappings of elements in ‘Header’ and ‘Body’ sections will be described as below:

<HCR> Section

No.	Data Field	XML Tag	XPath (prefix:ClinicalDocument/component/nonXMLElementTail/clinicalDoc/)	Maximum Length	Cardinality			Remarks
					S1 (New)	S2 (Override)	S3 (Delete)	
1 “HCR Identity Data” Related Tags								
1.1	eHR number	ehr_no	participant/ehr_no	string(12)	1..1			Fixed length
1.2	HKIC number	hkid	participant/hkid	string(12)	0..1 if [Identity document number] is given 1..1 if [Identity document number] is blank			
1.3	Type of identity document	doc_type	participant/doc_type	string(6)	0..1 if [Identity document number] is blank 1..1 if [Identity document number] is given			Refer to the code set of “Type of identity document” in eHR Office website
1.4	Identity document number	doc_no	participant/doc_no	string(30)	0..1 if [HKIC number] is given 1..1 if [HKIC number] is blank			
1.5	English surname	person_eng_surname	participant/person_eng_surname	string(40)	0..1 if [English full name] is not blank 1..1 if [English full name] is blank			
1.6	English given name	person_eng_given_name	participant/person_eng_given_name	string(40)	0..1 if [English full name] is not blank 1..1 if [English full name] is blank			

Technical Interface Specification for eHR Laboratory Result (General Result) Record

No.	Data Field	XML Tag	XPath (prefix:ClinicalDocument/component/nonXMLElement/c clinicalDoc/)	Maximum Length	Cardinality			Remarks
					S1 (New)	S2 (Override)	S3 (Delete)	
1.7	English full name	person_eng_full_name	participant/person_eng_full_name	string(100)	0..1 if [English surname] and [English given name] are not blank 1..1 if [English surname] and [English given name] are blank <i>* If patient has either English surname or given name stored in local EMR system, full name should be filled.</i>			Format: [Surname]+[,]+ 1 white space +[Given Name] e.g. CHAN, TAI MAN
1.8	Sex	sex	participant/sex	string(1)	1..1			Refer to the code set of “Sex” in eHR Office website
1.9	Date of birth	birth_date	participant/birth_date	string(23)	1..1			In format: YYYY-MM-DD hh:mm:ss.sss If birth time cannot be provided, the time should be in fixed value “00:00:00.000”. E.g. 2010-01-31 00:00:00.000 Remarks: • If date is exact to ‘Year’ (e.g.2010), the

Technical Interface Specification for eHR Laboratory Result (General Result) Record

No.	Data Field	XML Tag	XPath (prefix:ClinicalDocument/component/nonXMLElement/c clinicalDoc/)	Maximum Length	Cardinality			Remarks
					S1 (New)	S2 (Override)	S3 (Delete)	
								<p>unknown month and day is suggested to be set as '01-01' E.g. 2010-01-01 00:00:00.000</p> <ul style="list-style-type: none"> 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 00:00:00.000

<Detail> Section

The table below shows the data mapping of clinical information for Laboratory Result (General Result) Record shown in Section 9.4 *CDA Document Skeleton*. In general, there are three data compliance levels (Level 1, Level 2 and Level 3). The following table shows the clinical information of Laboratory Result (General Result) Record for compliance levels (Level 1, Level 2 and Level 3) in the three scenarios (S1, S2 and S3).

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
“Laboratory Test Request Data” Related Tags															
	Laboratory test request data	lab_req_data	detail/lab_req_data											Parent Tag	
1.1	Record key	record_key	detail/lab_req_data/record_key	string(50)											
1.2	Transaction datetime	transaction_dtm	detail/lab_req_data/transaction_dtm	string(23)										In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005	

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
1.3	Transaction type	transaction_type	detail/lab_req_data/transaction_type	string(1)							1..1			I : Insert operation U : Update operation D : Delete operation Remarks: <i>'U' and 'D' are not accepted in materialisation mode</i>	
1.4	Last update datetime	last_update_dtm	detail/lab_req_data/last_update_dtm	string(23)							1..1			In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005	
1.5	Episode number	episode_no	detail/lab_req_data/episode_no	string(20)							0..1				
1.6	Attendance institution identifier	attendance_institution_id	detail/lab_req_data/attendance_inst_id	string(10)							0..1			Fixed length	
1.7	Laboratory test request number	request_no	detail/lab_req_data/request_no	string(40)	1..1	N/A		1..1	N/A		1..1	N/A			

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
1.8	Laboratory test requesting doctor	request_doctor	detail/lab_req_data/request_doctor	string(100)	N/A	N/A	N/A	0..1	N/A	N/A	0..1	N/A	N/A		
1.9	Laboratory test request healthcare institution identifier	request_participant_inst_id	detail/lab_req_data/request_participant_inst_id	string(10)	0..1	N/A	N/A	0..1	N/A	N/A	0..1	N/A	N/A		
1.10	Laboratory test request healthcare institution long name	request_participant_inst_name	detail/lab_req_data/request_participant_inst_name	string(255)	0..1	N/A	N/A	0..1	N/A	N/A	0..1	N/A	N/A		
1.11	Laboratory test request healthcare institution local name	request_participant_inst_lt_desc	detail/lab_req_data/request_participant_inst_lt_desc	string(255)	1..1	N/A	N/A	1..1	N/A	N/A	1..1	N/A	N/A		

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
1.12	Laboratory test order number	order_no	detail/lab_req_data/order_no	string(40)	0..1	0..1	0..1	0..1	0..1	0..1	0..1	0..1	0..1	If this laboratory request is referred by other HCP, please follow the convention : Referring HCP ID:Referral document reference number e.g 8088450656:12345678900000000306	
1.13	Laboratory category code	lab_category_cd	detail/lab_req_data/lab_category_cd	string(10)	1..1	N/A	1..1	N/A	1..1	N/A	1..1	N/A	N/A		
1.14	Laboratory category description	lab_category_desc	detail/lab_req_data/lab_category_desc	string(255)	1..1	N/A	1..1	N/A	1..1	N/A	1..1	N/A	N/A		
1.15	Laboratory category local description	lab_category_lt_desc	detail/lab_req_data/lab_category_lt_desc	string(255)	1..1	N/A	1..1	N/A	1..1	N/A	1..1	N/A	N/A		

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
1.16	Laboratory test request performing laboratory name	perform_lab_name	detail/lab_req_data/perform_lab_name	string(100)	1..1	N/A		1..1	N/A		1..1	N/A			
1.17	Laboratory report reference datetime	report_reference_dtm	detail/lab_req_data/report_reference_dtm	string(23)	1..1	N/A		1..1	N/A		1..1	N/A	In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005		
1.18	Laboratory test request clinical information	clinical_info	detail/lab_req_data /clinical_info	string(2000)	N/A	N/A		0..1	N/A		0..1	N/A			
1.19	Laboratory report comment	lab_report_comment	detail/lab_req_data/lab_report_comment	string(2000)	0..1	N/A	0..1 if [Laboratory test reportable result] or [Laboratory test result note] is not blank 1..0 if [Laboratory test reportable result] and [Laboratory test result note] are ALL blank	N/A	0..1 if [Laboratory test reportable result] or [Laboratory test result note] is not blank 1..0 if [Laboratory test reportable result] and [Laboratory test result note] are ALL blank	N/A	0..1 if [Laboratory test reportable result] or [Laboratory test result note] is not blank 1..0 if [Laboratory test reportable result] and [Laboratory test result note] are ALL blank	N/A			

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
1.20	Specimen type - recognised terminology name	specimen_ty pe_rt_name	detail/lab_req_d ata/specimen_ty pe_rt_name	string(20)	N/A	N/A	N/A	N/A	N/A	N/A	N/A if [Specimen Type Identifier - Recognised Terminology] is blank 1..1 if [Specimen Type Identifier - Recognised Terminology] is not blank	N/A	• HKCTT • SNOMED CT		
1.22	Specimen type identifier - recognised terminology	specimen_ty pe_rt_id	detail/lab_req_d ata/specimen_ty pe_rt_id	string(30)	N/A	N/A	N/A	N/A	N/A	0..1	N/A				
1.23	Specimen type description - recognised terminology	specimen_ty pe_rt_desc	detail/lab_req_d ata/specimen_ty pe_rt_desc	string(255)	N/A	N/A	N/A	N/A	N/A	N/A if [Specimen Type Identifier - Recognised Terminology] is blank 1..1 if [Specimen Type Identifier - Recognised Terminology] is not blank	N/A	For HKCTT, use “eHR Description” For SNOMED CT, use “Preferred Name”			

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
1.24	Specimen type local code	specimen_ty pe_lt_id	detail/lab_req_d ata/specimen_ty pe_lt_id	string(30)	N/A	N/A		0..1	N/A		0..1	N/A			
1.25	Specimen type local description	specimen_ty pe_lt_desc	detail/lab_req_d ata/specimen_ty pe_lt_desc	string(255)	N/A	N/A		0..1	N/A	N/A if [Specimen Type Identifier - Recognised Terminology] is blank 1..1 if [Specimen Type Identifier - Recognised Terminology] is not blank	N/A				
1.26	Specimen arrival datetime	specimen_ar rival_dtm	detail/lab_req_d ata/specimen_ar rival_dtm	string(23)	N/A	N/A		0..1	N/A		0..1	N/A	In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005		
1.27	Specimen collection datetime	specimen_co llect_dtm	detail/lab_req_d ata/specimen_co llect_dtm	string(23)	N/A	N/A		0..1	N/A		0..1	N/A	In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005		

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
1.28	Specimen details	specimen_de tails	detail/lab_req_d ata/specimen_de tails	string(255)	N/A	N/A	N/A	0..1	N/A	N/A	0..1	N/A	N/A		
1.29	File indicator	file_ind	detail/lab_req_d ata /file_ind	string(1)	1..1	N/A	N/A	1..1	N/A	N/A	1..1	N/A	N/A		
1.30	Record creation datetime	record_creati on_dtm	detail/lab_req_d ata/record_creati on_dtm	string(23)	0..1	N/A	N/A	0..1	N/A	N/A	0..1	N/A	In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005		
1.31	Record creation institution identifier	record_creati on_inst_id	detail/lab_req_d ata/record_creati on_inst_id	string(10)	0..1	N/A	N/A	0..1	N/A	N/A	0..1	N/A	Fixed length		
1.32	Record creation institution name	record_creati on_inst_nam e	detail/lab_req_d ata/record_creati on_inst_name	string(255)	0..1	N/A	N/A	0..1	N/A	N/A	0..1	N/A			
1.33	Record last update datetime	record_updat e_dtm	detail/lab_req_d ata/record_updat e_dtm	string(23)	0..1	N/A	N/A	0..1	N/A	N/A	0..1	N/A	In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005		

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
1.34	Record update institution identifier	record_update_inst_id	detail/lab_req_data/record_update_inst_id	string(10)	0..1	N/A		0..1	N/A		0..1	N/A		Fixed length	
1.35	Record update institution name	record_update_inst_name	detail/lab_req_data/record_update_inst_name	string(255)	0..1	N/A		0..1	N/A		0..1	N/A			
“Laboratory Test General Result Data” Related Tags															
	Laboratory test general result data	labgen_result_data	detail/labgen_result_data		N/A	N/A		1..*	N/A		1..*	N/A		Parent Tag	
2.1	Record key	record_key	detail/labgen_result_data/record_key	string(50)	N/A	N/A		1..1	N/A		1..1	N/A		The key to cross-reference laboratory test request data	
2.2	Laboratory test name - recognised terminology name	test_rt_name	detail/labgen_result_data/test_rt_name	string(20)	N/A	N/A		N/A			1..1	N/A		• HKCTT • LOINC	

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
2.3	Laboratory test name identifier - recognised terminology	test_rt_id	detail/labgen_result_data/test_rt_id	string(50)	N/A	N/A	N/A	N/A	N/A	N/A	1..1	N/A			
2.4	Laboratory test name description - recognised terminology	test_rt_desc	detail/labgen_result_data/test_rt_desc	string(255)	N/A	N/A	N/A	N/A	N/A	N/A	1..1	N/A	For HKCTT, use “eHR Description” For LOINC, use “Long Common Name”		
2.5	Laboratory test name local code	test_lt_id	detail/labgen_result_data/test_lt_id	string(50)	N/A	N/A	0..1	N/A	N/A	N/A	0..1	N/A			
2.6	Laboratory test name local description	test_lt_desc	detail/labgen_result_data/test_lt_desc	string(255)	N/A	N/A	1..1	N/A	N/A	N/A	1..1	N/A			
2.7	Laboratory Test Result Type	result_type	detail/labgen_result_data/result_type	string(2)	N/A	N/A	1..1	N/A	N/A	N/A	1..1	N/A			

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
2.8	Laboratory test numeric result	numeric_result	detail/labgen_result_data/numeric_result	string(16)	N/A	N/A	0..1	N/A	0..1	N/A					

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
2.9	Laboratory test reportable result	reportable_result	detail/labgen_result_data/reportable_result	string(255)	N/A	N/A		1..1 if [Laboratory test result note] and [Laboratory report comment] are ALL blank		N/A	1..1 if [Laboratory test result note] and [Laboratory report comment] are ALL blank		N/A	If [Laboratory test text result] is provided, the first 255 character should be copied to [Laboratory test reportable result]	
								1..1 if [Laboratory test numeric result] or [Laboratory test enumerated result] or [Laboratory test text result] is not blank			1..1 if [Laboratory test numeric result] or [Laboratory test enumerated result] or [Laboratory test text result] is not blank				
								0..1 if [Laboratory test result note] or [Laboratory report comment] is not blank			0..1 if [Laboratory test result note] or [Laboratory report comment] is not blank				
								0..1 if [Laboratory test numeric result] and [Laboratory test enumerated result] and [Laboratory test text result] are ALL blank			0..1 if [Laboratory test numeric result] and [Laboratory test enumerated result] and [Laboratory test text result] are ALL blank				

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/component/nonXMLEBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
2.10	Laboratory test enumerated result	enumerated_result	detail/labgen_result_data/enumerated_result	string(80)	N/A	N/A	N/A	0..1	N/A	N/A	0..1	N/A	N/A		
2.11	Laboratory test text result	text_result	detail/labgen_result_data/text_result	string(32768)	N/A	N/A	N/A	0..1	N/A	N/A	0..1	N/A	N/A		
2.12	Laboratory test result note	result_note	detail/labgen_result_data/result_note	string(2000)	N/A	N/A	N/A	0..1 if [Laboratory test reportable result] or [Laboratory report comment] is not blank 1..1 if [Laboratory test reportable result] and [Laboratory report comment] are ALL blank	N/A	N/A	0..1 if [Laboratory test reportable result] or [Laboratory report comment] is not blank 1..1 if [Laboratory test reportable result] and [Laboratory report comment] are ALL blank	N/A	N/A		
2.13	Laboratory test result unit	result_unit	detail/labgen_result_data/result_unit	string(50)	N/A	N/A	N/A	0..1	N/A	N/A	0..1	N/A	N/A		
2.14	Laboratory test reference range	reference_range	detail/labgen_result_data/reference_range	string(2000)	N/A	N/A	N/A	0..1	N/A	N/A	0..1	N/A	N/A		

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
2.15	Detection limit indicator code	detection_limit_ind_cd	detail/labgen_result_data/detection_limit_ind_cd	string(5)	N/A	N/A	N/A	0..1	N/A	N/A	0..1	N/A	N/A	Refer to the code set of “Detection limit indicator” in eHR Office website	
2.16	Detection limit indicator description	detection_limit_ind_desc	detail/labgen_result_data/detection_limit_ind_desc	string(255)	N/A	N/A	N/A	0..1	N/A	N/A	0..1	N/A	N/A		
2.17	Detection limit indicator local description	detection_limit_ind_lt_desc	detail/labgen_result_data/detection_limit_ind_lt_desc	string(255)	N/A	N/A	N/A	0..1	N/A	N/A	0..1	N/A	N/A		
2.18	Abnormal result indicator code	abnormal_in_d_cd	detail/labgen_result_data/abnormal_ind_cd	string(5)	N/A	N/A	N/A	0..1	N/A	N/A	0..1	N/A	N/A	Refer to the code set of “Abnormal result indicator” in eHR Office website	
2.19	Abnormal result indicator description	abnormal_in_d_desc	detail/labgen_result_data/abnormal_ind_desc	string(255)	N/A	N/A	N/A	0..1	N/A	N/A	0..1	N/A	N/A		

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
2.20	Abnormal result indicator local description	abnormal_in_d_lt_desc	detail/labgen_result_data/abnormal_ind_lt_desc	string(255)	N/A	N/A	N/A	0..1	N/A	N/A	0..1	N/A	N/A		
2.21	Panel local code	panel_lt_cd	detail/labgen_result_data/panel_lt_cd	string(50)	0..1	N/A	N/A	0..1	N/A	N/A	0..1	N/A	N/A		
2.22	Panel local description	panel_lt_des_c	detail/labgen_result_data/panel_lt_desc	string(255)	0..1	N/A	N/A	0..1	N/A	N/A	1..1	N/A	N/A		
2.23	Laboratory report authorized datetime	report_auth_dtm	detail/labgen_result_data/report_auth_dtm	string(23)	N/A	N/A	N/A	0..1	N/A	N/A	0..1	N/A	In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005		

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
2.24	Laboratory report authorized healthcare staff identifier <i>(Retained for backward compatibility to v1.0.1)</i>	report_auth_staff_id	detail/labgen_result_data/report_auth_staff_id	string(10)				N/A							
2.25	Laboratory report authorized healthcare staff English name	report_auth_staff_eng_name	detail/labgen_result_data/report_auth_staff_eng_name	string(100)	N/A	N/A		0..1	N/A		0..1	N/A			

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
2.26	Laboratory report authorized healthcare staff English given name <i>(Retained for backward compatibility to v1.0.1)</i>	report_auth_staff_eng_given_name	detail/labgen_result_data/report_auth_staff_eng_given_name	string(40)											
2.27	Laboratory report authorized healthcare staff English name prefix <i>(Retained for backward compatibility to v1.0.1)</i>	report_auth_staff_eng_name_prefix	detail/labgen_result_data/report_auth_staff_eng_name_prefix	string(10)										Refer to the code set of “Practitioner name prefix” in eHR Office website	

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
2.28	Laboratory report authorized healthcare staff Chinese name	report_auth_staff_chi_name	detail/labgen_result_data/report_auth_staff_chi_name	string(10)	N/A	N/A	0..1	N/A	0..1	N/A	0..1	N/A	Maximum 10 Chinese characters		
2.29	Laboratory report authorized healthcare staff Chinese name suffix <i>(Retained for backward compatibility to v1.0.1)</i>	report_auth_staff_chi_name_suffix	detail/labgen_result_data/report_auth_staff_chi_name_suffix	string(10)									Refer to the code set of “Practitioner Chinese name suffix” in eHR Office website		
“Laboratory Report Data” Related Tags															
	Laboratory report	lab_report	detail/lab_report_data		1..*	N/A	0..*	N/A	0..*	N/A					
3.1	Record key	record_key	detail/lab_report_data/record_key	string(50)	1..1	N/A	1..1	N/A	1..1	N/A	The key to cross-reference laboratory test request data				

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
3.2	Laboratory report status code	report_status_cd	detail/lab_report_data/report_status_cd	string(5)	1..1	N/A		1..1	N/A		1..1	N/A		Refer to the code set of “Laboratory Report Status” in eHR Office website	
3.3	Laboratory report status description	report_status_desc	detail/lab_report_data/report_status_desc	string(255)	1..1	N/A		1..1	N/A		1..1	N/A			
3.4	Laboratory report status local description	report_status_lt_desc	detail/lab_report_data/report_status_lt_desc	string(255)	1..1	N/A		1..1	N/A		1..1	N/A			
3.5	Laboratory report date	report_dtm	detail/lab_report_data/report_dtm	string(23)	0..1	N/A		0..1	N/A		0..1	N/A		In format: YYYY-MM-DD hh:mm:ss.sss e.g. 2010-01-31 16:30:05.005	
3.6	File name	file_name	detail/lab_report_data/file_name	string(255)	N/A if [Laboratory Report (PDF)] is not given 1..1 if [Laboratory Report (PDF)] is given	N/A	N/A if [Laboratory Report (PDF)] is not given 1..1 if [Laboratory Report (PDF)] is given	N/A	N/A if [Laboratory Report (PDF)] is not given 1..1 if [Laboratory Report (PDF)] is given	N/A	N/A if [Laboratory Report (PDF)] is not given 1..1 if [Laboratory Report (PDF)] is given	N/A	File Name with file extension		

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Number	Data Field	XML Tag	XPath (prefix:Clinical Document/com ponent/nonXM LBody/clinical Doc/)	Maximum Length	Cardinality Not Applicable (N/A – Data field should not be submitted)									Remarks	
					Level 1			Level 2			Level 3				
					S1	S2	S3	S1	S2	S3	S1	S2	S3		
3.7	Laboratory report (text)	report_text	detail/lab_report_data/report_text	string(32768)	0..1 if [Laboratory report (PDF)] is given 1..1 if [Laboratory report (PDF)] is blank	N/A		0..1	N/A		0..1	N/A	Please refer to Data Field [Laboratory report (PDF)] at the end of table for more details.		
	Laboratory report (PDF)				0..1 if [Laboratory report (Text)] is given 1..1 if [Laboratory report (Text)] is blank N/A if [File indicator] = 0 1..1 if [File indicator] = 1	N/A	N/A if [File indicator] = 0 1..1 if [File indicator] = 1		N/A	N/A if [File indicator] = 0 1..1 if [File indicator] = 1		N/A	Please refer to Data Field [Laboratory report (text)] for more details. The report image is Base64 and MIME encoded and embedded in HL7 ORU Message OBX.5.		

