

HL7 Hong Kong FHIR® Connectathon Series 2024

FIFTH CONNECTATHON

21 OCT 2024

EXECUTIVE RM 119, 1/F, HKPC BUILDING, 78 TAT CHEE AVENUE, KOWLOON, HONG KONG

Welcoming remarks

By Mr Alan Young (Chairman, HL7 Hong Kong)

Welcoming remarks

Topics: Laboratory Record (General) & Laboratory Record (Anatomical Pathology)

Programme	Speaker
Update on eHealth+	Louise Wong Health Informatics Analyst I, HA
Dataset briefing for Laboratory Record (General) & Laboratory Record (Anatomical Pathology)	John Mok Health Informatician, HA Jo Shum