10.6 ADDITIONAL MANDATORY ELEMENTS IN CDA FOR HL7-HK MESSAGE STANDARDS

A CDA document is wrapped by the <ClinicalDocument> element. From Section 9.4 CDA Document Skeleton, tag elements which are mandatory under CDA schema but NOT REQUIRED by eHR are highlighted. Required tag elements of CDA under HL7-HK Message Standards will be introduced in Section 9.5 Data Mapping in CDA under HL7-HK Message Standards.

For the tag elements which are mandatory under CDA schema but it required by eHR, the value of this tag is allowed to be “Blank”. For example, tag element “id” is allowed to be ‘Blank’ in HL7-HK Message Standards, the tag element should be presented as “<id/>” in the CDA.

The table below shows the tag elements which is mandatory under CDA schema but NOT REQUIRED by eHR.

XML Tag	XPath	Definition	Cardinality	Remarks
id	ClinicalDocument/id	It represents the unique instance identifier (UID) of a clinical document	1..1	
effectiveTime	ClinicalDocument/effectiveTime	Document creation datetime	1..1	
confidentialityCode	ClinicalDocument/confidentialityCode	Confidentiality of the clinical document	1..1	
recordTarget	ClinicalDocument/recordTarget	The recordTarget represents the medical record that this document belongs to	1..1	
patientRole	ClinicalDocument/recordTarget/patientRole	A recordTarget is represented as a relationship between a person and an organisation, where the person is in a patient role	1..1	
id	ClinicalDocument/recordTarget/patientRole/id	Unique identifier of the patient role	1..1	
author	ClinicalDocument/author	It represents the humans and/or machines that authored the document	1..1	

XML Tag	XPath	Definition	Cardinality	Remarks
time	ClinicalDocument/author/time	It represents the day and time of the authoring of the original content	1..1	
assignedAuthor	ClinicalDocument/author/assignedAuthor	An author is a person in the role of an assigned author	1..1	
id	ClinicalDocument/author/assignedAuthor/id	Unique identifier of the assigned author	1..1	
<hr/>				
custodian	ClinicalDocument/custodian	The custodian is the steward that is entrusted with the care of the document	1..1	
assignedCustodian	ClinicalDocument/custodian/assignedCustodian	A custodian is a scoping organisation in the role of an assigned custodian. The steward organisation is an entity scoping the role of AssignedCustodian.	1..1	
representedCustodianOrganization	ClinicalDocument/custodian/assignedCustodian / representedCustodianOrganization	It is the represented custodian organisation that is entrusted with the care of the document.	1..1	
id	ClinicalDocument/custodian/assignedCustodian/representedCustodianOrganization/id	Unique identifier of represented custodian organisation	1..1	
<hr/>				
text	ClinicalDocument/component/nonXMLDetail/text	It is used to reference data that is stored externally to the CDA document or to encode the data directly inline	1..1	

11 OTHER REQUIREMENTS

11.1 CHARACTER SET AND ENCODING

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

Data File Type	Charset and Encoding	Version
HL7 message (e.g. ORU^R01)	UTF-8	XML 1.0
CDA in MIME package	UTF-8 base64	MIME 1.0

11.2 XML PREDEFINED ENTITIES

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

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

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

12 PREPARATION OF MESSAGE FOR DATA TRANSFER

12.1 BASIC REQUIREMENTS

- CDA XSD
- CDA document
- Image files (optional)
- MIME encoder or base64 encoder
- HL7 version 2.5 ORU Message

12.2 HL7 MESSAGE STRUCTURE APPLIED

- Event Type: ORU
- Event Code: R01
- Event Name: Unsolicited Observation Message
- Usage: It provides structured HCR-oriented clinical data between systems.

12.3 PREPARE A HL7 ORU MESSAGE WITH CDA & IMAGE DOCUMENTS

1. Prepare CDA document with clinical data and report images according to the message structure and data mapping in this Technical Interface Specification for Laboratory Result (General Result) Record and Data Requirement for Laboratory Result (General Result) Record.
2. Prepare HL7 ORU Message complying to HL7 message structure and data mapping specified in this specification.
3. Use MIME encoder or base64 encoder to encode the CDA document and Image files (if exists) in Base64.
4. Embed the encoded CDA and Image data if any in MIME format into OBX.5.5 – ED.5 of the ORU Message. (*Refer to Section 11.4 - Data Mapping for MIME Package for the details of MIME standards*)
5. Save the file of HL7 message, CDA document and image complying with the file naming convention defined in Section 12 - File Naming Convention.
6. Send out the ORU Message via ebMS to the eHR system.

12.4 DATA MAPPING FOR MIME PACKAGE (CDA AND IMAGE)

Below shows the eHR standard structure of a MIME Package. And explanation of the elements inside the MIME package will be shown in the following table.

```
MIME-Version: 1.0
Content-Type: multipart/mixed; boundary=<boundary_value>

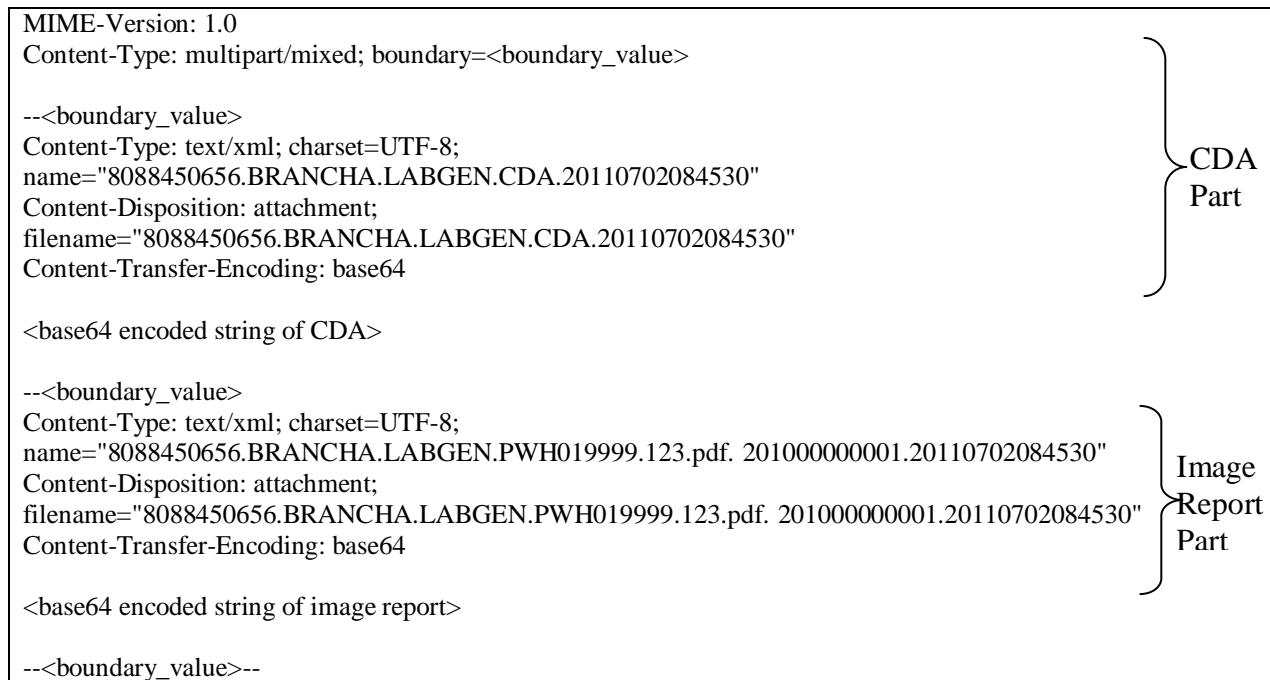
--<boundary_value>
Content-Type: text/xml; charset=UTF-8;
name="8088450656.BRANCHA.LABGEN.CDA.20110702084530"
Content-Disposition: attachment;
filename="8088450656.BRANCHA.LABGEN.CDA.20110702084530"
Content-Transfer-Encoding: base64

<base64 encoded string of CDA>

--<boundary_value>
Content-Type: text/xml; charset=UTF-8;
name="8088450656.BRANCHA.LABGEN.PWH019999.123.pdf. 201000000001.20110702084530"
Content-Disposition: attachment;
filename="8088450656.BRANCHA.LABGEN.PWH019999.123.pdf. 201000000001.20110702084530"
Content-Transfer-Encoding: base64

<base64 encoded string of image report>

--<boundary_value>--
```



Header	Attribute	Mandatory (M) / Optional(O)	Default Value	Remarks
MIME-Version		M	1.0	
Content-Type		M	multipart/mixed	
<blank line>				
CDA Document	--<boundary_value>			
	Content-Type	M	text/xml	
	charset	M	UTF-8	
	name	O	<file name>	<file name>: The file's original name Format of the file name should be complied with the naming convention specified in Section 12.2 CDA Document Name
	Content-Disposition	M	attachment	
	filename	M	<file name>	<file name>: The file's original name Format of the file name should be complied with the naming convention specified in Section 12.2 CDA Document Name

Laboratory report (PDF)					Name
	Content-Transfer-Encoding	M	base64		
	<blank line>				
	<BASE64 Content String>				
	--<boundary_value>				
	Content-Type	M	application/pdf		
	charset	M	UTF-8		
	name	O	<file name>	<file name>: The file's original name Format of the file name should be complied with the naming convention specified in Section 12.3 Image File Name	
	Content-Disposition	M	attachment		
	filename	M	<file name>	<file name>: The file's original name Format of the file name should be complied with the naming convention specified in Section 12.3 Image File Name	
Content-Transfer-Encoding					N/A
<blank line>					
<BASE64 Content String>					
--<boundary_value>--					

Remarks:

1. There will be only one CDA Document which must be the first attachment of the MIME.
2. The existence of [Laboratory report (PDF)] depends on the existence of [Laboratory report (Text)] as below:

Data Field	Mandatory (M) / Optional (O) / Not Applicable (N/A – Data field should not be submitted)					
	Level 1			Level 2 and Level 3		
	S1	S2	S3	S1	S2	S3
Laboratory report (PDF)	Either [Laboratory report (PDF)] or [Laboratory report (text)] or BOTH	N/A		O		N/A



Figure 4 - *CDA Document Exchange in HL7 Message*

13 FILE NAMING CONVENTION

This section describes the file naming standards of the files included in HL7 message under HL7-HK Message Standards. The file components include:

- HL7 Message File
- CDA Document
- Image File

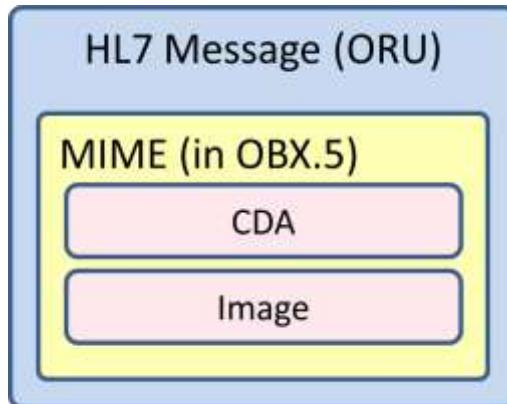


Figure 5- *File Components in HL7 Message*

13.1 HL7 MESSAGE 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 in 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][-_]

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)	
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	HL7	HL7 File	string(3)	Fixed value: HL7
5	Message Control ID	Message Control ID refers to the value in MSH.10 of HL7 file	string(14)	Values can be in any combination of alphanumeric characters i.e. [A-Z][0-9][-_]

13.2 CDA DOCUMENT NAME

The naming convention of the file which is carrying the CDA document is specified as below:

Format

With Sending Location Code,

<HCP ID>.<Sending Location Code>.<Record Type>.CDA.<Generation Date>

Example

e.g. 8088450656.BRANCHA.LABGEN.CDA.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][-_]

Technical Interface Specification for eHR Laboratory Result (General Result) Record

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)	
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	CDA	CDA File	string(3)	Fixed value: CDA
5	Generation Date	File generation date	string(14)	In format: YYYYMMDDhhmmss

13.3 IMAGE FILE NAME

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 in standardised format.

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 pdf 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][-_]

Technical Interface Specification for eHR Laboratory Result (General Result) Record

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)	
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

14 EXAMPLE OF HL7-HK MESSAGE STANDARDS

14.1 EXAMPLE FOR DATA COMPLIANCE LEVEL 1

Example Data

Insert / Update / Delete a laboratory result (general result) of a HCR. The record is composed of a request data and two report data.

HCR Data	
eHR number	201000000001
HKIC number	A1234563
Type of identity document	ID
Identity document number	A1234563
English surname	CHAN
English given name	TAI MAN
English full name	CHAN, TAI MAN
Sex	M
Date of birth	1999-01-01 00:00:00.000
Laboratory Test Request Data A	
Record key	PYN_LAB_HMS_000123
Transaction datetime	2012-05-01 00:00:00.000
Transaction type	I : New (S1) U : Update (S2) D : Delete (S3)
Last update datetime	2012-05-01 00:00:00.000
Episode number	EP-12345
Attendance institution identifier	8088450656
Laboratory test request number	11-CC123456
Laboratory test requesting doctor	ABC123456
Laboratory test request healthcare institution identifier	CHEM
Laboratory test request healthcare institution long name	Chemical Pathology Laboratory
Laboratory test request healthcare institution local name	Clinical Chemistry Laboraotry
Laboratory test request performing laboratory name	Kowloon Bay Clinical Laboratory
Laboratory report reference datetime	2009-11-20 14:10:00.000
File indicator	1
Record creation datetime	2010-06-08 15:22:00.000
Record creation institution identifier	8088450656
Record creation institution name	Princess Margaret Hospital
Record last update datetime	2010-06-08 15:22:00.000
Record update institution identifier	8088450656
Record update institution name	Princess Margaret Hospital
Laboratory Report Data A1	
Record key	PYN_LAB_HMS_000123
Laboratory report status code	F
Laboratory report status description	Final report
Laboratory report status local description	Final Report
Laboratory report date	2009-11-20 14:10:00.000
File name	8088450656.BRANCHA.LABGEN.PWH019999.123.pdf. 201000000001.20110702084530
Laboratory report (text)	
Laboratory Report Data A2	
Record key	PYN_LAB_HMS_000123
Laboratory report status code	F
Laboratory report status description	Final report
Laboratory report status local description	Final Report

Laboratory report date	2009-11-20 14:10:00.000
File name	8088450656.BRANCHA.LABGEN.PWH019999.124.pdf. 201000000001.20110702084530
Laboratory report (text)	

14.1.1 CDA Example for New (S1) in Data Compliance Level 1

8088450656.BRANCHA.LABGEN.CDA.20110702084530

```

<?xml version="1.0" encoding="UTF-8"?>
<ClinicalDocument xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd" xmlns="urn:hl7-org:v3"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<!--
*****
CDA General Information
*****
-->
<typeId root="2.16.840.1.113883.1.3" extension="POCD_HD000040"/>
<id/>
<code code="LABGEN"/>
<title>Laboratory General Result</title>
<effectiveTime/>
<confidentialityCode/>
<recordTarget>
<patientRole>
<id/>
</patientRole>
</recordTarget>
<author>
<time/>
<assignedAuthor>
<id/>
</assignedAuthor>
</author>
<custodian>
<assignedCustodian>
<representedCustodianOrganization>
<id/>
</representedCustodianOrganization>
</assignedCustodian>
</custodian>
<!--
*****
Clinical Information
*****
-->
<component>
<nonXMLBody>
<clinicalDoc>
<participant>
<ehr_no>201000000001</ehr_no>
<hkid>A1234563</hkid>
<doc_type>ID</doc_type>
<doc_no>A1234563</doc_no>
<person_eng_surname>CHAN </person_eng_surname>
<person_eng_given_name>TAI MAN</person_eng_given_name>
<person_eng_full_name>CHAN, TAI MAN</person_eng_full_name>
<sex>M</sex>
<birth_date>1999-01-01 00:00:00.000</birth_date>
</participant>
<detail>
<lab_req_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<transaction_dtm>2012-05-01 00:00:00.000</transaction_dtm>
<transaction_type>I</transaction_type>
<last_update_dtm>2012-05-01 00:00:00.000</last_update_dtm>
<episode_no>EP-12345</episode_no>
<attendance_inst_id>8088450656</attendance_inst_id>
<request_no>11-CC123456</request_no>
<order_no>11-CC123456</order_no>
<lab_category_cd>CHEM</lab_category_cd>
<lab_category_desc>Chemical Pathology Laboratory</lab_category_desc>
<lab_category_lt_desc>Clinical Chemistry Laboratory</lab_category_lt_desc>

```

```
<perform_lab_name>Kowloon Bay Clinical Laboratory</perform_lab_name>
<report_reference_dtm>2009-11-20 14:10:00.000</report_reference_dtm>
<file_ind>1</file_ind>
<record_creation_dtm>2010-06-08 15:22:00.000</record_creation_dtm>
<record_creation_inst_id>8088450656</record_creation_inst_id>
<record_creation_inst_name>Princess Margaret Hospital</record_creation_inst_name>
<record_update_dtm>2010-06-08 15:22:00.000</record_update_dtm>
<record_update_inst_id>8088450656</record_update_inst_id>
<record_update_inst_name>Princess Margaret Hospital</record_update_inst_name>
</lab_req_data>
<lab_report_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<report_status_cd>F</report_status_cd>
<report_status_desc>Final report</report_status_desc>
<report_status_lt_desc>Final Report</report_status_lt_desc>
<report_dtm>2009-11-20 14:10:00.000</report_dtm>
<file_name>8088450656.BRANCHALABGEN.PYN_LAB_HMS_000123.123.pdf.201000000001.20110702084530</file_name>
<report_text></report_text>
</lab_report_data>
<lab_report_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<report_status_cd>F</report_status_cd>
<report_status_desc>Final report</report_status_desc>
<report_status_lt_desc>Final Report</report_status_lt_desc>
<report_dtm>2009-11-20 14:10:00.000</report_dtm>
<file_name>8088450656.BRANCHALABGEN.PYN_LAB_HMS_000123.124.pdf.201000000001.20110702084530</file_name>
<report_text></report_text>
</lab_report_data>
</detail>
</clinicalDoc>
<text/>
</nonXMLBody>
</component>
</ClinicalDocument>
```

14.1.2 HL7 Message Example for New (S1) in Data Compliance Level 1

8088450656.BRANCHALABGEN.HL7.20110702084530

```
<?xml version="1.0" encoding="utf-8"?>
<ORU_R01 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml \\hoehrs01\ehr\CE4\MESSAG~1\EHR\HL7SAM~1\V25SCH~1\xsd\ORU_R01.xsd">
<MSH>
<MSH.1></MSH.1>
<MSH.2>^&lt;&gt;</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>20110427181041</TS.1>
</MSH.7>
<MSH.8>1</MSH.8>
<MSH.9>
<MSG.1>ORU</MSG.1>
<MSG.2>R01</MSG.2>
<MSG.3>ORU_R01</MSG.3>
</MSH.9>
<MSH.10>20110702084530</MSH.10>
<MSH.11>
<PT.1>P</PT.1>
</MSH.11>
<MSH.12>
<VID.1>2.5</VID.1>
</MSH.12>
```

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```
<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>ED</OBX.2>
<OBX.3>
<CE.1> LABGEN </CE.1>
</OBX.3>
<OBX.4>NBL-M</OBX.4>
<OBX.5>
<ED.2>multipart</ ED.2>
< ED.4>A</ ED.4>
< ED.5>
MIME-Version: 1.0
Content-Type: multipart/mixed; boundary=00163630f5f354355b046be66f6d

--00163630f5f354355b046be66f6d
Content-Type: text/xml; charset=UTF-8; name="8088450656.BRANCHA.LABGEN.CDA.20110702084530"
Content-Disposition: attachment; filename="8088450656.BRANCHA.LABGEN.CDA.20110702084530"
Content-Transfer-Encoding: base64

PD94bWwgdmVyc2lvbj0iMS4wIiBlbmNvZGluZz0iVVRLTgiPz4NCjwhLS0gQ0RBIFNhXBs
ZSBmb3IgSEtISIgSW50ZXJvcGVyYWJpbGl0eSAtLT4NCg0KPCEtLSBDb3B5cmIaHQ6IFRo
ZSBvd25lcnNoaXAgb2YgdGhpcyBkb2N1bWVudCBzaG91bGQgYmUgUHJlcGFyYXRvcnkgR3Jv
dXAgb24gZUhSIENvbnRlbnQgjiBTdGFuZGKyZHMgdW5kZXIgZUhSIENvbnRlbnQgYW5kIElu
Zm9ybWF0aW9uIFN0YW5kYXJkcyBXb3JraW5nIEDyb3VwIGFuZCBmdXR1cmUgZUhSIG9mZmlj
.....
.....
aW9uPSJ1cm46aGw3LW9yZzp2MyBDREUeHNkIiBjbGFzc0NvZGU9IkRPQ0NMSU4iIG1vb2RD
b2RIP SJFVk4iPg0KDQo8IS0tIA0KKioqKioqKioqKioqKioqKioqKioqKioq
KioqKg0KSGVhZGKyIEluZm9ybWF0aW9uDQoqKioqKioqKioqKioqKioqKioqKioq
KioqKioqDQoLT4JDQoNCgk8dHwZUlkiHJvb3Q9jIuMTYuODQwLjEuMTEzODgzLjEu
MyIgZXh0ZW5zaW9uPSJQT0NEX0hEMDAwMDQwi8+DQoJPCEtLSB0ZW1wbGF0ZUlkiHJvb3Q9
IjIuMTYuODQwLjEuMTEzODgzLjIwLjEiLyAtLT4NCgkNCgk8IS0tIERvY3VtZW50IEIE
Ljg0MC4xLjExMzg4My42LjEiIGV4dGVuc2lvbj0iMTIzNDU2NzgiLz4NCgkNCgk8Y29kZSBj
b2RIPSIzNDEzMy05iBjb2RIU3IzdGvIjE2Ljg0MC4xLjExMzg4My42LjEiIGRpC3Bs
dW1lbnQ+DQo=
```

--00163630f5f354355b046be66f6d

Content-Type: application/pdf;
name="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.123.pdf.201000000001.20110702084530"

Content-Disposition: attachment;
filename="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.123.pdf.201000000001.20110702084530"

Content-Transfer-Encoding: base64

JVBERi0xLjUNCiW1tbW1DQoxIDAcb2JqDQo8PC9UeXBIL0NhdGFsb2cvUGFnZXMGMiAwIFIv
TGFuZyh6aC1UVykgL1N0cnVjdFRyZWVSh290IDM2OSAwIFIvTWFya0luZm88PC9NYXJfZWQg
dHJ1ZT4+Pj4NCmVuZG9iag0KMiAwIG9iag0KPDwvVHlwZS9QYWdIcy9Db3VudCA0L0tpZHnb
IDMgMCBSIDEzMSAwIFIgMjQwIDAgiAzNjAgMCBSXSA+Pg0KZW5kb2JqDQozIDAcb2JqDQo8
bWFnZTIxIDIxIDAgiUi9jbWFnZTIzIDzIDAgiUi9jbWFnZTI1IDI1IDAgiUi9jbWFnZTI3IDI3
IDAgiUi9jbWFnZTI5IDI5IDAgiUi9jbWFnZTMxIDAgUi9jbWFnZTMzIDAgUi9jbWFn

.....
.....
.....

ZTM1IDM1IDAgiUi9jbWFnZTM3IDAgUi9jbWFnZTM5IDAgUi9jbWFnZTQxIDQxIDAgiUi9jbWFnZTQzIDQzIDAgiUi9jbWFnZTQ1IDQ1IDAgiUi9jbWFnZTQ3IDQ3IDAgiUi9jbWFnZTQ5
gMDAwMDAgbg0KMDAwMDI5NjUzMSAwMDAwMCBuDQowMDAwMjk2NTYwIDAwMDAwIG4NCjAwMDAy
OTY1ODkgMDAwMDAgbg0KMDAwMDMzODQ1MSAwMDAwMCBuDQp0cmFpbGVyDQo8PC9TaXplIDEy
RDBDMDYyRT48RDE5Rj15MjRBODYyNzA0NUJFQkVENEYxMUQuwQzA2MkU+XSAvUHJldiAzNDE1
MjEvWFJIZIN0bSAzMzg0NTE+Pg0Kc3RhcnR4cmVmDQozNjY4NDQNCiUlRU9G

--00163630f5f354355b046be66f6d

Content-Type: application/pdf;
name="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.124.pdf.201000000001.20110702084530"

Content-Disposition: attachment;
filename="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.124.pdf.201000000001.20110702084530"

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Content-Transfer-Encoding: base64

```
Mwk1NAzWCGBNG2ouJgY61BybH4UaoKL1HAaNkdofsSbEuuNiogI61iyySAXsOQx+E0wbbC4W  
djJK8iCDvFu1e5CTm5sQNIIhewXIWK6sb0RRGNm57YkP0roiYGxoVTkXoNyGimUrVteTKXr  
x521xJq9s/WLO58mDd04GgQz2AEY91dNAhScRwEGhb2qe1PZ9tUTkdi+JpFT/3oIDfvvCv3o  
WOu151HARLyYDNYZu6OAatV0FLCdtyHTL4w+FhYWNjcRYrBSGwtOnf4DUt2RF5XTguNSJidX  
.....  
.....  
.....
```

```
sRnI08JmAG96dcWbjPXLHx++HPDdpPXde1z8N2CBB8ve/45ZZNeD3aGPA0CNodkF9v5z9PZP  
8ePvz0+/vRbC+Tf/Zu//8fz0PSLsKLKDggG+Brlt6/Y18fCrqFkL+IxAxwli7S7gZKrmgQ7  
JCEP5HbzontUOEIxCljkYmRW9Tzmy5WN2dMCcVcWxN6n8sDYIFLKrEELLW0abk0uuHSjrj0  
JJelE7mMPe0il90sMOVS+RdyeQDMudRUwe23DNVQqWxDZRhQqYGkEnGQSofdl1+jUnfDyJRK  
iQHTvYTKA2CBSrKAIIxfbjjWFNgGVY8i5lhKKnrEgGxKoQIqlmwdbD3CpqMHbM83MEfatUN6  
LHYI+cJDQgAWDomc7mJFdD0lIRom3YhJquQ0gTtx9Cfo/XhxrtjDyxTIU0IcPBiwdhvVz4/J  
dK/87JiU1y87pgpgfkYGasSxK/CujUsKW5UTIX50mYykqIw4InaO3K8x+VD1ofCkXsbkAbDA
```

--00163630f5f354355b046be66f6d--

```
</ED.5>  
  </OBX.5>  
    <OBX.11>F</OBX.11>  
  </OBX>  
  <ORU_R01.OBSERVATION>  
  <ORU_R01.ORDER_OBSERVATION>  
  <ORU_R01.PATIENT_RESULT>  
  
<ORU_R01>
```

14.1.3 CDA Example for Update (S2) in Data Compliance Level 1

8088450656.BRANCHA.LABGEN.CDA.20110702084530

```
<?xml version="1.0" encoding="UTF-8"?>  
<ClinicalDocument xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd" xmlns="urn:hl7-org:v3"  
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">  
<!--  
*****  
CDA General Information  
*****  
-->  
  <typeId root="2.16.840.1.113883.1.3" extension="POCD_HD000040"/>  
  <id/>  
  <code code="LABGEN"/>  
  <title> Laboratory General Result</title>  
  <effectiveTime/>  
  <confidentialityCode/>  
  <recordTarget>  
    <patientRole>  
      <id/>  
      </patientRole>  
    <recordTarget>  
      <author>  
        <time/>  
        <assignedAuthor>  
          <id/>  
          </assignedAuthor>  
        </author>  
        <custodian>  
          <assignedCustodian>  
            <representedCustodianOrganization>  
              <id/>  
              </representedCustodianOrganization>  
            </assignedCustodian>  
          </custodian>  
        <!--  
*****  
Clinical Information  
*****  
-->  
        <component>  
          <nonXMLBody>  
            <clinicalDoc>  
              <participant>  
                <ehr_no>20100000001</ehr_no>
```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

```
<hkid>A1234563</hkid>
<doc_type>ID</doc_type>
<doc_no>A1234563</doc_no>
<person_eng_surname>CHAN </person_eng_surname>
<person_eng_given_name>TAI MAN</person_eng_given_name>
<person_eng_full_name>CHAN, TAI MAN</person_eng_full_name>
<sex>M</sex>
<birth_date>1999-01-01 00:00:00.000</birth_date>
</participant>
<detail>
<lab_req_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<transaction_dtm>2012-05-01 00:00:00.000</transaction_dtm>
<transaction_type>U</transaction_type>
<last_update_dtm>2012-05-01 00:00:00.000</last_update_dtm>
<episode_no>EP-12345</episode_no>
<attendance_inst_id>8088450656</attendance_inst_id>
<request_no>11-CC123456</request_no>
<order_no>ABC123456</order_no>
<lab_category_cd>CHEM</lab_category_cd>
<lab_category_desc>Chemical Pathology Laboratory</lab_category_desc>
<lab_category_lt_desc>Clinical Chemistry Laboratory</lab_category_lt_desc>
<perform_lab_name>Kowloon Bay Clinical Laboratory</perform_lab_name>
<report_reference_dtm>2009-11-20 14:10:00.000</report_reference_dtm>
<file_ind>1</file_ind>
<record_creation_dtm>2010-06-08 15:22:00.000</record_creation_dtm>
<record_creation_inst_id>8088450656</record_creation_inst_id>
<record_creation_inst_name>Princess Margaret Hospital</record_creation_inst_name>
<record_update_dtm>2010-06-08 15:22:00.000</record_update_dtm>
<record_update_inst_id>8088450656</record_update_inst_id>
<record_update_inst_name>Princess Margaret Hospital</record_update_inst_name>
</lab_req_data>
<lab_report_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<report_status_cd>F</report_status_cd>
<report_status_desc>Final report</report_status_desc>
<report_status_lt_desc>Final Report</report_status_lt_desc>
<report_dtm>2009-11-20 14:10:00.000</report_dtm>
<file_name>8088450656.BRANCHALABGEN.PYN_LAB_HMS_000123.123.pdf.20100000001.20110702084530</file_name>
<report_text></report_text>
</lab_report_data>
<lab_report_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<report_status_cd>F</report_status_cd>
<report_status_desc>Final report</report_status_desc>
<report_status_lt_desc>Final Report</report_status_lt_desc>
<report_dtm>2009-11-20 14:10:00.000</report_dtm>
<file_name>8088450656.BRANCHALABGEN.PYN_LAB_HMS_000123.124.pdf.20100000001.20110702084530</file_name>
<report_text></report_text>
</lab_report_data>
</detail>
</clinicalDoc>
<text/>
</nonXMLBody>
</component>
</ClinicalDocument>
```

14.1.4 HL7 Message Example for Update (S2) in Data Compliance Level 1

8088450656.BRANCHALABGEN.HL7.20110702084530

```
<?xml version="1.0" encoding="utf-8"?>
<ORU_R01 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml \\\\hoehrvs01\\eHR\\CE4\\MESSAG-1\\EHR\\HL7SAM~1\\V25SCH~1\\xsd\\ORU_R01.xsd">
<MSH>
<MSH.1>|</MSH.1>
<MSH.2>^~&lt;></MSH.2>
<MSH.3>
<HD.1>CMS 3.0</HD.1>
</MSH.3>
<MSH.4>
<HD.1>8088450656</HD.1>
</MSH.4>
```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

```
<MSH.5>
  <HD.1>EIF</HD.1>
</MSH.5>
<MSH.6>
  <HD.1>eHR</HD.1>
</MSH.6>
<MSH.7>
  <TS.1>20110427181041</TS.1>
</MSH.7>
<MSH.8>1</MSH.8>
<MSH.9>
  <MSG.1>ORU</MSG.1>
  <MSG.2>R01</MSG.2>
  <MSG.3>ORU_R01</MSG.3>
</MSH.9>
<MSH.10>20110702084530</MSH.10>
<MSH.11>
  <PT.1>P</PT.1>
</MSH.11>
<MSH.12>
  <VID.1>2.5</VID.1>
</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>ED</OBX.2>
    <OBX.3>
      <CE.1> LABGEN </CE.1>
    </OBX.3>
    <OBX.4>NBL</OBX.4>
    <OBX.5>
<ED.2>multipart</ ED.2>
< ED.4>A</ ED.4>
< ED.5>
  MIME-Version: 1.0
Content-Type: multipart/mixed; boundary=00163630f5f354355b046be66f6d

--00163630f5f354355b046be66f6d
Content-Type: text/xml; charset=UTF-8; name="8088450656.BRANCH.A.LABGEN.HL7.20110702084530"
Content-Disposition: attachment; filename="8088450656.BRANCH.A.LABGEN.HL7.20110702084530"
Content-Transfer-Encoding: base64
X-Attachment-Id: f_fvqdehi70

PD94bWwgdmVyc2lvbj0iMS4wLiBlbmNvZGluZz0iVVRGLTgiPz4NCjwhLS0gQ0RBIFNhBXBs
ZSBmb3IgSEtISFlgSW50ZXJvcGVyYWJpbG10eSAtLT4NCg0KPCElSBDb3B5cmlnaHQ6lFRo
ZSBvd25lcnNoaXAgb2YgdGhpcyBkb2N1bWVudCBzaG91bGQgYmUgUHJlcGFyYXRvcnkgR3Jv
ZS4gQWxsIFJpZ2h0cyBSZXNlcnZlZC4gLS0+DQo8IS0tIERpc2NsYWltZXI6lFRoZSBjbmZv
IGZvciBFcGlzb2RIIfN1bW1hcngd2hpY2ggYXR0YWNoZWQgdGhlIFBERiAgLS0+DQoNCjxDf0
.....
.....
.....
aW9uPSJ1cm46aGw3LW9yZzp2MyBDREueHNkIiBjbGFzc0NvZGU9IkRPQ0NMSU4iIG1vb2RD
b2RlPSJFVk4iPg0KDQo8IS0tIA0KKioqKioqKioqKioqKioqKioqKioqKioqKioq
KioqKg0KSGVhZGVyIEluZm9ybWF0aW9uDQoqKioqKioqKioqKioqKioqKioqKioq
KioqKioqDQtLT4JDQoNCgk8dHlwZUlkiIHJvb3Q9ljluMTYuODQwLjEuMTEzODgzLjEuE2
Ljg0MC4xLjExMzg4My42LjEiGV4dGVuc2lvbj0iMTIzNDU2NzgiLz4NCgkNCgk8Y29kZSBj
b2RlPSIzNDEzMy05liBjb2RIU3lzdgVTPSIyLjE2Ljg0MC4xLjExMzg4My42LjEiIGRpcc3Bs
dW1lbnQ+DQo=


--00163630f5f354355b046be66f6d
Content-Type: application/pdf;
name="8088450656.BRANCH.A.LABGEN.PYN_LAB_HMS_000123.123.pdf.201000000001.20110702084530"
Content-Disposition: attachment;
filename="8088450656.BRANCH.A.LABGEN.PYN_LAB_HMS_000123.123.pdf.201000000001.20110702084530"
Content-Transfer-Encoding: base64

JVBERi0xLjUNCiW1tbW1DQoxIDAcb2JqDQo8PC9UeXBIL0NhdGFsb2cvUGFnZXMiAwIFIv
```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

TGFuZyh6aC1UVykgL1N0cnVjdFRyZWVSB290IDM2OSAwIFIvTWFya0luZm88PC9NYXJrZWQgdHJ1ZT4+Pj4NCmVuZG9iaq0KMaiAwIG9iaq0KPDwvVHlwZS9QYWdIcy9Db3VudCA0L0tpZHNBIDMgMCBSIDEzMSAwIFIgMjQwIDAgUiAzNjAgMCBSXSA+Pg0KZW5kb2JqDQozIDAzb2JqDQo8PC9UeXBIL1BhZ2UvUGFyZW50IDlgbMCBSL1Jlc291cmNlczw8L1hPYmplY3Q8PC9JbWFnZTUgNSAwIFIvSW1hZ2U3IDcgMCBSL0tYWDlOSA5IDAgUi9JbWFnZTE3IDExIDAgUi9JbWFnZTEzIDEzIDAgi9JbWFnZTE1IDE1IDAgUi9JbWFnZTE3IDE3IDAgi9JbWFnZTE5IDE5IDAgi9JbWFn.....
.....
.....

ZTM1IDM1IDAgi9JbWFnZTM3IDAgUi9JbWFnZTM5IDAgUi9JbWFnZTQxIDQxIDAgi9JbWFnZTQzIDQzIDAgi9JbWFnZTQ1IDQ1IDAgi9JbWFnZTQ3IDQ3IDAgi9JbWFnZTQ5gMDAwMDAgbg0KMDAwMDI5NjUzMSAwMDAwMCBuDQowMDAwMjk2NTYwIDAwMDAwIG4NCjAwMDAyOTY1ODkgMDAwMDAgbg0KMDAwMDMzODQ1MSAwMDAwMCBuDQp0cmFpbGVyDQo8PC9TaXplIDEyNTgvUm9vdCAxIDAgi9JbmZvIDM2OCAwIFIvSURbPEQxOUYyOTI0QTg2MjcwNDVCRUIFRDRGMTFEMEMwNjJFPjxEMTIGmjkyNEE4NjI3MDQ1QkVCRUQ0RjExRDBDMDYyRT5dID4+DQpzdGFyMjEvWFJIZIN0bSAzMzg0NTE+Pg0Kc3RhcnR4cmVmDQozNjY4NDQNCiUIR9G
--00163630f5f354355b046be66f6d
Content-Type: application/pdf;
name="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.124.pdf.201000000001.20110702084530"
Content-Disposition: attachment;
filename="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.124.pdf.201000000001.20110702084530"
Content-Transfer-Encoding: base64

Mwk1NAzWCGBNG2ouJgY61BybH4UaoKL1HAaNkdofsSbEuuNiogl61iyySAXsOQx+E0wbBc4WdjJK8iCDvFu1e5CTm5sQNllhewxiWK6sbt0RRGNm57YkP0roiYGxoVTkXoNyGimUrVteTKXrbrJNWFJvUb3yjXo0KK6p1JPZQ5LtxJ6Eja3d9IgJSftmoynkgrki5sXXLXUG/Sds3YyjUgqWOu151HARLyYDNYZu6OAatV0FLCdtyHTL4w+FhYWNjcRYrBSGWtOnf4DUt2RF5XTguNSJidX.....
.....
.....
sRnIO8JmAG96dcWbjPXLHx++HPDdpPXde1z8N2CBB8ve/45ZZNeD3aGPA0CNOdkF9v5z9PZP8ePvz0+/vRbC+Tf/Zu/8fz0PSLsKLKDggG+Brlt6/Y18fCrqFkL+IxAxwli7S7gZKrmgQ7JCEP5HbzontUOEIxbljkYmRW9Tzmy5WN2dMCcVcWxN6n8sDYIFLKrEELLW0abk0uuHSjrj0JJelIE7mMPe0i90sMOVS+RdyeQDMudRUwe23DNVQqWxDZRhQqYgkEnGQSofdl1+jUnfDyJRKiQHtvYTKA2CBSrKAllxbfjjWFNgGVY8i5lhKKnrEgGxKoQIqlmwdbD3CpqMHbM83MEfatUN6LHYI+cJD0gAWDomc7mFdD0lIRom3YhJquQ0gTx9Cfo/XhxrtjDyxTIU0lcPBiwdhvVz4/JdK/87JiU1y87pgpgfkYGasSxK/CujUsKW5UTIX50mYykqIw4InaO3K8x+VD1ofCkXsbkAbDAJBU6sDQIIFsmrW6YNCMydArCzA869Dx1yK8eSh4KO1fyOUBsMA12dHGx6u25VLbhks/4pIsPCIOkqewiFuLw+ahuiM+DHoZlepGsrU3YGD9yFSiltkAADKi1ZeESceMGxwY1UGuxe/JBK+1DdoeCFKa0CWKCSqjtiHFMXKqFJO2FUHFhNUgkiUekWqewOzmZUSqzp/Uuq4QpggUryaYfh
--00163630f5f354355b046be66f6d--
</ED.5>
</OBX.5>
<OBX.11>F</OBX.11>
</OBX>
</ORU_R01.OBSERVATION>
</ORU_R01.ORDER_OBSERVATION>
</ORU_R01.PATIENT_RESULT>
</ORU_R01>

14.1.5 CDA Example for Delete (S3) in Data Compliance Level 1

8088450656.BRANCHA.LABGEN.CDA.20110702084530

```
<?xml version="1.0" encoding="UTF-8"?>
<ClinicalDocument xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd" xmlns="urn:hl7-org:v3"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<!--
*****
CDA General Information
*****
-->
<typeId root="2.16.840.1.113883.1.3" extension="POCD_HD000040"/>
<id/>
<code code="LABGEN"/>
<title> Laboratory General Result</title>
<effectiveTime/>
```

```

<confidenceCode/>
<recordTarget>
<patientRole>
<id/>
</patientRole>
</recordTarget>
<author>
<time/>
<assignedAuthor>
<id/>
</assignedAuthor>
</author>
<custodian>
<assignedCustodian>
<representedCustodianOrganization>
<id/>
</representedCustodianOrganization>
</assignedCustodian>
</custodian>
<!--
*****
Clinical Information
*****
-->
<component>
<nonXMLBody>
<clinicalDoc>
<participant>
<ehr_no>201000000001</ehr_no>
<hkid>A1234563</hkid>
<doc_type>ID</doc_type>
<doc_no>A1234563</doc_no>
<person_eng_surname>CHAN </person_eng_surname>
<person_eng_given_name>TAI MAN</person_eng_given_name>
<person_eng_full_name>CHAN, TAI MAN</person_eng_full_name>
<sex>M</sex>
<birth_date>1999-01-01 00:00:00.000</birth_date>
</participant>
<detail>
<lab_req_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<transaction_dtm>2012-05-01 00:00:00.000</transaction_dtm>
<transaction_type>D</transaction_type>
<last_update_dtm>2012-05-01 00:00:00.000</last_update_dtm>
<episode_no>EP-12345</episode_no>
<attendance_inst_id>8088450656</attendance_inst_id>
<request_no>11-CC123456</request_no>
</lab_req_data>
</detail>
</clinicalDoc>
<text/>
</nonXMLBody>
</component>
</ClinicalDocument>

```

14.1.6 HL7 Message Example for Delete (S3) in Data Compliance Level 1

8088450656.BRANCHA.LABGEN.HL7.20110702084530

```

<?xml version="1.0" encoding="utf-8"?>
<ORU_R01 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml \\hoehrsrv01\ehr\CE4\MESSAG~1\EHR\HL7SAM~1\V25SCH~1\xsd\ORU_R01.xsd">
<MSH>
<MSH.1>|</MSH.1>
<MSH.2>^~&lt;></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>

```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

```
<HD.1>eHR</HD.1>
</MSH.6>
<MSH.7>
<TS.1>20110427181041</TS.1>
</MSH.7>
<MSH.8>1</MSH.8>
<MSH.9>
<MSG.1>ORU</MSG.1>
<MSG.2>R01</MSG.2>
<MSG.3>ORU_R01</MSG.3>
</MSH.9>
<MSH.10>20110702084530</MSH.10>
<MSH.11>
<PT.1>P</PT.1>
</MSH.11>
<MSH.12>
<VID.1>2.5</VID.1>
</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>ED</OBX.2>
<OBX.3>
<CE.1> LABGEN </CE.1>
</OBX.3>
<OBX.4>NBL</OBX.4>
<OBX.5>
<ED.2>multipart</ ED.2>
< ED.4>A</ ED.4>
< ED.5>
      MIME-Version: 1.0
Content-Type: multipart/mixed; boundary=00163630f5f354355b046be66f6d

--00163630f5f354355b046be66f6d
Content-Type: text/xml; charset=UTF-8; name="8088450656.BRANCH.A.LABGEN.CDA.20110702084530"
Content-Disposition: attachment; filename="8088450656.BRANCH.A.LABGEN.CDA.20110702084530"
Content-Transfer-Encoding: base64
X-Attachment-Id: f_fvqdehi70

PD94bWwgdVmYc2lvbj0iMS4wiBlbmNvZGluZz0iVVRLTgiPz4NCjwhLS0gQ0RBIFNhBXBs
ZSBmb3IgSEtISFlgSW50ZXJvcGVyYWJpbGl0eSATLT4NCg0iKPCETLSBDb3B5cmnaHQ6IFRo
ZSBvd25lcnNoaXAgb2YgdGhpvyBkb2N1bWVudCBzaG91bGQgYmUgUHJlcGFyYXRvcnkgR3Jv
dXAgb24gZUhSIENvbnnQgljBTdGFuZGfyZHMgdW5kZXlgZUhSIENvbnnRbnQgYW5kIElu
Zm9ybWF0aW9uWF0aW5kYXJkcyBXb3IraW5nEdyb3VwIGFuZCbmXR1cmUgZUhSIG9mZmlj
ZS4gQWxsIFJpZ2h0cyBSZXNlcnZlC4gLSo+DQo8IS0tIERpc2NsYWlZXl6IFRoZSBjbmZv
IGZvciBFcGlzb2RIIFN1bW1hcngd2hpY2ggYXR0YWNoZWQgdGhlIFBERiAgLS0+DQoNCjxDF0
.....
.....
.....
aW9uPSJ1cm46aGw3LW9yZzp2MyBDREEueHNkIiBjBgfGzc0NvZGU9IkRPQ0NMSU4iIG1vb2RD
b2RlPSJFVk4iPg0KDQo8IS0tIA0KKioqKioqKioqKioqKioqKioqKioqKioq
KioqKg0KSGVhZGVyIEluZm9ybWF0aW9uDQoqKioqKioqKioqKioqKioqKioqKioq
KioqKioqDQotLT4JDQoNCgk8dHlwZUlkiHJvb3Q9ljluMTYuODQwLjEuMTEzODgzLjEu
MyIgZXh0ZW5zaW9uPSJQT0NEX0hEMDAwMDQwli8+DQoJPCEtLSB0ZW1wbGF0ZUlkiHJvb3Q9
IjIluMTYuODQwLjEuMTEzODgzLjEwLjIwLjEiLyAtLT4NCgkNCgk8IS0tIERvY3VtZW50IEIE
OyB1bmIxWUsIGFzc2lnbmVkJG5IFByb3ZpZGVyL0N1c3RvZGhbwgcm9vdCBjb2RIIG9m
ICBQcm92aWR1ci9DdXN0bRpYW4gdG8gYmUgZGVmaW5lZC0tPg0KCTxpZCByb290PSIyLjE2
Ljg0MC4xLjExMzg4My42LjEiGV4dGVuc2lvbj0iMTIzNDU2NzgiLz4NCgkNCgk8Y29kZSBj
b2RlPSIzNDEzMy05IiBjB2RIU3lzdgVtPSIyLjE2Ljg0MC4xLjExMzg4My42LjEiIGRpcc3Bs
dW1lbnQ+DQo=
```

--00163630f5f354355b046be66f6d--

```
< ED.5>
</OBX.5>
<OBX.11>F</OBX.11>
</OBX>
</ORU_R01.OBSERVATION>
</ORU_R01.ORDER_OBSERVATION>
```

</ORU_R01.PATIENT_RESULT>
</ORU_R01>

14.2 EXAMPLE FOR DATA COMPLIANCE LEVEL 2

Example Data

Insert / Update / Delete a laboratory result (general result) record of a HCR. The record is composed of a request data, two general result data and two report data.

HCR Data	
eHR number	201000000001
HKIC number	A1234563
Type of identity document	ID
Identity document number	A1234563
English surname	CHAN
English given name	TAI MAN
English full name	CHAN, TAI MAN
Sex	M
Date of birth	1999-01-01 00:00:00.000
Laboratory Test Request Data A	
Record key	PYN_LAB_HMS_000123
Transaction datetime	2012-05-01 00:00:00.000
Transaction type	I : New (S1) U : Update (S2) D : Delete (S3)
Last update datetime	2012-05-01 00:00:00.000
Episode number	EP-12345
Attendance institution identifier	8088450656
Laboratory test request number	11-CC123456
Laboratory test requesting doctor	Dr. TM CHAN
Laboratory test request healthcare institution identifier	1735455950
Laboratory test request healthcare institution long name	Prince of Wales Hospital
Laboratory test request healthcare institution local name	Prince of Wales Hospital
Laboratory test order number	ABC123
Laboratory category code	CHEM
Laboratory category description	Chemical Pathology Laboratory
Laboratory category local description	Clinical Chemistry Laboratory
Laboratory test request performing laboratory name	Kowloon Bay Clinical Laboratory
Laboratory report reference datetime	2009-11-20 14:10:00.000
Laboratory test request clinical information	Ca Lung
Laboratory report comment	clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level of <7%. At levels >9.0% treatment should be re-evaluated, with consideration given to more intensive management. Suggested HbA1c Guidelines: 6.1-7.0% HbA1c: very good control 7.1-8.0% HbA1c: adequate control 8.1-9.0% HbA1c: sub-optimal control >9.0% HbA1c: poor control.
Specimen type local code	ASB00168
Specimen type local description	Abscess swab
Specimen arrival datetime	2009-11-11 16:15:00.000
Specimen collection datetime	2009-11-12 18:30:00.000
Specimen details	

Technical Interface Specification for eHR Laboratory Result (General Result) Record

File indicator	1
Record creation datetime	2010-06-08 15:22:00.000
Record creation institution identifier	8088450656
Record creation institution name	Princess Margaret Hospital
Record last update datetime	2010-06-08 15:22:00.000
Record update institution identifier	8088450656
Record update institution name	Princess Margaret Hospital
Laboratory Test General Result A1	
Record key	PYN_LAB_HMS_000123
Laboratory test name local code	PSP152368
Laboratory test name local description	Potassium or Serum or Plasma
Laboratory Test Result Type	1
Laboratory test numeric result	3.5
Laboratory test reportable result	>3.4
Laboratory test enumerated result	
Laboratory test text result	
Laboratory test result note	
Laboratory test result unit	mmol/L
Laboratory test reference range	3.0 - 5.2 ; LDL-chol (calc) -AcceptableBorderline High <2.82.8 - 3.3>=3.4
Detection limit indicator code	>
Detection limit indicator description	Greater than
Detection limit indicator local description	GRE
Abnormal result indicator code	H
Abnormal result indicator description	High
Abnormal result indicator local description	HH
Panel local code	RFT
Panel local description	Renal Function Test
Laboratory report authorized datetime	2009-11-20 14:10:00.000
Laboratory report authorized healthcare staff identifier <i>(Retained for backward compatibility to v1.0.1)</i>	
Laboratory report authorized healthcare staff English name	Jack Lee
Laboratory report authorized healthcare staff English given name <i>(Retained for backward compatibility to v1.0.1)</i>	
Laboratory report authorized healthcare staff English name prefix <i>(Retained for backward compatibility to v1.0.1)</i>	
Laboratory report authorized healthcare staff Chinese name	李傑克
Laboratory report authorized healthcare staff Chinese name suffix <i>(Retained for backward compatibility to v1.0.1)</i>	
Laboratory Test General Result Data A2	
Record key	PYN_LAB_HMS_000123
Laboratory test name local code	PSP152369
Laboratory test name local description	Phosphate or Serum or Plasma
Laboratory Test Result Type	1
Laboratory test numeric result	3.7
Laboratory test reportable result	3.7
Laboratory test enumerated result	
Laboratory test text result	
Laboratory test result note	
Laboratory test result unit	mg /DL
Laboratory test reference range	Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level of <7%. At levels >9.0%

Technical Interface Specification for eHR Laboratory Result (General Result) Record

	treatment should be re-evaluated
Detection limit indicator code	
Detection limit indicator description	
Detection limit indicator local description	
Abnormal result indicator code	
Abnormal result indicator description	
Abnormal result indicator local description	
Panel local code	LFT
Panel local description	Liver Function Test
Laboratory report authorized datetime	2009-11-20 14:10:00.000
Laboratory report authorized healthcare staff identifier <i>(Retained for backward compatibility to v1.0.1)</i>	
Laboratory report authorized healthcare staff English name	Jack Lee
Laboratory report authorized healthcare staff English given name <i>(Retained for backward compatibility to v1.0.1)</i>	
Laboratory report authorized healthcare staff English name prefix <i>(Retained for backward compatibility to v1.0.1)</i>	
Laboratory report authorized healthcare staff Chinese name	李傑克
Laboratory report authorized healthcare staff Chinese name suffix <i>(Retained for backward compatibility to v1.0.1)</i>	
Laboratory Report Data A1	
Record key	PYN_LAB_HMS_000123
Laboratory report status code	F
Laboratory report status description	Final report
Laboratory report status local description	Final Report
Laboratory report date	2009-11-20 14:10:00.000
File name	8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.123.pdf.20100000001.20110702084530
Laboratory report (text)	
Laboratory Report Data A2	
Record key	PYN_LAB_HMS_000123
Laboratory report status code	F
Laboratory report status description	Final report
Laboratory report status local description	Final Report
Laboratory report date	2009-11-20 14:10:00.000
File name	8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.124.pdf.20100000001.20110702084530
Laboratory report (text)	

14.2.1 CDA Example for New (S1) in Data Compliance Level 2

8088450656.BRANCHA.LABGEN.CDA.20110702084530

```

<?xml version="1.0" encoding="UTF-8"?>
<ClinicalDocument xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd" xmlns="urn:hl7-org:v3"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<!--
*****
CDA General Information
*****
-->
<typeId root="2.16.840.1.113883.1.3" extension="POCD_HD000040"/>
<id/>
<code code="LABGEN"/>

```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

```
<title> Laboratory General Result</title>
<effectiveTime/>
<confidentialityCode/>
<recordTarget>
<patientRole>
</id>
</patientRole>
</recordTarget>
<author>
<time/>
<assignedAuthor>
</id>
</assignedAuthor>
</author>
<custodian>
<assignedCustodian>
<representedCustodianOrganization>
</id>
</representedCustodianOrganization>
</assignedCustodian>
</custodian>
<!--
*****
Clinical Information
*****
-->
<component>
<nonXMLBody>
<clinicalDoc>
<participant>
<ehr_no>20100000001</ehr_no>
<hkid>A1234563</hkid>
<doc_type>ID</doc_type>
<doc_no>A1234563</doc_no>
<person_eng_surname>CHAN </person_eng_surname>
<person_eng_given_name>TAI MAN</person_eng_given_name>
<person_eng_full_name>CHAN, TAI MAN</person_eng_full_name>
<sex>M</sex>
<birth_date>1999-01-01 00:00:00.000</birth_date>
</participant>
<detail>
<lab_req_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<transaction_dtm>2012-05-01 00:00:00.000</transaction_dtm>
<transaction_type>I</transaction_type>
<last_update_dtm>2012-05-01 00:00:00.000</last_update_dtm>
<episode_no>EP-12345</episode_no>
<attendance_inst_id>8088450656</attendance_inst_id>
<request_no>11-CC123456</request_no>
<request_doctor>Dr. TM CHAN</request_doctor>
<request_participant_inst_id>1735455950</request_participant_inst_id>
<request_participant_inst_name>PWU Prince of Wales Hospital </request_participant_inst_name>
<request_participant_inst_lt_desc>PWU Prince of Wales Hospital </request_participant_inst_lt_desc>
<order_no>ABC123456</order_no>
<lab_category_cd>CHEM</lab_category_cd>
<lab_category_desc>Chemical Pathology Laboratory</lab_category_desc>
<lab_category_lt_desc>Clinical Chemistry Laboratory</lab_category_lt_desc>
<perform_lab_name>Kowloon Bay Clinical Laboratory</perform_lab_name>
<report_reference_dtm>2009-11-20 14:10:00.000</report_reference_dtm>
<clinical_info>Ca Lung</clinical_info>
<lab_report_comment>Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level of <7%. At levels >9.0% treatment should be re-evaluated, with consideration given to more intensive management. Suggested HbA1c Guidelines: 6.1-7.0% HbA1c: very good control 7.1-8.0% HbA1c: adequate control 8.1-9.0% HbA1c: sub-optimal control >9.0% HbA1c: poor control.</lab_report_comment>
<specimen_type_lt_id>ASB00168</specimen_type_lt_id>
<specimen_type_lt_desc>Abscess swab</specimen_type_lt_desc>
<specimen_arrival_dtm>2009-11-11 16:15:00.000</specimen_arrival_dtm>
<specimen_collect_dtm>2009-11-12 18:30:00.000</specimen_collect_dtm>
<file_ind>1</file_ind>
<record_creation_dtm>2010-06-08 15:22:00.000</record_creation_dtm>
<record_creation_inst_id>8088450656</record_creation_inst_id>
```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

```
<record_creation_inst_name>Princess Margaret Hospital</record_creation_inst_name>
<record_update_dtm>2010-06-08 15:22:00.000</record_update_dtm>
<record_update_inst_id>8088450656</record_update_inst_id>
<record_update_inst_name>Princess Margaret Hospital</record_update_inst_name>
</lab_req_data>
<labgen_result_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<test_lt_id>PSP152368</test_lt_id>
<test_lt_desc>Potassium or Serum or Plasma</test_lt_desc>
<result_type>1</result_type>
<numeric_result>3.5</numeric_result>
<reportable_result>&gt;3.4</reportable_result>
<enumerated_result></enumerated_result>
<text_result></text_result>
<result_note></result_note>
<result_unit>mmol/L</result_unit>
<reference_range>3.0 - 5.2 ;
LDL-chol (calc) -AcceptableBorderline High
&lt;2.82.8 - 3.3&gt;=3.4
</reference_range>
<detection_limit_ind_cd>&gt;</detection_limit_ind_cd>
<detection_limit_ind_desc>Greater than</detection_limit_ind_desc>
<detection_limit_ind_lt_desc>GRE</detection_limit_ind_lt_desc>
<abnormal_ind_cd>H</abnormal_ind_cd>
<abnormal_ind_desc>High</abnormal_ind_desc>
<abnormal_ind_lt_desc>HH</abnormal_ind_lt_desc>
<panel_lt_cd>RFT</panel_lt_cd>
<panel_lt_desc>Renal Function Test</panel_lt_desc>
<report_auth_dtm>2009-11-20 14:10:00.000</report_auth_dtm>
<report_auth_staff_eng_name>Jack Lee</report_auth_staff_eng_name>
<report_auth_staff_chi_name>李傑克</report_auth_staff_chi_name>
</labgen_result_data>
<labgen_result_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<test_lt_id>PSP152369</test_lt_id>
<test_lt_desc>Phosphate or Serum or Plasma</test_lt_desc>
<result_type>1</result_type>
<numeric_result>3.7</numeric_result>
<reportable_result>3.7</reportable_result>
<enumerated_result></enumerated_result>
<text_result></text_result>
<result_note></result_note>
<result_unit>mg /DL</result_unit>
<reference_range>Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level of &lt;7%. At levels gt;9.0% treatment should be re-evaluated
</reference_range>
<detection_limit_ind_cd></detection_limit_ind_cd>
<detection_limit_ind_desc></detection_limit_ind_desc>
<detection_limit_ind_lt_desc></detection_limit_ind_lt_desc>
<abnormal_ind_cd></abnormal_ind_cd>
<abnormal_ind_desc></abnormal_ind_desc>
<abnormal_ind_lt_desc></abnormal_ind_lt_desc>
<panel_lt_cd>LFT</panel_lt_cd>
<panel_lt_desc>Liver Function Test</panel_lt_desc>
<report_auth_staff_eng_name>Jack Lee</report_auth_staff_eng_name>
<report_auth_staff_chi_name>李傑克</report_auth_staff_chi_name>
</labgen_result_data>
<lab_report_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<report_status_cd>F</report_status_cd>
<report_status_desc>Final report</report_status_desc>
<report_status_lt_desc>Final Report</report_status_lt_desc>
<report_dtm>2009-11-20 14:10:00.000</report_dtm>
<file_name>8088450656.BRANCHALABGEN.PYN_LAB_HMS_000123.123.pdf.20100000001.20110702084530</file_name>
<report_text></report_text>
</lab_report_data>
<lab_report_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<report_status_cd>F</report_status_cd>
<report_status_desc>Final report</report_status_desc>
<report_status_lt_desc>Final Report</report_status_lt_desc>
<report_dtm>2009-11-20 14:10:00.000</report_dtm>
<file_name>8088450656.BRANCHALABGEN.PYN_LAB_HMS_000123.124.pdf.20100000001.20110702084530</file_name>
<report_text></report_text>
</lab_report_data>
```

```
</detail>
</clinicalDoc>
<text/>
<nonXMLBody>
</component>
</ClinicalDocument>
```

14.2.2 HL7 Message Example for New (S1) in Data Compliance Level 2

8088450656.BRANCHA.LABGEN.HL7.20110702084530

```
<?xml version="1.0" encoding="utf-8"?>
<ORU_R01 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml \\\\hoehrvs01\\eHR\\CE4\\MESSAG-1\\EHR\\HL7SAM~1\\V25SCH~1\\xsd\\ORU_R01.xsd">
  <MSH>
    <MSH.1></MSH.1>
    <MSH.2>^~&lt;></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>20110427181041</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>20110702084530</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
    <MSH.12>
      <VID.1>2.5</VID.1>
    </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>ED</OBX.2>
        <OBX.3>
          <CE.1> LABGEN </CE.1>
        </OBX.3>
        <OBX.4>NBL</OBX.4>
        <OBX.5>
      <ED.2>multipart</ ED.2>
      <ED.4>A</ ED.4>
      <ED.5>
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        Content-Type: multipart/mixed; boundary=00163630f5f354355b046be66f6d
        --00163630f5f354355b046be66f6d
        Content-Type: text/xml; charset=UTF-8; name="8088450656.BRANCHA.LABGEN.CDA.20110702084530I"
        Content-Disposition: attachment; filename="8088450656.BRANCHA.LABGEN.CDA.20110702084530"
        Content-Transfer-Encoding: base64
        X-Attachment-Id: f_fvqdehi70
        PD94bWwgdmVyc2lvbj0iMS4wLiBlbmNvZGluZz0iVVVRGLTgiPz4NCjwhLS0gQ0RBIFNhXBs
```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

ZSBmb3IgSEtISFIgSW50ZXJvcGVyYWJpbGl0eSAtLT4NCg0KPCEtLSBDb3B5cmlnaHQ6IFRo
ZSBvd25lcnN0aXAgb2YgdGhpcyBk2N1bWVudCBzaG91bGQgYmUgUHJlcGFyYXRvcnkgR3Jv
dXAgb24gZUhSIENvbnRlbnQgJiBTdGFuZGKyZHMgdW5kZXlgZUhSIENvbnRlbnQgYW5kIElu
Zm9ybWF0aW9uFN0YW5kYXJkcyBxB3IraW5nEdy3VwIGFuZCbmDR1cmUgZUhSIG9mZmlj
ZS4gQWxsIFJpZ2h0cyBSZXNlcZIC4gLs0+DQo8IS0tIERpc2NsYVltZXI6IFRoZSBjbmZv
IGZvciBFcGzb2RIIFN1bW1hcngd2hpY2ggYXR0YWNoZWQgdGhIIFBERiAgLS0+DQoNCjxDF0
.....
.....

aW9uPSJ1cm46aGw3LW9yZzp2MyBDREUeHNkIiBjbGFzc0NvZGU9IkRPQ0NMSU4iIG1vb2RD
b2RIP SJFV k4iP g0KDQo8IS0tIA0KKioqKioqKioqKioqKioqKioqKioqKioq
KioqKg0KSGVhZGVyIEluZm9ybWF0aW9uDQoqKioqKioqKioqKioqKioqKioqKioq
KioqKioqDQotLT4JDQoNCgk8dHwZUlkhJvb3Q9IjIuMTYuODQwLjEuMTEzODgZLjEu
MyIgZXh0ZW5zaW9uPSJQT0NEX0hEMDAwMDQwIi8+DQoJPCEtLSB0ZW1wbGF0ZUlkhJvb3Q9
IjIuMTYuODQwLjEuMTEzODgZLjEwLjIwLjEiLjAtLT4NCgkNCgk8IS0tIERvY3VtZW50IEIE
OyB1bmldWUsIGFz2lnbmVkJG51FByb3ZpZGVyL0N1c3RvZGhbiwgcm9vdCbjb2RIIG9m
ICBQcm92aWRlcI9DdXN0b2RpYW4gdG8gYmUgZGVmaW51ZC0tPg0KCTxpZCByb290PSIyLjE2
Ljg0MC4xLjExMzg4My42LjEiIGV4dGVuc2lvbj0iMTIzNDU2NzgiLz4NCgkNCgk8Y29kZSBj
b2RIPSIzNDEzMy05iBjb2RIU3ldzGvtpSiyljE2Ljg0MC4xLjExMzg4My42LjEiIGRcp3Bs
dW1bnQ+DQo=

-00163630f5f354355b046be66f6d

Content-Type: application/pdf;
name="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.123.pdf.201000000001.20110702084530"
Content-Disposition: attachment;
filename="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.123.pdf.201000000001.20110702084530"
Content-Transfer-Encoding: base64

JVBERi0xLjUNCiW1tbW1DQoxIDAgb2JqDQo8PC9UeXBIL0NhGFsb2cvUGFnZXMGMiAwIFIv
TGFuZyh6aC1UVykgL1N0cnVjdFRyZWVSB290IDM2OSAwIFIvTWFya0luZm88PC9NYXJrZWQg
dHJ1ZT4+Pj4NCmVuZG9iag0KMiAwIG9iag0KPDwvVHlwZS9QYWdlcy9Db3VudCA0L0tpZHNB
IDMgMCBSIDEzMSAwIFIgMjQwIDAgUiAzNjAgMCBSXSA+Pg0KZW5kb2JqDQo8IDAgb2JqDQo8
PC9UeXBIL1BhZ22UvUGFyZW50IDigMCBSL1Jic291cmNlczw8L1HPYmplY3Q8PC9JbWFnZTUg
NSAwIFIvSW1hZ22U3IDcgMCBSL0ltYWdlOSA5IDAgUi9JbWFnZTExIDEiDAgUi9JbWFnZTEz
IDEzIDAgUi9JbWFnZTE1IDE1IDAgUi9JbWFnZTE3IDE3IDAgUi9JbWFnZTE5IDE5IDAgUi9J
bWFnZTIxIDIxIDAgiUi9JbWFnZTIzIDzIDAgUi9JbWFnZTI1IDI1IDAgUi9JbWFnZTI3IDI3
IDAgUi9JbWFnZTI5IDI5IDAgUi9JbWFnZTMxIDMxDIDAgUi9JbWFnZTMzIDMzIDAgUi9JbWFn
.....
.....
.....

ZTM1IDM1IDAgUi9JbWFnZTM3IDM3IDAgUi9JbWFnZTM5IDM5IDAgUi9JbWFnZTQxIDQxIDAg
Ui9JbWFnZTQzIDQzIDAgUi9JbWFnZTQ1IDQ1IDAgUi9JbWFnZTQ3IDQ3IDAgUi9JbWFnZTQ5
gMDAwMDAgbg0KMDAwMDI5NjUzMSAwMDAwMCBuDQowMDAwMjk2NTYwIDAwMDAwIG4NCjAwMDA
OTY1ODkgMDAwMDAgbg0KMDAwMDMzODQ1MSAwMDAwMCBuDQo8cmFpbGVyDQo8PC9TaXplIDEy
NTgvUm9vdCAxIDAgUi9JbmZvIDM2OCawIFIvSURbPEQxOUYyOTI0QTg2MjcwNDVCRUJFRDRG
MTFEMEMwNjJFPjxEMTIGMjkyNEE4Nj13MDQ1QkVCRUQ0RjExRDBDMDYyRT5dID4+DQpzG
dHyhZWYNCjM0MTUyMQ0KJSVFT0YNCnhYZWYNCjAgMA0KdHJhaWxlcg0KPDwvU216ZSAxMjU4
L1Jvb3QgMSAwIFIvSW5mbyAzNjggMCBSL0lEWzxEMTIGMjkyNEE4Nj13MDQ1QkVCRUQ0RjEx
RDBDMDYyRT48RDE5RjI5MjRBODYyNzA0NUJFQkVENEYxMUQwQzA2MkU+XSAvUHJldiAzNDE1
MjEvWFJZlN0bsAzMzg0NTE+Pg0Kc3RhcnR4cmVmDQozNjY4NDQNCiUIRU9G

-00163630f5f354355b046be66f6d

Content-Type: application/pdf;
name="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.124.pdf.201000000001.20110702084530"
Content-Disposition: attachment;
filename="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.124.pdf.201000000001.20110702084530"
Content-Transfer-Encoding: base64

Mwk1NAzWCGBNG2ouJgY61BybH4UaoKL1HAaNkdofsSbEuuNiogl61iyySAXsOQx+E0wbbC4W
djk8iCDfvu1e5CTm5sQNllhewXIWK6sb0RRGNm57YkP0roiYGxoVTkXoNyGimUrVteTKXr
brJNWFJvUb3yjXo0KK6p1JPZQ5LtxJ6EJa3d9IgJSftmoynkgrki5sXXLXUG/Sds3YjyUgq
mi+efJVKpAhchKtyOpVIKISvKcd7rArxEiQWzp2t03VXdf0d3hBJBWz16AsxiJdiilgUMxc
L4imC7Abd1lsxsNykv8tWqj48VU+jN4vId07aL1fZ0B5FRdw17afKCDzHZH9RPnDnSf17
x521xJq9s/WLO58md04GgQz2AEY91dNAhScRwEGhb2qe1PZ9tUTkdi+JpFT/3oIDfvvCv3o
WOu151HARLyYDNYZu6OAatV0FLCdytHTL4w+FhYWNjcRYrBSGWtOnf4DUt2RF5XTguNSJidX
.....
.....
.....

sRnIO8JmAG96dcWbjPXLHx++HPDdpPXde1z8N2CBB8ve/45ZZNeD3aGPA0CNodkF9v5z9PZP
8ePv20+/vRbC+Tf/Zu//8fz0PSLsKLKDggnG+Brlt6/Y18fCrqFkL+IxAxwli7S7gZKrmgQ7
JBU6sDQIIFsmrW6YNCMmydARcZA869Dx1yK8eSh4KO1fyOUBsMA12dHGx6u25VLbhks/4pIs
PCIOkqewiFuLw+ahuiM+DHoZlepGsrU3YGD9yFstktAADKi1zeESeMGxwY1UGuxe/JBK
+1DdoeCFKa0CWKCSqjtihFMXKqfJO2FUHFhNUgkiiUekWqewOzmZUSqzp/Uuq4QpggUryA
.....

```
--00163630f5f354355b046be66f6d--  
</ED.5>  
  </OBX.5>  
    <OBX.11>F</OBX.11>  
  </OBX>  
  </ORU_R01.OBSERVATION>  
  </ORU_R01.ORDER_OBSERVATION>  
  </ORU_R01.PATIENT_RESULT>  
</ORU_R01>
```

14.2.3 CDA Example for Update (S2) in Data Compliance Level 2

8088450656.BRANCHA.LABGEN.CDA.20110702084530

```
<?xml version="1.0" encoding="UTF-8"?>  
<ClinicalDocument xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd" xmlns="urn:hl7-org:v3"  
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">  
<!--  
*****  
CDA General Information  
*****  
-->  
<typeId root="2.16.840.1.113883.1.3" extension="POCD_HD000040"/>  
<id/>  
<code code="LABGEN"/>  
<title> Laboratory General Result</title>  
<effectiveTime/>  
<confidentialityCode/>  
<recordTarget>  
<patientRole>  
<id/>  
</patientRole>  
</recordTarget>  
<author>  
<time/>  
<assignedAuthor>  
<id/>  
</assignedAuthor>  
<author>  
<custodian>  
<assignedCustodian>  
<representedCustodianOrganization>  
<id/>  
</representedCustodianOrganization>  
</assignedCustodian>  
</custodian>  
<!--  
*****  
Clinical Information  
*****  
-->  
<component>  
<nonXMLBody>  
<clinicalDoc>  
  <participant>  
    <ehr_no>201000000001</ehr_no>  
    <hkid>A1234563</hkid>  
    <doc_type>ID</doc_type>  
    <doc_no>A1234563</doc_no>  
    <person_eng_surname>CHAN</person_eng_surname>  
    <person_eng_given_name>TAI MAN</person_eng_given_name>  
    <person_eng_full_name>CHAN, TAI MAN</person_eng_full_name>  
    <sex>M</sex>  
    <birth_date>1999-01-01 00:00:00.000</birth_date>  
  </participant>  
  <detail>  
    <lab_req_data>  
      <record_key>PYN_LAB_HMS_000123</record_key>  
      <transaction_dtm>2012-05-01 00:00:00.000</transaction_dtm>  
      <transaction_type>U</transaction_type>  
      <last_update_dtm>2012-05-01 00:00:00.000</last_update_dtm>  
      <episode_no>EP-12345</episode_no>  
      <attendance_inst_id>8088450656</attendance_inst_id>  
      <request_no>11-CC123456</request_no>
```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

```
<request_doctor>Dr. TM CHAN</request_doctor>
<request_participant_inst_id>1735455950</request_participant_inst_id>
<request_participant_inst_name>PWH Prince of Wales Hospital </request_participant_inst_name>
<request_participant_inst_lt_desc>PWH Prince of Wales Hospital </request_participant_inst_lt_desc>
<order_no>11-CC123456</order_no>
<lab_category_cd>CHEM</lab_category_cd>
<lab_category_desc>Chemical Pathology Laboratory</lab_category_desc>
<lab_category_lt_desc>Clinical Chemistry Laboratory</lab_category_lt_desc>
<perform_lab_name>Kowloon Bay Clinical Laboratory</perform_lab_name>
<report_reference_dtm>2009-11-20 14:10:00.000</report_reference_dtm>
<clinical_info>Ca Lung</clinical_info>
<lab_report_comment>Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level of &lt;7%. At levels &gt;9.0% treatment should be re-evaluated, with consideration given to more intensive management.  
Suggested HbA1c Guidelines:  
6.1-7.0% HbA1c: very good control  
7.1-8.0% HbA1c: adequate control  
8.1-9.0% HbA1c: sub-optimal control  
&gt;9.0% HbA1c: poor control.
</lab_report_comment>
<specimen_type_lt_id>ASB00168</specimen_type_lt_id>
<specimen_type_lt_desc>Abscess swab</specimen_type_lt_desc>
<specimen_arrival_dtm>2009-11-11 16:15:00.000</specimen_arrival_dtm>
<specimen_collect_dtm>2009-11-12 18:30:00.000</specimen_collect_dtm>
<file_ind>1</file_ind>
<record_creation_dtm>2010-06-08 15:22:00.000</record_creation_dtm>
<record_creation_inst_id>8088450656</record_creation_inst_id>
<record_creation_inst_name>Princess Margaret Hospital</record_creation_inst_name>
<record_update_dtm>2010-06-08 15:22:00.000</record_update_dtm>
<record_update_inst_id>8088450656</record_update_inst_id>
<record_update_inst_name>Princess Margaret Hospital</record_update_inst_name>
</lab_req_data>
<labgen_result_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<test_lt_id>PSP152368</test_lt_id>
<test_lt_desc>Potassium or Serum or Plasma</test_lt_desc>
<result_type>1</result_type>
<numeric_result>3.5</numeric_result>
<reportable_result>&gt;3.4</reportable_result>
<enumerated_result></enumerated_result>
<text_result></text_result>
<result_note></result_note>
<result_unit>mmol/L</result_unit>
<reference_range>3.0 - 5.2 ;  
LDL-chol (calc) -AcceptableBorderline High  
&lt;2.82.8 - 3.3&gt;=3.4
</reference_range>
<detection_limit_ind_cd>&gt;</detection_limit_ind_cd>
<detection_limit_ind_desc>Greater than</detection_limit_ind_desc>
<detection_limit_ind_lt_desc>GRE</detection_limit_ind_lt_desc>
<abnormal_ind_cd>H</abnormal_ind_cd>
<abnormal_ind_desc>High</abnormal_ind_desc>
<abnormal_ind_lt_desc>HH</abnormal_ind_lt_desc>
<panel_lt_cd>RFT</panel_lt_cd>
<panel_lt_desc>Renal Function Test</panel_lt_desc>
<report_auth_dtm>2009-11-20 14:10:00.000</report_auth_dtm>
<report_auth_staff_eng_name>Jack Lee</report_auth_staff_eng_name>
<report_auth_staff_chi_name>李傑克</report_auth_staff_chi_name>
</labgen_result_data>
<labgen_result_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<test_lt_id>PSP152369</test_lt_id>
<test_lt_desc>Phosphate or Serum or Plasma</test_lt_desc>
<result_type>1</result_type>
<numeric_result>3.7</numeric_result>
<reportable_result>3.7</reportable_result>
<enumerated_result></enumerated_result>
<text_result></text_result>
<result_note></result_note>
<result_unit>mg /DL</result_unit>
<reference_range>Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level of &lt;7%. At levels >9.0% treatment should be re-evaluated
</reference_range>
<detection_limit_ind_cd></detection_limit_ind_cd>
<detection_limit_ind_desc></detection_limit_ind_desc>
```

```

<detection_limit_ind_lt_desc></detection_limit_ind_lt_desc>
<abnormal_ind_cd></abnormal_ind_cd>
<abnormal_ind_desc></abnormal_ind_desc>
<abnormal_ind_lt_desc></abnormal_ind_lt_desc>
<panel_lt_cd>LFT</panel_lt_cd>
<panel_lt_desc>Liver Function Test</panel_lt_desc>
<report_auth_staff_eng_name>Jack Lee</report_auth_staff_eng_name>
<report_auth_staff_chi_name>李傑克</report_auth_staff_chi_name>
</labgen_result_data>
<lab_report_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<report_status_cd>F</report_status_cd>
<report_status_desc>Final report</report_status_desc>
<report_status_lt_desc>Final Report</report_status_lt_desc>
<report_dtm>2009-11-20 14:10:00.000</report_dtm>
<file_name>8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.123.pdf.20100000001.20110702084530</file_name>
<report_text></report_text>
<lab_report_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<report_status_cd>F</report_status_cd>
<report_status_desc>Final report</report_status_desc>
<report_status_lt_desc>Final Report</report_status_lt_desc>
<report_dtm>2009-11-20 14:10:00.000</report_dtm>
<file_name>8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.124.pdf.20100000001.20110702084530</file_name>
<report_text></report_text>
<lab_report_data>
</detail>
</clinicalDoc>
<text/>
</nonXMLBody>
</component>
</ClinicalDocument>

```

14.2.4 HL7 Message Example for Update (S2) in Data Compliance Level 2

8088450656.BRANCHA.LABGEN.HL7.20110702084530

```

<?xml version="1.0" encoding="utf-8"?>
<ORU_R01 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml \\hoehrvs01\ehr\CE4\MESSAG-1\EHR\HL7SAM~1\V25SCH~1\xsd\ORU_R01.xsd">
<MSH>
<MSH.1></MSH.1>
<MSH.2>^~&lt;></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>20110427181041</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>20110702084530</MSH.10>
<MSH.11>
<PT.1>P</PT.1>
</MSH.11>
<MSH.12>
<VID.1>2.5</VID.1>
</MSH.12>
<MSH.15>NE</MSH.15>

```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

```
</MSH>
<ORU_R01.PATIENT_RESULT>
<ORU_R01.ORDER_OBSERVATION>
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    <CE.1> LABGEN </CE.1>
    </OBR.4>
  </OBR>
<ORU_R01.OBSERVATION>
<OBX>
  <OBX.2>ED</OBX.2>
  <OBX.3>
    <CE.1> LABGEN </CE.1>
  </OBX.3>
  <OBX.4>NBL</OBX.4>
  <OBX.5>
<ED.2>multipart</ ED.2>
< ED.4>A</ ED.4>
< ED.5>
  MIME-Version: 1.0
Content-Type: multipart/mixed; boundary=00163630f5f354355b046be66f6d

--00163630f5f354355b046be66f6d
Content-Type: text/xml; charset=UTF-8; name="8088450656.BRANCHA.LABGEN.CDA.20110702084530"
Content-Disposition: attachment; filename="8088450656.BRANCHA.LABGEN.CDA.20110702084530"
Content-Transfer-Encoding: base64
X-Attachment-Id: f_fvqdehi70

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ZSBmb3IgSEtISIgSW50ZXJvcGVyYWJpbGl0eSAtLT4NCg0KPCEtLSBDb3B5cmInaHQ6IFRo
ZSBvd25lcnNoaXAgb2YgdGhpcyBkb2N1bWVudCBzaG91bGQgYmUgUHJlcGFyYXRvcnkgR3Jv
dXAgb24gZUhSIEvbnRlbnQgjIBTdGFuZHMgdW5kZXIgZUhSIEvbnRlbnQgYW5kIElu
Zm9ybWF0aW9uIFn0Y5kYXJkcyBx3JraW5nIEdyb3VwIGFuZCBmdXR1cmUgZUhSIG9mZmlj
ZS4gQWxsIFJpZ2h0cyBSZXNlcZlZC4gLS0+DQo8IS0tERpc2NsYWlZXi6FRoZSBJbmZv
IGZvciBFcGlzb2RIIFN1bW1hcenkgd2hpY2ggYXR0YWN0ZWQgdGhlIFBERiAgLS0+DQoNCjxF0
.....
.....
.....
aW9uPSJ1cm46aGw3LW9yZzp2MyBDREEueHNkliBjbGFzc0NvZGU9IkRPQ0NMSU4iG1vb2RD
b2RIPSPJFVK4iPg0KDQo8IS0tIA0KKioqKioqKioqKioqKioqKioqKioqKioq
KioqKg0KSGVhZGVyIEluZm9ybW9uDQoqKioqKioqKioqKioqKioqKioq
KioqKioqDQotLT4JDQoNCgk8dHlwZUlkiHJvb3Q9ljEuMTYuDQwLjEuMTEzODgzLjEu
MylgZXh0ZW5zaW9uPSJQT0NEX0hEMDAwMDQwi+DQoJPCEtLSB0ZW1wbGF0ZUlkiHJvb3Q9
IjIuMTYuODQwLjEuMTEzODgzLjEuMTEzODgzLjEuMTEzODgzLjEuMTEzODgzLjEu
OyB1bmldWUsIGFzc2lnbmVkJG15IFByb3ZpZGVyL0N1c3RvZGhbiwgc9vdCjb2RIIG9m
ICBQcm92aWR1ci9DdXN0b2RpYW4gdG8gYmUgZGVmaW5lZC0tPg0KCTxpZCByb290PSIyLjE2
Ljg0MC4xLjExMzg4My42LjEiIGV4dGVuc2lvbj0iMTIzNDU2NzgjLz4NCgk8Y29kZSBj
b2RIPSIzNDEzMy05iBjb2RIU3lzdGVtPSIyLjE2Ljg0MC4xLjExMzg4My42LjEiIGRp3Bs
dW1lbnQ+DQo=
.....
.....
.....
-00163630f5f354355b046be66f6d
Content-Type: application/pdf;
name="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.123.pdf.20100000001.20110702084530"
Content-Disposition: attachment;
filename="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.123.pdf.20100000001.20110702084530"
Content-Transfer-Encoding: base64

JVBERi0xLjUNCiW1tbW1DQoxIDAgb2JqDQo8PC9UeXBIL0NhdGFsb2cvUGFnZXMgMiAwIFIv
TGFuZyh6aC1UVykgL1N0cnVjdFRyZWVSh290IDM2OSAwIFIvTWFya0luZm88PC9NYXJfZWQg
dHJ1ZT4+Pj4NCmVuZG9iag0KMiaWig9iag0KPDwvVHlwZS9QYWdIcy9Db3VudCA0L0tpZHNBn
IDMgMCBSIDEzMSAwIFIgMjQwIDAgUiAzNjAgMCBSXSA+Pg0KZW5kb2JqDQozIDAgnB2JqDQo8
PC9UeXBIL1BhZ2UvUGFyZW50IDAgMCBSL1Jic291cmNlczw8L1hPYmplY3Q8PC9JbWFnZTUg
NSAwIFIvSW1hZ2U3IDcgMCBSL0tYWDlOSA5IDAgUi9JbWFnZTE3IDE3IDAgnB2JqDQo8PC9JbWFnZTEz
IDEzIDAgUi9JbWFnZTE1IDE1IDAgnB2JqDQo8PC9JbWFnZTE3IDE3IDAgnB2JqDQo8PC9JbWFnZTE5IDE5IDAgnB2JqDQo8PC9JbWFnZTEz
bWFnZTIxIDIxIDAgUi9JbWFnZTIzIDzIDAgUi9JbWFnZTI1IDI1IDAgnB2JqDQo8PC9JbWFnZTI3IDI3
IDAgnB2JqDQo8PC9JbWFnZTI5IDI5IDAgnB2JqDQo8PC9JbWFnZTMxIDMxIDAgnB2JqDQo8PC9JbWFnZTMzIDAgUi9JbWFn
.....
.....
.....
ZTM1IDM1IDAgnB2JqDQo8PC9UeXBIL0NhdGFsb2cvUGFnZXMgMiAwIFIv
Ui9JbWFnZTQzIDQzIDAgnB2JqDQo8PC9JbWFnZTQ1IDQ1IDAgnB2JqDQo8PC9JbWFnZTQ5
gMDAwMDAgbg0KMDAwMDI5NjUzMSAwMDAwMCBuDQowMDAwMjk2NTYwIDAgnB2JqDQo8PC9JbWFnZTQ5
OTY1ODkgMDAwMDAgbg0KMDAwMDMzODQ1MSAwMDAwMCBuDQo8PC9JbWFnZTQ5
NTgvUm9vdCAxIDAgnB2JbmZvIDM2OCAwIFIvSURbPEQxOUYyOTI0QTg2MjcwNDVCRUJFRDRG
.....
.....
.....
```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

MTFEMEMWnjFPjxEMTIGMjkyNEE4NjI3MDQ1QkVCRUQ0RjExRDBMDYyRT5dID4+DQpzdGFy
dHhyZWYNCjM0MTUyMQ0KJSVFT0YNCnhyZWYNCjAgMA0KdHjaWxlcg0KPDwvU2l6ZSAxMjU4
L1Jvb3QgMSAwIFIvSW5mbyAzNjggMCBSL0IEWzxEMTIGMjkyNEE4NjI3MDQ1QkVCRUQ0RjEx
RDBMDYyRT48RDE5RjI5MjRBODYyNzA0NUJFQkVENEYxMUQwQzA2MkU+XSAvUHJldiAzNDE1
MjEvWFJIZlN0bSAzMzg0NTE+Pg0Kc3RhcnR4cmVmDQozNjY4NDQNCiUIR9G

--00163630f5f354355b046be66f6d
Content-Type: application/pdf;
name="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.124.pdf.201000000001.20110702084530"
Content-Disposition: attachment;
filename="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.124.pdf.201000000001.20110702084530"
Content-Transfer-Encoding: base64

Mwk1NAzWCGBNG2ouJgY61BybH4UaoKL1HAaNkdofsSbEuuNiogI61iyySAXsOQx+E0wbbC4W
djJK8iCDvFu1e5CTm5sQNllhewXIWK6sb0RRGNm57YkP0roiYGx0VTkXoNyGimUrVteTKXr
brJNWFJvUb3yjXo0KK6p1JPZQ5LtxJJ6EJa3d9IgJSftmoynkgrki5sXXLXUG/Sds3YjUgq
mi+efJVKpAhchKtOpVIKISvKcd7rArxEiQWzp2t03VXdf0Qd3hBJBwz16AsxiJdilglUMxc
L4imC7Abd1lSsXsNykv8tWqj48VU+jN4vIdd07aL1fZ0B5FRdw17afKCDzHZH9RPnDnSf17
x521xjq9s/wLO58mDd04GgQz2AEY91dNAhScRwEGhb2qe1PZ9UTkdi+JpFT/3oIDfvvCv3o
WOu151HARLyYDNyZu6OAatV0FLCdtyHTL4w+FhYWNjcRYrBSGWtOnf4DUt2RF5XTguNSJidX
.....
.....
.....
sRnIO8JmAG96dcWbjPXLHx++HPDdpPXde1z8N2CB8ve/45ZZNcD3aGPA0CNODkF9v5z9PZP
8ePvz0+/vRbC+Tf/Zu/8fz0PSLsKLKDggnG+Brlt6/Y18fCrqFkL+IxAxwli7S7gZKrmgQ7
JCEP5HbzontUEOIxbCljkYmRW9Tzmy5WN2dMCcVeWxN6n8sDYIFLKrEELLW0abk0uuHSjrj0
JJeIE7mMPe0i90sMOVS+RdyeQDMudRUwe23DNVQqWxDZRhQqYGkEnGQoSofdl1+jUnfDyJRK
PCIOkqewiFuLw+ahuiM+DHoZlepGsrRU3YGD9yFStktAADKi1ZeESceMGxwY1UGuxE/JBK
+1DdocCFKa0CWKCsqtjHFMXKqFJO2FUHFhNUgkiUekWqewOzmZUSqzp/Uuq4QpggUryaYfh

--00163630f5f354355b046be66f6d--
</ ED.5>
 </OBX.5>
 <OBX.11>F</OBX.11>
 </OBX>
 </ORU_R01.OBSERVATION>
 </ORU_R01.ORDER_OBSERVATION>
 </ORU_R01.PATIENT_RESULT>
</ORU_R01>

14.2.5 CDA Example for Delete (S3) in Data Compliance Level 2

8088450656.BRANCHA.LABGEN.CDA.20110702084530

```
<?xml version="1.0" encoding="UTF-8"?>
<ClinicalDocument xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd" xmlns="urn:hl7-org:v3"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

-->
<typeId root="2.16.840.1.113883.1.3" extension="POCD_HD000040"/>
<id/>
<code code="LABGEN"/>
<title> Laboratory General Result</title>
<effectiveTime/>
<confidentialityCode/>
<recordTarget>
<patientRole>
<id/>
</patientRole>
</recordTarget>
<author>
<time/>
<assignedAuthor>
<id/>
</assignedAuthor>
<author>
<custodian>
<assignedCustodian>
<representedCustodianOrganization>
<id/>
</representedCustodianOrganization>
```

```
</assignedCustodian>
</custodian>
<!--
*****
Clinical Information
*****
-->
<component>
<nonXMLBody>
<clinicalDoc>
<participant>
<ehr_no>201000000001</ehr_no>
<hkid>A1234563</hkid>
<doc_type>ID</doc_type>
<doc_no>A1234563</doc_no>
<person_eng_surname>CHAN </person_eng_surname>
<person_eng_given_name>TAI MAN</person_eng_given_name>
<person_eng_full_name>CHAN, TAI MAN</person_eng_full_name>
<sex>M</sex>
<birth_date>1999-01-01 00:00:00.000</birth_date>
</participant>
<detail>
<lab_req_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<transaction_dtm>2012-05-01 00:00:00.000</transaction_dtm>
<transaction_type>D</transaction_type>
<last_update_dtm>2012-05-01 00:00:00.000</last_update_dtm>
<episode_no>EP-12345</episode_no>
<attendance_inst_id>8088450656</attendance_inst_id>
</lab_req_data>
</detail>
</clinicalDoc>
<text/>
</nonXMLBody>
</component>
</ClinicalDocument>
```

14.2.6 HL7 Message Example for Delete (S3) in Data Compliance Level 2

8088450656.BRANCHA.LABGEN.HL7.20110702084530

```
<?xml version="1.0" encoding="utf-8"?>
<ORU_R01 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml \\hoehrsv01\ehr\CE4\MESSAG~1\EHR\HL7SAM~1\V25SCH~1\xsd\ORU_R01.xsd">
<MSH>
<MSH.1></MSH.1>
<MSH.2>^~\&amp;lt;</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>20110427181041</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>20110702084530</MSH.10>
<MSH.11>
<PT.1>P</PT.1>
</MSH.11>
<MSH.12>
<VID.1>2.5</VID.1>
</MSH.12>
```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

```
<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>ED</OBX.2>
<OBX.3>
<CE.1> LABGEN </CE.1>
</OBX.3>
<OBX.4>NBL</OBX.4>
<OBX.5>
<ED.2>multipart</ ED.2>
< ED.4>A</ ED.4>
< ED.5>
    MIME-Version: 1.0
Content-Type: multipart/mixed; boundary=00163630f5f354355b046be66f6d

--00163630f5f354355b046be66f6d
Content-Type: text/xml; charset=UTF-8; name="8088450656.BRANCH.A.LABGEN.CDA.20110702084530"
Content-Disposition: attachment; filename="8088450656.BRANCH.A.LABGEN.CDA.20110702084530"
Content-Transfer-Encoding: base64
X-Attachment-Id: f_fvqdehi70

PD94bWwgdmVyc2lvbj0iMS4wIiBlbmNvZGluZz0iVVRLGTgiPz4NCjwhLS0gQ0RBIFNhXBs
ZSBmb3IgSEtISFlgSW50ZXJvcGVyYWJpbGl0eSAtLT4NCg0KPCEtLSBDb3B5cmlnaHQ6IFRo
ZSBvd25lcNoaXAgb2YgdGhpccyBkb2Nl bWVudCBzaG91bGQgYmUgUHJlcGFyYXRvcnkgR3Jv
dXAgb24gZUhSIENvnbnRlbnQgJiBTdGFuZHMgdW5kZXIgZUhSIENvnbnRlbnQgYW5kIElu
Zm9ybWF0aW9uIFN0YW5kYXJkcyBXb3JraW5nIEdyb3VwIGFuZCBmdXR1cmUgZUhSIG9mZmlj
ZS4gQWxsIFJpZ2h0cyBSZXNlcnZlZC4gLs0+DQo8IS0tIERpc2NsYWltZXI6IFRoZSBJbmZv
IGZvciBFcGlzb2RIIFN1bW1hcenkgd2hpY2ggYXR0YWNoZWQgdGhIIFBERiAgLS0+DQoNCjxDf
.....
.....
.....
aW9uPSJ1cm46aGw3LW9yZzp2MyBDREUEeHNkIiBjbGFzc0NvZGU9IkRPQ0NMSU4iIG1vb2RD
b2RIPSJFVk4iPg0KDQo8IS0tA0KKioqKioqKioqKioqKioqKioqKioqKioq
KioqKg0KSGVhZGVyIEluZm9ybWF0aW9uDQoqKioqKioqKioqKioqKioqKioq
KioqKioqDQotLT4JDQoNCgk8dHlwZUlkIHJvb3Q9iJuMTYuODQwLjEuMTEzODgzLjEu
MyIgZXh0ZW5zaW9uPSJQT0NEX0hEMDAwMDQwi8+DQoJPCEtLSB0ZW1wbGF0ZUlkIHJvb3Q9
IjJuMTYuODQwLjEuMTEzODgzLjEuLjIwLjEiLyAtLT4NCgkNCgk8IS0tERvY3VtZW50IEIE
OyB1bmlxdWUsIGFzc2lnbmVkJGJ5IFByb3ZpZGVyL0N1c3RvZGlibwgcm9vdCBjb2RIIG9m
ICBQcm92aWRlcI9DdXN0b2RpYW4gdG8gYmUgZGVmaW5lZC0tPg0KCTxpZCByb290PSIyLjE2
Ljg0MC4xLjExMzg4My42LjEiGV4dGVuc2lvbj0iMTIzNDU2NzgiLz4NCgkNCgk8Y29kZSBj
b2RIPSiZNDExMy05liBjb2RIU3lzdGVtPSIyLjE2Ljg0MC4xLjExMzg4My42LjEiIGRp3Bs
dW1lbnQ+DQo=
--00163630f5f354355b046be66f6d--
</ ED.5>
    <OBX.5>
    <OBX.11>F</OBX.11>
    </OBX>
    <ORU_R01.OBSERVATION>
    <ORU_R01.ORDER_OBSERVATION>
    <ORU_R01.PATIENT_RESULT>
</ORU_R01>
```

14.3 EXAMPLE FOR DATA COMPLIANCE LEVEL 3

Example Data

Insert / Update / Delete a laboratory result (general result) record of a HCR. The record is composed of a request data, two general result data and two report data.

HCR Data	
eHR number	201000000001
HKIC number	A1234563

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Type of identity document	ID
Identity document number	A1234563
English surname	CHAN
English given name	TAI MAN
English full name	CHAN, TAI MAN
Sex	M
Date of birth	1999-01-01 00:00:00.000
Laboratory Test Request Data A	
Record key	PYN_LAB_HMS_000123
Transaction datetime	2012-05-01 00:00:00.000
Transaction type	I : New (S1) U : Update (S2) D : Delete (S3)
Last update datetime	2012-05-01 00:00:00.000
Episode number	EP-12345
Attendance institution identifier	8088450656
Laboratory test request number	11-CC123456
Laboratory test requesting doctor	Dr. TM CHAN
Laboratory test request healthcare institution identifier	1735455950
Laboratory test request healthcare institution long name	Prince of Wales Hospital
Laboratory test request healthcare institution local name	Prince of Wales Hospital
Laboratory test order number	ABC123456
Laboratory category code	CHEM
Laboratory category description	Chemical Pathology Laboratory
Laboratory category local description	Clinical Chemistry Laboraotry
Laboratory test request performing laboratory name	Kowloon Bay Clinical Laboratory
Laboratory report reference datetime	2009-11-20 14:10:00.000
Laboratory test request clinical information	Ca Lung
Laboratory report comment	<p>clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level of <7%. At levels >9.0% treatment should be re-evaluated, with consideration given to more intensive management.</p> <p>Suggested HbA1c Guidelines:</p> <ul style="list-style-type: none"> 6.1-7.0% HbA1c: very good control 7.1-8.0% HbA1c: adequate control 8.1-9.0% HbA1c: sub-optimal control >9.0% HbA1c: poor control.
Specimen type - recognised terminology name	SNOMED CT
Specimen type identifier - recognised terminology	258497007
Specimen type description - recognised terminology	Abscess swab (specimen)
Specimen type local code	ASB00168
Specimen type local description	Abscess swab
Specimen arrival datetime	2009-11-11 16:15:00.000
Specimen collection datetime	2009-11-12 18:30:00.000
Specimen details	
File indicator	1
Record creation datetime	2010-06-08 15:22:00.000
Record creation institution identifier	8088450656
Record creation institution name	Princess Margaret Hospital
Record last update datetime	2010-06-08 15:22:00.000
Record update institution identifier	8088450656
Record update institution name	Princess Margaret Hospital
Laboratory Test General Result A1	
Record key	PYN_LAB_HMS_000123
Laboratory test name - recognised terminology name	LOINC

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Laboratory test name identifier - recognised terminology	2823-3
Laboratory test name description - recognised terminology	Potassium, Serum or Plasma
Laboratory test name local code	PSP152368
Laboratory test name local description	Potassium or Serum or Plasma
Laboratory Test Result Type	1
Laboratory test numeric result	3.5
Laboratory test reportable result	>3.4
Laboratory test enumerated result	
Laboratory test text result	
Laboratory test result note	
Laboratory test result unit	mmol/L
Laboratory test reference range	3.0 - 5.2 ; LDL-chol (calc) -AcceptableBorderline High <2.8 - 3.3>=3.4
Detection limit indicator code	>
Detection limit indicator description	Greater than
Detection limit indicator local description	GRE
Abnormal result indicator code	H
Abnormal result indicator description	High
Abnormal result indicator local description	HH
Panel local code	RFT
Panel local description	Renal Function Test
Laboratory report authorized datetime	2009-11-20 14:10:00.000
Laboratory report authorized healthcare staff identifier <i>(Retained for backward compatibility to v1.0.1)</i>	As3940173
Laboratory report authorized healthcare staff English name	Jack Lee
Laboratory report authorized healthcare staff English given name <i>(Retained for backward compatibility to v1.0.1)</i>	Jack
Laboratory report authorized healthcare staff English name prefix <i>(Retained for backward compatibility to v1.0.1)</i>	Dr
Laboratory report authorized healthcare staff Chinese name	李傑克
Laboratory report authorized healthcare staff Chinese name suffix <i>(Retained for backward compatibility to v1.0.1)</i>	醫生
Laboratory Test General Result Data A2	
Record key	PYN_LAB_HMS_000123
Laboratory test name - recognised terminology name	LOINC
Laboratory test name identifier - recognised terminology	2777-1
Laboratory test name description - recognised terminology	Phosphate, Serum or Plasma
Laboratory test name local code	PSP152369
Laboratory test name local description	Phosphate or Serum or Plasma
Laboratory Test Result Type	1
Laboratory test numeric result	3.7
Laboratory test reportable result	3.7
Laboratory test enumerated result	
Laboratory test text result	
Laboratory test result note	
Laboratory test result unit	mg /DL
Laboratory test reference range	Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level of <7%. At levels >9.0% treatment should be re-evaluated

Technical Interface Specification for eHR Laboratory Result (General Result) Record

Detection limit indicator code	
Detection limit indicator description	
Detection limit indicator local description	
Abnormal result indicator code	
Abnormal result indicator description	
Abnormal result indicator local description	
Panel local code	LFT
Panel local description	Liver Function Test
Laboratory report authorized datetime	2009-11-20 14:10:00.000
Laboratory report authorized healthcare staff identifier <i>(Retained for backward compatibility to v1.0.1)</i>	As3940173
Laboratory report authorized healthcare staff English name	Jack Lee
Laboratory report authorized healthcare staff English given name <i>(Retained for backward compatibility to v1.0.1)</i>	Jack
Laboratory report authorized healthcare staff English name prefix <i>(Retained for backward compatibility to v1.0.1)</i>	Dr
Laboratory report authorized healthcare staff Chinese name	李傑克
Laboratory report authorized healthcare staff Chinese name suffix <i>(Retained for backward compatibility to v1.0.1)</i>	醫生
Laboratory Report Data A1	
Record key	PYN_LAB_HMS_000123
Laboratory report status code	F
Laboratory report status description	Final report
Laboratory report status local description	Final Report
Laboratory report date	2009-11-20 14:10:00.000
File name	8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.123.pdf.20100000001.20110702084530
Laboratory report (text)	
Laboratory Report Data A2	
Record key	PYN_LAB_HMS_000123
Laboratory report status code	F
Laboratory report status description	Final report
Laboratory report status local description	Final Report
Laboratory report date	2009-11-20 14:10:00.000
File name	8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.124.pdf.20100000001.20110702084530
Laboratory report (text)	

14.3.1 CDA Example for New (S1) in Data Compliance Level 3

8088450656.BRANCHA.LABGEN.CDA.20110702084530

```
<?xml version="1.0" encoding="UTF-8"?>
<ClinicalDocument xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd" xmlns="urn:hl7-org:v3"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<!--
*****
CDA General Information
*****
-->
<typeId root="2.16.840.1.113883.1.3" extension="POCD_HD000040"/>
<id/>
<code code="LABGEN"/>
<title> Laboratory General Result</title>
<effectiveTime/>
<confidentialityCode/>
<recordTarget>
<patientRole>
```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

```
<id/>
</patientRole>
</recordTarget>
<author>
<time/>
<assignedAuthor>
<id/>
</assignedAuthor>
</author>
<custodian>
<assignedCustodian>
<representedCustodianOrganization>
<id/>
</representedCustodianOrganization>
</assignedCustodian>
</custodian>
<!--
*****
Clinical Information
*****
-->
<component>
<nonXMLBody>
<clinicalDoc>
<participant>
<ehr_no>20100000001</ehr_no>
<hkid>A1234563</hkid>
<doc_type>ID</doc_type>
<doc_no>A1234563</doc_no>
<person_eng_surname>CHAN </person_eng_surname>
<person_eng_given_name>TAI MAN</person_eng_given_name>
<person_eng_full_name>CHAN, TAI MAN</person_eng_full_name>
<sex>M</sex>
<birth_date>1999-01-01 00:00:00.000</birth_date>
</participant>
<detail>
<lab_req_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<transaction_dtm>2012-05-01 00:00:00.000</transaction_dtm>
<transaction_type>I</transaction_type>
<last_update_dtm>2012-05-01 00:00:00.000</last_update_dtm>
<episode_no>EP-12345</episode_no>
<attendance_inst_id>8088450656</attendance_inst_id>
<request_no>11-CC123456</request_no>
<request_doctor>Dr. TM CHAN</request_doctor>
<request_participant_inst_id>1735455950</request_participant_inst_id>
<request_participant_inst_name>PWPH Prince of Wales Hospital </request_participant_inst_name>
<request_participant_inst_lt_desc>PWPH Prince of Wales Hospital </request_participant_inst_lt_desc>
<order_no>ABC123456</order_no>
<lab_category_cd>CHEM</lab_category_cd>
<lab_category_desc>Chemical Pathology Laboratory</lab_category_desc>
<lab_category_lt_desc>Clinical Chemistry Laboratory</lab_category_lt_desc>
<perform_lab_name>Kowloon Bay Clinical Laboratory</perform_lab_name>
<report_reference_dtm>2009-11-20 14:10:00.000</report_reference_dtm>
<clinical_info>Ca Lung</clinical_info>
<lab_report_comment>Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level of &lt;7%. At levels &gt;9.0% treatment should be re-evaluated, with consideration given to more intensive management. Suggested HbA1c Guidelines:  
6.1-7.0% HbA1c: very good control  
7.1-8.0% HbA1c: adequate control  
8.1-9.0% HbA1c: sub-optimal control  
&gt;9.0% HbA1c: poor control.  
</lab_report_comment>
<specimen_type_rt_name>SNOMED CT</specimen_type_rt_name>
<specimen_type_rt_id>258497007</specimen_type_rt_id>
<specimen_type_rt_desc>Abscess swab (specimen)</specimen_type_rt_desc>
<specimen_type_lt_id>ASB00168</specimen_type_lt_id>
<specimen_type_lt_desc>Abscess swab</specimen_type_lt_desc>
<specimen_arrival_dtm>2009-11-11 16:15:00.000</specimen_arrival_dtm>
<specimen_collect_dtm>2009-11-12 18:30:00.000</specimen_collect_dtm>
<file_ind>1</file_ind>
<record_creation_dtm>2010-06-08 15:22:00.000</record_creation_dtm>
<record_creation_inst_id>8088450656</record_creation_inst_id>
<record_creation_inst_name>Princess Margaret Hospital</record_creation_inst_name>
<record_update_dtm>2010-06-08 15:22:00.000</record_update_dtm>
```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

```
<record_update_inst_id>8088450656</record_update_inst_id>
<record_update_inst_name>Princess Margaret Hospital</record_update_inst_name>
</lab_req_data>
<clabgen_result_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<test_rt_name>LOINC</test_rt_name>
<test_rt_id>2823-3</test_rt_id>
<test_rt_desc>Potassium, Serum or Plasma</test_rt_desc>
<test_lt_id>PSP152368</test_lt_id>
<test_lt_desc>Potassium or Serum or Plasma</test_lt_desc>
<result_type>1</result_type>
<numeric_result>3.5</numeric_result>
<reportable_result>&gt;3.4</reportable_result>
<enumerated_result></enumerated_result>
<text_result></text_result>
<result_note></result_note>
<result_unit>mmol/L</result_unit>
<reference_range>3.0 - 5.2 ;
LDL-chol (calc) -AcceptableBorderline High
&lt;2.82.8 - 3.3&gt;3.4
</reference_range>
<detection_limit_ind_cd>&gt;</detection_limit_ind_cd>
<detection_limit_ind_desc>Greater than</detection_limit_ind_desc>
<detection_limit_ind_lt_desc>GRE</detection_limit_ind_lt_desc>
<abnormal_ind_cd>H</abnormal_ind_cd>
<abnormal_ind_desc>High</abnormal_ind_desc>
<abnormal_ind_lt_desc>HH</abnormal_ind_lt_desc>
<panel_lt_cd>RFT</panel_lt_cd>
<panel_lt_desc>Renal Function Test</panel_lt_desc>
<report_auth_dtm>2009-11-20 14:10:00.000</report_auth_dtm>
<report_auth_staff_eng_name>Jack Lee</report_auth_staff_eng_name>
<report_auth_staff_chi_name>李傑克</report_auth_staff_chi_name>
</labgen_result_data>
<clabgen_result_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<test_rt_name>LOINC</test_rt_name>
<test_rt_id>2777-1</test_rt_id>
<test_rt_desc>Phosphate, Serum or Plasma</test_rt_desc>
<test_lt_id>PSP152369</test_lt_id>
<test_lt_desc>Phosphate or Serum or Plasma</test_lt_desc>
<result_type>1</result_type>
<numeric_result>3.7</numeric_result>
<reportable_result>3.7</reportable_result>
<enumerated_result></enumerated_result>
<text_result></text_result>
<result_note></result_note>
<result_unit>mg /DL</result_unit>
<reference_range>Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level of &lt;7%. At levels gt;9.0%
treatment should be re-evaluated
</reference_range>
<detection_limit_ind_cd></detection_limit_ind_cd>
<detection_limit_ind_desc></detection_limit_ind_desc>
<detection_limit_ind_lt_desc></detection_limit_ind_lt_desc>
<abnormal_ind_cd></abnormal_ind_cd>
<abnormal_ind_desc></abnormal_ind_desc>
<abnormal_ind_lt_desc></abnormal_ind_lt_desc>
<panel_lt_cd>LFT</panel_lt_cd>
<panel_lt_desc>Liver Function Test</panel_lt_desc>
<report_auth_dtm>2009-11-20 14:10:00.000</report_auth_dtm>
<report_auth_staff_eng_name>Jack Lee</report_auth_staff_eng_name>
<report_auth_staff_chi_name>李傑克</report_auth_staff_chi_name>
</labgen_result_data>
<lab_report_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<report_status_cd>F</report_status_cd>
<report_status_desc>Final report</report_status_desc>
<report_status_lt_desc>Final Report</report_status_lt_desc>
<report_dtm>2009-11-20 14:10:00.000</report_dtm>
<file_name>8088450656.BRANCHALABGEN.PYN_LAB_HMS_000123.123.pdf.20100000001.20110702084530</file_name>
<report_text></report_text>
</lab_report_data>
<lab_report_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<report_status_cd>F</report_status_cd>
<report_status_desc>Final report</report_status_desc>
```

```
<report_status_lt_desc>Final Report</report_status_lt_desc>
<report_dtm>2009-11-20 14:10:00.000</report_dtm>
<file_name>8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.124.pdf.20100000001.20110702084530</file_name>
<report_text></report_text>
</lab_report_data>
</detail>
</clinicalDoc>
<text/>
</nonXMLBody>
</component>
</ClinicalDocument>
```

14.3.2 HL7 Message Example for New (S1) in Data Compliance Level 3

8088450656.BRANCHA.LABGEN.HL7.20110702084530

```
<?xml version="1.0" encoding="utf-8"?>
<ORU_R01 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml \\hoehrsv01\ehr\CE4\MESSAG~1\EHR\HL7SAM~1\V25SCH~1\xsd\ORU_R01.xsd">
  <MSH>
    <MSH.1></MSH.1>
    <MSH.2>^~&lt;&gt;</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>20110427181041</TS.1>
    </MSH.7>
    <MSH.8>3</MSH.8>
    <MSH.9>
      <MSG.1>ORU</MSG.1>
      <MSG.2>R01</MSG.2>
      <MSG.3>ORU_R01</MSG.3>
    </MSH.9>
    <MSH.10>20110702084530</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
    <MSH.12>
      <VID.1>2.5</VID.1>
    </MSH.12>
    <MSH.15>NE</MSH.15>
  </MSH>
  <ORU_R01>PATIENT_RESULT</ORU_R01>
  <ORU_R01>ORDER_OBSERVATION</ORU_R01>
  <OBR>
    <OBR.4>
      <CE.1> LABGEN </CE.1>
    </OBR.4>
  </OBR>
  <ORU_R01>OBSERVATION</ORU_R01>
  <OBX>
    <OBX.2>ED</OBX.2>
    <OBX.3>
      <CE.1> LABGEN </CE.1>
    </OBX.3>
    <OBX.4>NBL</OBX.4>
    <OBX.5>
  </OBX>
  <ED.2>multipart</ED.2>
  <ED.4>A</ED.4>
  <ED.5>
    MIME-Version: 1.0
    Content-Type: multipart/mixed; boundary=00163630f5f354355b046be66f6d
  </ED.5>
</ORU_R01>
```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

--00163630f5f354355b046be66f6d
Content-Type: text/xml; charset=UTF-8; name="8088450656.BRANCHA.LABGEN.CDA.20110702084530I"
Content-Disposition: attachment; filename="8088450656.BRANCHA.LABGEN.CDA.20110702084530I"
Content-Transfer-Encoding: base64
X-Attachment-Id: f_fvqdehi70

PD94bWwgdmVyc2lvbj0iMS4wIiBlbmNvZGluZz0iVVRLTgiPz4NCjwhLS0gQ0RBIFNhXBs
ZSBnb3IgSEtISFlgSW50ZXJvcGVyYWJpbGl0eSAtLT4NCg0KPCEtLSBDb3B5cmnaHQ6lFRo
ZSBv25lcNoaXAgb2YgdGhpvcBzaG91bGQgYmUgUHJlcGFyYXRvcnkgR3Jv
dXAgb24ZUhSIENvbNrlbnQgJiBTdGFuZGKyZHMgdW5kZXIgZUhSIENvbNrlbnQgYWW5kIElu
Zm9ybWF0aW9uIFn0Y5kYXJkcyBX3raW5nIEdyb3VwIGFuZCbmDxr1cmUgZUhSIG9mZmlj
ZS4gQWxslFJpZ2h0cyBSZXNlcZIC4gLs0+DQo8IS0tERpc2NsYWltZXI6lFRoZSBjbmZv
IGZvciBFcGlzb2RIIFN1bW1hcngd2hpY2ggYXR0YWNoZWQgdGhIFBERiAgLS0+DQoNCjxDF0
.....
.....
.....

aW9uPSJ1cm46aGw3LW9yZzp2MyBDREUEeHNkIiBjbGFzc0NvZGU9IkRPQ0NMSU4iIG1vb2RD
b2RIPSFVk4iPg0KDQo8IS0tIA0KKioqKioqKioqKioqKioqKioqKioq
KioqKg0KSGVhZGVyIEluZm9ybWF0aW9uDQoqKioqKioqKioqKioqKioqKioq
KioqKioqDQotLT4JDQoNCgk8dHwZUlkIHJvb3Q9jluMTYuODQwLjEuMTEzODgZLjEu
MylgZXh0ZW5zaW9uPSJQT0NEX0hEMDAwMDQwi8+DQoJPCEtLSB0ZW1wbGF0ZUlkIHJvb3Q9
IjJuMTYuODQwLjEuMTEzODgZLjEwLjIwLjEiLyAtLT4NCgkNCgk8IS0tIErVY3VtZW50IEIE
OyB1bmlxdWUsIGFc2lnbmVkIGJ5IFByb3ZpZGVyL0N1c3RvZGlbhbwgc9vdCBjb2RIIG9m
ICBQcm92aWRlcI9DdXN0b2RpYW4gdG8gYmUgZGVmaW51ZC0tPg0KCTxpZCByb290PSIyLjE2
Ljg0MC4xLjExMzg4My42LjEiGV4dGVuc2lvbj0iMTIzNDU2Nzg1Lz4NCgkNCgk8Y29kZSBj
b2RIPSIzNDEzMy05IiBjB2RIU31zdGvtPSIyLjE2Ljg0MC4xLjExMzg4My42LjEiGRpc3Bs
dW1lbnQ+DQo=

--00163630f5f354355b046be66f6d
Content-Type: application/pdf;
name="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.123.pdf.20100000001.20110702084530"
Content-Disposition: attachment;
filename="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.123.pdf.20100000001.20110702084530"
Content-Transfer-Encoding: base64

JVBERi0xLjUNCiW1tbW1DQoxIDAgb2JqDQo8PC9UeXBIL0NhGFsb2cvUGFrZXMGMiAwIFIv
TGFuZyh6aC1UVykgL1N0cnVjdFRyZWVSb290IDM2OSAwIFIvTWFya0luZm88PC9NYXJrZWQg
dHJ1ZT4+Pj4NCmVuZG9iag0KMiAwIG9iag0KPDwvVHlwZS9QYWdlcy9Db3VudCA0L0tpZHNB
IDMgMCBSIDEzMSAwIFIgMjQwIDAgiUiAzNjAgMCBSXSA+Pg0KZW5kb2JqDQozIDAgb2JqDQo8
PC9UeXBIL1BhZ2UvUGFyZW50IDlgMCBSL1Jlc291cmNlczw8L1hPYmplY3Q8PC9JbWFnZTUG
NSAwIFIvSW1hZ2U3IDcgMCBSL0ltYwdlOSA5IDAgUi9JbWFnZTEExIDEiDAgUi9JbWFnZTEz
IDEzIDAgUi9JbWFnZTE1DE1IDAgUi9JbWFnZTE3IDAgUi9JbWFnZTE5IDAgUi9JbWFnZTEz
bWFnZTIxIDIxIDAgUi9JbWFnZTIzIDAgUi9JbWFnZTI1IDI1IDAgUi9JbWFnZTI3IDI3
IDAgUi9JbWFnZTI5IDI5IDAgUi9JbWFnZTMxIDMxIDAgUi9JbWFnZTMzIDMzIDAgUi9JbWFn
.....
.....
.....

ZTM1IDM1IDAgUi9JbWFnZTM3IDM3IDAgUi9JbWFnZTM5IDM5IDAgUi9JbWFnZTQxIDQxIDAg
Ui9JbWFnZTQzIDQzIDAgUi9JbWFnZTQ1IDQ1IDAgUi9JbWFnZTQ3IDQ3IDAgUi9JbWFnZTQ5
gMDAwMDAgbg0KMDAwMDI5NjUzMSAwMDAwMCBuDQowMDAwMjk2NTYwIDAwMDAwIG4NCjAwMDAy
OTY1ODkgMDAwMDAgbg0KMDAwMDMzODQ1MSAwMDAwMCBuDQp0cmFpbGVyDQo8PC9TaXpIDEy
NTgvUm9vdCAxIDAgUi9JbmZvIDM2OCAwIFIvSURbPEQxOUYyOTI0QTg2MjcwNDVCRUJFRDRG
MTFEMEmwNjJFPjxEMTIGMjkyNEE4NjI3MDQ1QkVCRUQ0RjExRDBMDMYYRT5dID4+DQpzdGFy
dHhyZWYNCjM0MTUyMQ0KJSVF0YNCnhyZWYNCjAgMA0KdHjhawxlcg0KPDwvU2l6ZSAxMjU4
L1Jvb3QgMSAwIFIvSW5mbvAzNjggMCBSL0lEWzxEMTIGMjkyNEE4NjI3MDQ1QkVCRUQ0RjEx
RDBMDMYYRT48RDE5RjI5MjRBODYyNzA0NUFQkVENEYxMUQwQzA2MkU+XSAvUHJldiAzNDE1
MjEvWFJIZIN0bSAzMzg0NTE+Pg0K3RhcnR4cmVmDQozNjY4NDQNCiUIR9G

--00163630f5f354355b046be66f6d
Content-Type: application/pdf;
name="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.124.pdf.20100000001.20110702084530"
Content-Disposition: attachment;
filename="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.124.pdf.20100000001.20110702084530"
Content-Transfer-Encoding: base64

Mwk1NAzWCGBNG2ouJgY61BybH4UaoKL1HAaNkdofsSbEuuNiogI61iyySAXsOQx+E0wbBc4W
djJK8iCDvFu1e5CTm5sQNIIhewXIWK6sb0RRGNm57YkP0roiYGxoVTkXoNyGimUrVteTKXr
brJNWFJvUb3yjXo0KK6p1JPZQ5LtxJ6EJa3d9IgJSftmoynkgrki5sXXLXUG/Sds3YyjUgq
mi+efJVKpAhchKtyOpVIKISvKcd7rArxEiQWzp2t03VXdf0Qd3hBJBWz16AsxiJdilglUMxc
L4imC7Abd11SsXsNykv8tWqj48VU+jJN4vId07aL1fZ0B5FRdw17afKCDzHZH9RPnDnSf17
x521xJq9s/WLO58mDd04GgQz2AEY91dNAhScRwEGhb2qe1PZ9tUTkdi+JpFT/3oIDfvvCv3o
WOu151HARLyYDNYzu6OAatV0FLCdytHTL4w+FhYWNjcYrBSGWtOnf4DUt2RF5XTguNSJidX
.....

```
.....  
sRnIO8JmAG96dcWbjPXLHx++HPDdpPXde1z8N2CBB8ve/45ZZNeD3aGPA0CNOdkF9v5z9PZP  
8ePvz0+/vRbC+Tf/Zu//8f0PSLsKLKDggnG+Brlt6/Y18fCrqFkL+IxAxwli7S7gZKrmgQ7  
JBU6sDQIIFsmrW6YNCMydArcZA869DxlyK8eSh4KO1fyOUBsMA12dHGx6u25VLbhks/4pIs  
PCIOOkqewiFuLw+ahuiM+DHoZlepGsrRU3YGD9yFStlktAADKi1ZeESceMGxwY1UGuxe/JBK  
+1DdoeCFKa0CWKCsqjtiHFMXKqFJO2FUHFhNUgkiUekWqewOzmZUSqzp/Uuq4QpggUryaYfh  
-00163630f5f354355b046be66f6d--  
</ ED.5>  
  </OBX.5>  
    <OBX.11>F</OBX.11>  
  </OBX>  
  </ORU_R01.OBSERVATION>  
</ORU_R01.ORDER_OBSERVATION>  
</ORU_R01.PATIENT_RESULT>  
</ORU_R01>
```

14.3.3 CDA Example for Update (S2) in Data Compliance Level 3

8088450656.BRANCHA.LABGEN.CDA.20110702084530

```
<?xml version="1.0" encoding="UTF-8"?>  
<ClinicalDocument xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd" xmlns="urn:hl7-org:v3"  
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">  
<!--  
*****  
CDA General Information  
*****  
-->  
<typeId root="2.16.840.1.113883.1.3" extension="POCD_HD000040"/>  
<id/>  
<code code="LABGEN"/>  
<title> Laboratory General Result</title>  
<effectiveTime/>  
<confidentialityCode/>  
<recordTarget>  
<patientRole>  
<id/>  
<patientRole>  
<recordTarget>  
<author>  
<time/>  
<assignedAuthor>  
<id/>  
<assignedAuthor>  
<author>  
<custodian>  
<assignedCustodian>  
<representedCustodianOrganization>  
<id/>  
<representedCustodianOrganization>  
<assignedCustodian>  
<custodian>  
<!--  
*****  
Clinical Information  
*****  
-->  
<component>  
<nonXMLBody>  
<clinicalDoc>  
<participant>  
  <ehr_no>201000000001</ehr_no>  
  <hkid>A1234563</hkid>  
  <doc_type>ID</doc_type>  
  <doc_no>A1234563</doc_no>  
  <person_eng_surname>CHAN </person_eng_surname>  
  <person_eng_given_name>TAI MAN</person_eng_given_name>  
  <person_eng_full_name>CHAN, TAI MAN</person_eng_full_name>  
  <sex>M</sex>  
  <birth_date>1999-01-01 00:00:00.000</birth_date>  
</participant>
```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

```
<detail>
<lab_req_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<transaction_dtm>2012-05-01 00:00:00.000</transaction_dtm>
<transaction_type>U</transaction_type>
<last_update_dtm>2012-05-01 00:00:00.000</last_update_dtm>
<episode_no>EP-12345</episode_no>
<attendance_inst_id>8088450656</attendance_inst_id>
<request_no>11-CC123456</request_no>
<request_doctor>Dr. TM CHAN</request_doctor>
<request_participant_inst_id>1735455950</request_participant_inst_id>
<request_participant_inst_name>PWPH Prince of Wales Hospital</request_participant_inst_name>
<request_participant_inst_lt_desc>PWPH Prince of Wales Hospital</request_participant_inst_lt_desc>
<order_no>11-CC123456</order_no>
<lab_category_cd>CHEM</lab_category_cd>
<lab_category_desc>Chemical Pathology Laboratory</lab_category_desc>
<lab_category_lt_desc>Clinical Chemistry Laboratory</lab_category_lt_desc>
<perform_lab_name>Kowloon Bay Clinical Laboratory</perform_lab_name>
<report_reference_dtm>2009-11-20 14:10:00.000</report_reference_dtm>
<clinical_info>Ca Lung</clinical_info>
<lab_report_comment>Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level of <7%. At levels >9.0% treatment should be re-evaluated, with consideration given to more intensive management.
Suggested HbA1c Guidelines:
6.1-7.0% HbA1c: very good control
7.1-8.0% HbA1c: adequate control
8.1-9.0% HbA1c: sub-optimal control
>9.0% HbA1c: poor control.
</lab_report_comment>
<specimen_type_rt_name>SNOMED CT</specimen_type_rt_name>
<specimen_type_rt_id>258497007</specimen_type_rt_id>
<specimen_type_rt_desc>Abscess swab (specimen)</specimen_type_rt_desc>
<specimen_type_lt_id>ASB00168</specimen_type_lt_id>
<specimen_type_lt_desc>Abscess swab</specimen_type_lt_desc>
<specimen_arrival_dtm>2009-11-11 16:15:00.000</specimen_arrival_dtm>
<specimen_collect_dtm>2009-11-12 18:30:00.000</specimen_collect_dtm>
<file_ind>1</file_ind>
<record_creation_dtm>2010-06-08 15:22:00.000</record_creation_dtm>
<record_creation_inst_id>8088450656</record_creation_inst_id>
<record_creation_inst_name>Princess Margaret Hospital</record_creation_inst_name>
<record_update_dtm>2010-06-08 15:22:00.000</record_update_dtm>
<record_update_inst_id>8088450656</record_update_inst_id>
<record_update_inst_name>Princess Margaret Hospital</record_update_inst_name>
<lab_req_data>
<labgen_result_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<test_rt_name>LOINC</test_rt_name>
<test_rt_id>2823-3</test_rt_id>
<test_rt_desc>Potassium, Serum or Plasma</test_rt_desc>
<test_lt_id>PSP152368</test_lt_id>
<test_lt_desc>Potassium or Serum or Plasma</test_lt_desc>
<result_type>1</result_type>
<numeric_result>3.5</numeric_result>
<reportable_result>>3.4</reportable_result>
<enumerated_result></enumerated_result>
<text_result></text_result>
<result_note></result_note>
<result_unit>mmol/L</result_unit>
<reference_range>3.0 - 5.2 ;
LDL-chol (calc) -AcceptableBorderline High
<lt;2.82.8 - 3.3>=3.4
</reference_range>
<detection_limit_ind_cd>&gt;</detection_limit_ind_cd>
<detection_limit_ind_desc>Greater than</detection_limit_ind_desc>
<detection_limit_ind_lt_desc>GRE</detection_limit_ind_lt_desc>
<abnormal_ind_cd>H</abnormal_ind_cd>
<abnormal_ind_desc>High</abnormal_ind_desc>
<abnormal_ind_lt_desc>HH</abnormal_ind_lt_desc>
<panel_lt_cd>RFT</panel_lt_cd>
<panel_lt_desc>Renal Function Test</panel_lt_desc>
<report_auth_dtm>2009-11-20 14:10:00.000</report_auth_dtm>
<report_auth_staff_eng_name>Jack Lee</report_auth_staff_eng_name>
<report_auth_staff_chi_name>李傑克</report_auth_staff_chi_name>
</labgen_result_data>
<labgen_result_data>
```

```

<record_key>PYN_LAB_HMS_000123</record_key>
<test_rt_name>LOINC</test_rt_name>
<test_rt_id>2777-1</test_rt_id>
<test_rt_desc>Phosphate, Serum or Plasma</test_rt_desc>
<test_lt_id>PSP152369</test_lt_id>
<test_lt_desc>Phosphate or Serum or Plasma</test_lt_desc>
<result_type>1</result_type>
<numeric_result>3.7</numeric_result>
<reportable_result>3.7</reportable_result>
<enumerated_result></enumerated_result>
<text_result></text_result>
<result_note></result_note>
<result_unit>mg /DL</result_unit>
<reference_range>Clinical Guideline Note: The goal of diabetes therapy should be an HbA1c level of <7%. At levels >9.0% treatment should be re-evaluated
</reference_range>
<detection_limit_ind_cd></detection_limit_ind_cd>
<detection_limit_ind_desc></detection_limit_ind_desc>
<detection_limit_ind_lt_desc></detection_limit_ind_lt_desc>
<abnormal_ind_cd></abnormal_ind_cd>
<abnormal_ind_desc></abnormal_ind_desc>
<abnormal_ind_lt_desc></abnormal_ind_lt_desc>
<panel_lt_cd>LFT</panel_lt_cd>
<panel_lt_desc>Liver Function Test</panel_lt_desc>
<report_auth_dtm>2009-11-20 14:10:00.000</report_auth_dtm>
<report_auth_staff_eng_name>Jack Lee</report_auth_staff_eng_name>
<report_auth_staff_chi_name>李傑克</report_auth_staff_chi_name>
</labgen_result_data>
<lab_report_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<report_status_cd>F</report_status_cd>
<report_status_desc>Final report</report_status_desc>
<report_status_lt_desc>Final Report</report_status_lt_desc>
<report_dtm>2009-11-20 14:10:00.000</report_dtm>
<file_name>8088450656.BRANCHALABGEN.PYN_LAB_HMS_000123.123.pdf.20100000001.20110702084530</file_name>
<report_text></report_text>
</lab_report_data>
<lab_report_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<report_status_cd>F</report_status_cd>
<report_status_desc>Final report</report_status_desc>
<report_status_lt_desc>Final Report</report_status_lt_desc>
<report_dtm>2009-11-20 14:10:00.000</report_dtm>
<file_name>8088450656.BRANCHALABGEN.PYN_LAB_HMS_000123.124.pdf.20100000001.20110702084530</file_name>
<report_text></report_text>
</lab_report_data>
</detail>
</clinicalDoc>
<text/>
</nonXMLBody>
</component>
</ClinicalDocument>

```

14.3.4 HL7 Message Example for Update (S2) in Data Compliance Level 3

8088450656.BRANCHALABGEN.HL7.20110702084530

```

<?xml version="1.0" encoding="utf-8"?>
<ORU_R01 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml \\hoehrvs01\ehr\CE4\MESSAG~1\EHR\HL7SAM~1\V25SCH~1\xsd\ORU_R01.xsd">
<MSH>
<MSH.1></MSH.1>
<MSH.2>^~&lt;></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>

```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

```
<MSH.7>
<TS.1>20110427181041</TS.1>
</MSH.7>
<MSH.8>3</MSH.8>
<MSH.9>
<MSG.1>ORU</MSG.1>
<MSG.2>R01</MSG.2>
<MSG.3>ORU_R01</MSG.3>
</MSH.9>
<MSH.10>20110702084530</MSH.10>
<MSH.11>
<PT.1>P</PT.1>
</MSH.11>
<MSH.12>
<VID.1>2.5</VID.1>
</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>ED</OBX.2>
<OBX.3>
<CE.1> LABGEN </CE.1>
</OBX.3>
<OBX.4>NBL</OBX.4>
<OBX.5>
<ED.2>multipart</ ED.2>
< ED.4>A</ ED.4>
< ED.5>
MIME-Version: 1.0
Content-Type: multipart/mixed; boundary=00163630f5f354355b046be66f6d

--00163630f5f354355b046be66f6d
Content-Type: text/xml; charset=UTF-8; name="8088450656.BRANCHA.LABGEN.CDA.20110702084530"
Content-Disposition: attachment; filename="8088450656.BRANCHA.LABGEN.CDA.20110702084530"
Content-Transfer-Encoding: base64
X-Attachment-Id: f_fvqdehi70

PD94bWwgdmVyc2lvbj0iMS4wIiBlbmNvZGluZz0iVVVRGLTgiPz4NCjwhLS0gQ0RBIFNhXBs
ZSBmb3IgSEtISFlgSW50ZXJvcGVyYWJpbGl0eSATLT4NCg0KPCEtLSDBb3B5cmlnaHQ6IFRo
ZSBvd25lcNoaXAgb2YgdGhpckBkb2N1bWVudCBzaG91bGQgYmUgUHJlcGFyYXRvcnkgR3Jv
dXAgb24gZUhSIENvbnRlbnQgJiBTdGFuZGMgdW5kZXlgZUhSIENvbnRlbnQgYW5kIElu
Zm9ybW9uIFN0YW5kYXJkcyBXb3JraW5nIEdyb3VwIGFuZCBmdXR1cmUgZUhSIG9mZmlj
ZS4gQWxsIFJpZ2h0cyBSZXNlcnZlZC4gLs0+DQo8IS0tIERpc2NsYWltZXI6IFRoZSBJbmZv
IGZvcIBFcGlzb2RIIFN1bW1hcngd2hpY2ggYXR0YWN0ZWQgdGhlIFBERiAgLS0+DQoNCjxDF0
.....
.....
.....
aW9uPSJ1cm46aGw3LW9yZzp2MyBDREUeHNkIiBjbGFzc0NvZGU9IkRPQ0NMSU4iIG1vb2RD
b2RIPSFV4iPg0KDQo8IS0tIA0KKioqKioqKioqKioqKioqKioqKioqKioq
KioqKg0KSGVhZGVyIEluZm9ybW9uDQoqKioqKioqKioqKioqKioqKioq
KioqKioqDQotLT4JDQoNCgk8dHwZUlkIHJvb3Q9ljEuMTYuODQwLjEuMTEzODgzLjEu
MyIgZXh0ZW5zaW9uPSJQT0NEX0hEMDAwMDQwi8+DQoJPCEtLSB0ZW1wbGF0ZUlkIHJvb3Q9
IjJuMTYuODQwLjEuMTEzODgzLjEwLjIwLjEiLyAtLT4NCgkNCgk8IS0tIERvY3VtZW50IEIE
OyB1bmlxdWUsIGFzc2lnbmVkJG5IFByb3ZpZGVyL0N1c3RvZGhbwgcm9vdCBjb2RIIG9m
ICBQcm92aWRlcidXN0b2RpYw4gdG8gYmUgZGVmaW5lZC0tPg0KCTxpZCByb290PSIyLjE2
Ljg0MC4xLjExMzg4My42LjEiIjV4dGVuc2lvbj0iMTIzNDU2NzgiLz4NCgkNCgk8Y29kZSBj
b2RIPSiNDEzMy05IiBjb2RIU3ldGVTpSIyLjE2Ljg0MC4xLjExMzg4My42LjEiIGRp3Bs
dW1bnQ+DQo=


--00163630f5f354355b046be66f6d
Content-Type: application/pdf;
name="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.123.pdf.20100000001.20110702084530"
Content-Disposition: attachment;
filename="8088450656.BRANCHA.LABGEN.PYN_LAB_HMS_000123.123.pdf.20100000001.20110702084530"
Content-Transfer-Encoding: base64

JVBERi0xLjUNCiW1tbW1DQoxIDAjB2JqDQo8PC9UeXBIL0NhdGFsb2cvUGFnZXMiAwIFIv
```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

TGFuZyh6aC1UVykgL1N0cnVjdFRyZWVSb290IDM2OSAwIFIvTWFya0luZm88PC9NYXJrZWQgdHJ1ZT4+Pj4NCmVuZG9iag0KMiAwIG9iag0KPDwvVHlwZS9QYWdIcy9Db3VudCA0L0tpZHNBIDMgMCBSIDEzMSAwIFIgMjQwIDAgUiAzNjAgMCBSXSA+Pg0KZW5kb2JqDQozIDA9b2JqDQo8PC9UeXBIL1BhZ2UvUGFyZW50IDlGMCBSL1Jlc291cmNlczw8L1hPYmplY3Q8PC9JbWFnZTUgNSAwIFIvSW1hZ2U3IDcgMCBSL0tYWDlOSA5IDAgUi9JbWFnZTExIDExDiAgUi9JbWFnZTEzIDEzIDA9i9JbWFnZTE1IDE1IDAgUi9JbWFnZTE3IDE3IDA9i9JbWFnZTE5IDE5IDA9i9JbWFnZTIxIDIxIDA9i9JbWFnZTIzIDIzIDA9i9JbWFnZTI1IDI1IDA9i9JbWFnZTI3IDI3IDA9i9JbWFnZTI5IDI5IDA9i9JbWFnZTMxIDMxIDA9i9JbWFnZTMzIDMzIDA9i9JbWFn.....

ZTM1IDM1IDA9i9JbWFnZTM3IDM3IDA9i9JbWFnZTM5IDM5IDA9i9JbWFnZTQxIDQxIDA9i9JbWFnZTQzIDQzIDA9i9JbWFnZTQ1IDQ1IDA9i9JbWFnZTQ3IDQ3IDA9i9JbWFnZTQ5gMDAwMDA9b0KMDAwMDI5NjUzMSAwMDAwMCBuDQowMDAwMjk2NTYwIDA9MDAwIG4NCjAwMDAyOTY1ODkgMDAwMDA9bg0KMDAwMDMzODQ1MSAwMDAwMCBuDQp0cmFpbGVyDQo8PC9TaXplIDEyNTgvUm9vdCAxIDA9i9JbmZvIDM2OCAwIFIvSURbPEQxOUYyOTI0QTg2MjcwNDVCRUJFRDRGMTFEMEMWnjMfpjxEMTIGMjkyNEE4NjI3MDQ1QkVCRUQ0RjExRDBDMDYyRT5dID4+DQpzdGFydHhyZWYNcjm0MTUyMQ0KJSVFT0YNCnhzZWYNcjmAgMA0KdHJhaWxlcg0KPDwvU2l6ZSAxMjU4L1Jvb3QgMSAwIFIvSW5mbAzNjggMCBSL0EWzxEMTIGMjkyNEE4NjI3MDQ1QkVCRUQ0RjExRDBDMDYyRT48RDE5RjI5MjRBODYyNzA0NUJFQkVENEYxMUQwQzA2MkU+XSAvUHJldiAzNDE1MjEvWFJIZln0bSAzMzg0NTE+Pg0Kc3RhcnR4cmVmDQozNjY4NDQNCiUIRU9G

--00163630f5f354355b046be66f6d
Content-Type: application/pdf;
name="8088450656.BRANCHALABGEN.PYN_LAB_HMS_000123.124.pdf.201000000001.20110702084530"
Content-Disposition: attachment;
filename="8088450656.BRANCHALABGEN.PYN_LAB_HMS_000123.124.pdf.201000000001.20110702084530"
Content-Transfer-Encoding: base64

Mwk1NAzWCGBNG2ouJgY61BybH4UaoKL1HAaNkdofsSbEuuNiogI61iyySAXsOQx+E0wbbC4WdjJK8iCDvFu1e5CTm5sQNllhewXIWK6sb0RRGNm57YkP0roiYGx0VTkXoNyGimUrVteTKXrbrJNWFJvUb3yjXo0KK6p1JPZQ5LtxJ6EJa3d9IgJSftmoynkgrki5sXXLXUG/Sds3YjUgqmi+efJVKpAhchKtyOpVIKISvKcd7rArxEiQWzp2t03Vxf0Qd3hJBWz16AsxiJdilglUMxcL4imC7Abd11SsXsNykv8tWqj48VU+jN4vId07aL1Z0B5FRdw17afKCDzHZH9RPnDnSf17x521xJq9s/WLO58mDd04GgQz2AEY91dNAhScRwEGhb2qe1PZ9tUTkdi+JpFT/3oIDfvvCv3oWOu151HARLyYDNYzu6OAatV0FLCdtytHTL4w+FhYWNjcRYrBSGWtOnf4DuT2RF5XTguNSJidX.....

sRnIO8JmAG96dcWbjPXLHx++HPDdpPXde1z8N2CBB8ve/45ZZNeD3aGPA0CNODkF9v5zPZP8ePvz0+/vRbC+Tf/Zu/8fz0PSLsKLKDggnG+Brlt6/Y18fcRqFkL+IxAxwli7S7gZKrmgQ7JCEP5HbzontUOEIxbCljkYmRW9Tzmy5WN2dMCcVcWxN6n8sDYIFLKreELLW0abk0uuHSjrj0JJieIE7mMPe0i190sMOVS+RdyeQDMudRUEwe23DNVQqWxDZRhQqYGkEnGQSofdl1+jUnfDyJRKPCIQkewiFuLw+ahuiM+DHoZlepGsrRU3YGD9yFStlktAADKi1ZeESceMGxwY1UGuxe/JBK+1DdoeCFKa0CWKCSqjtiHFMXKqFJO2FUHFhNuGkiUekWqewOzmZUSqzp/Uuq4QpggUryaYfh

--00163630f5f354355b046be66f6d--

</ ED.5>
</OBX.5>
<OBX.11>F</OBX.11>
</OBX>
</ORU_R01.OBSERVATION>
</ORU_R01.ORDER_OBSERVATION>
</ORU_R01.PATIENT_RESULT>
</ORU_R01>

14.3.5 CDA Example for Delete (S3) in Data Compliance Level 3

8088450656.BRANCHALABGEN.CDA.20110702084530

```
<?xml version="1.0" encoding="UTF-8"?>
<ClinicalDocument xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd" xmlns="urn:hl7-org:v3"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<!--
*****
CDA General Information
*****
-->
<typeId root="2.16.840.1.113883.1.3" extension="POCD_HD000040"/>
<id/>
<code code="LABGEN"/>
```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

```
<title> Laboratory General Result</title>
<effectiveTime/>
<confidentialityCode/>
<recordTarget>
<patientRole>
</id>
</patientRole>
</recordTarget>
<author>
<time/>
<assignedAuthor>
</id>
</assignedAuthor>
</author>
<custodian>
<assignedCustodian>
<representedCustodianOrganization>
</id>
</representedCustodianOrganization>
</assignedCustodian>
</custodian>
<!--
*****
Clinical Information
*****
-->
<component>
<nonXMLBody>
<clinicalDoc>
<participant>
<ehr_no>20100000001</ehr_no>
<hkid>A1234563</hkid>
<doc_type>ID</doc_type>
<doc_no>A1234563</doc_no>
<person_eng_surname>CHAN </person_eng_surname>
<person_eng_given_name>TAI MAN</person_eng_given_name>
<person_eng_full_name>CHAN, TAI MAN</person_eng_full_name>
<sex>M</sex>
<birth_date>1999-01-01 00:00:00.000</birth_date>
</participant>
<detail>
<lab_req_data>
<record_key>PYN_LAB_HMS_000123</record_key>
<transaction_dtm>2012-05-01 00:00:00.000</transaction_dtm>
<transaction_type>D</transaction_type>
<last_update_dtm>2012-05-01 00:00:00.000</last_update_dtm>
<episode_no>EP-12345</episode_no>
<attendance_inst_id>8088450656</attendance_inst_id>
</lab_req_data>
</detail>
</clinicalDoc>
<text/>
</nonXMLBody>
</component>
</ClinicalDocument>
```

14.3.6 HL7 Message Example for Delete (S3) in Data Compliance Level 3

8088450656.BRANCHA.LABGEN.HL7.20110702084530

```
<?xml version="1.0" encoding="utf-8"?>
<ORU_R01 xmlns="urn:hl7-org:v2xml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:hl7-org:v2xml \\hoehrvs01\ehr\CE4\MESSAG~1\EHR\HL7SAM~1\V25SCH~1\xsd\ORU_R01.xsd">
<MSH>
<MSH.1></MSH.1>
<MSH.2>^~\&lt;></MSH.2>
<MSH.3>
<HD.1>CMS 3.0</HD.1>
</MSH.3>
<MSH.4>
<HD.1>8088450656</HD.1>
</MSH.4>
<MSH.5>
```

Technical Interface Specification for eHR Laboratory Result (General Result) Record

```
<HD.1>EIF</HD.1>
</MSH.5>
<MSH.6>
<HD.1>eHR</HD.1>
</MSH.6>
<MSH.7>
<TS.1>20110427181041</TS.1>
</MSH.7>
<MSH.8>3</MSH.8>
<MSH.9>
<MSG.1>ORU</MSG.1>
<MSG.2>R01</MSG.2>
<MSG.3>ORU_R01</MSG.3>
</MSH.9>
<MSH.10>20110702084530</MSH.10>
</MSH.11>
<PT.1>P</PT.1>
</MSH.11>
<MSH.12>
<VID.1>2.5</VID.1>
</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>ED</OBX.2>
<OBX.3>
<CE.1> LABGEN </CE.1>
</OBX.3>
<OBX.4>NBL</OBX.4>
<OBX.5>
<ED.2>multipart</ ED.2>
< ED.4>A</ ED.4>
< ED.5>
MIME-Version: 1.0
Content-Type: multipart/mixed; boundary=00163630f5f354355b046be66f6d
--00163630f5f354355b046be66f6d
Content-Type: text/xml; charset=UTF-8; name="8088450656.BRANCH.A.LABGEN.CDA.20110702084530"
Content-Disposition: attachment; filename="8088450656.BRANCH.A.LABGEN.CDA.20110702084530"
Content-Transfer-Encoding: base64
X-Attachment-Id: f_fvqdehi70
PD94bWwgdmVyc2lvbj0iMS4wLiBlbmNvZGluZz0iVVRLTgiPz4NCjwhLS0gQ0RBIFNhXBs
ZSBnb3IgSEtISFlgSW50ZXIvcGVyYWJpbGloSAAtLT4NCg0KPCEtLSBDb3B5cmlnaHQ6IFRo
ZSBvd25lcnNoaXAgb2YgdGhpcyBkb2N1bWVudCBzaG91bGQgYmUgUHJlcGFyYXRvcnkgR3Jv
dXAgb24gZUhSIENvbnRlbnQgJiBTdGFuZGKyZHMgdW5kZXIgZUhSIENvbnRlbnQgYW5kIElu
Zm9ybWF0aW9uIFN0YW5kYXJkcyBXb3JraW5nIEdyb3VwIGFuZCBmdXR1cmUgZUhSIG9mZmlj
ZS4gQWxslFJpz2h0cyBSZXNlcZIC4gLSo+DQo8IS0tIERpc2NsYWltZXI6IFRoZSBjbmZv
IGZvcIBFcGlzb2RIIFN1bW1hcenkdg2hpY2ggYXR0YWNoZWQgdGhlIFBERiAgLS0+DQoNCjxDF0
.....
.....
aW9uPSJ1cm46aGw3LW9yZzp2MyBDREEuHNkIiBjbGFzc0NvZGU9IkRPQ0NMSU4iIG1vb2RD
b2RIP SJFVk4iPg0KDQo8IS0tIA0KKioqKioqKioqKioqKioqKioqKioqKioq
KioqKg0KSGVhZGKyIEluZm9ybWF0aW9uDQoqKioqKioqKioqKioqKioqKioq
KioqKioqKioqDQo8IS0tERpc2NsYWltZXI6IFRoZSBjbmZv
MyIgZXh0ZW5zaW9uPSJQT0NEX0hEMDAwMDQwIi8+DQoJPCEtLSB0ZW1wbGF0ZUlkiHJvb3Q9
IjJuMTYuODQwLjEuMTEzODgzLjEwLjIwLjElYAtLT4NCgkNCgk8IS0tIERvY3VZW50IEIE
OyB1bmlxdWUsIGFzc2lnbmVkJG5IFByb3ZpZGVyL0N1c3RvZGhbiwgcm9vdCBjb2RIIG9m
ICBQcm92aWRlc9DdXN0b2RpYW4gdG8gYmUgZGVmaW5IZC0tPg0KCTxpZCByb290PSIyLjE2
Ljg0MC4xLjExMzg4My42LjElIGV4dGVuc2lvbj0iMTIzNDU2NzgiLz4NCgkNCgk8Y29kZSBj
b2RIPSiZNDExMy05IiBjb2RIU3IzdGVtPSIyLjE2Ljg0MC4xLjExMzg4My42LjElIGRpC3Bs
dW1lbnQ+DQo=
--00163630f5f354355b046be66f6d--
</ ED.5>
</OBX.5>
<OBX.11>F</OBX.11>
```

```
</OBX>
</ORU_R01.OBSERVATION>
</ORU_R01.ORDER_OBSERVATION>
</ORU_R01.PATIENT_RESULT>
</ORU_R01>
```

14.4 RE-MATERIALISATION MESSAGE

Example Data

Data Field	Sample Value
eHR number	201000000001
HKIC number	A1234563
Type of document	ID (<i>Refer the “Document Type” published in eHealth Record Office website</i>)
Identity document number	A1234563
English surname	CHAN
English given name	TAI MAN
English full name	CHAN, TAI MAN
Sex	M
Date of birth	2009-01-01 00:00:00.000

CDA Example

```
<?xml version="1.0" encoding="UTF-8"?>
<ClinicalDocument xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd"
xmlns="urn:hl7-org:v3" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance">
  <!--
  ****
  CDA General Information
  ****
  -->
  <typeId root="2.16.840.1.113883.1.3" extension="POCD_HD000040"/>
  <id/>
  <code code="LABGEN"/>
  <title>Laboratory General Result</title>
  <effectiveTime/>
  <confidentialityCode/>
  <recordTarget>
    <patientRole>
      <id/>
    </patientRole>
  </recordTarget>
  <author>
    <time/>
    <assignedAuthor>
      <id/>
    </assignedAuthor>
  </author>
  <custodian>
    <assignedCustodian>
      <representedCustodianOrganization>
        <id/>
      </representedCustodianOrganization>
    </assignedCustodian>
  </custodian>
  <!--
  ****
  Clinical Information
  ****
  -->
```

```
<component>
  <nonXMLBody>
    <clinicalDoc>
      <participant>
        <ehr_no>201000000001</ehr_no>
        <hkid>A1234563</hkid>
        <doc_type>ID</doc_type>
        <doc_no>A1234563</doc_no>
        <person_eng_surname>CHAN</person_eng_surname>
        <person_eng_given_name>TAI MAN</person_eng_given_name>
        <person_eng_full_name>CHAN, TAI MAN</person_eng_full_name>
        <sex>M</sex>
        <birth_date>2009-01-01 00:00:00.000</birth_date>
      </participant>
    </clinicalDoc>
    <text/>
  </nonXMLBody>
</component>
</ClinicalDocument>
```

Message Example (with CDA)

```
<?xml version="1.0" encoding="utf-8"?>
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Technical Interface Specification for eHR Laboratory Result (General Result) Record

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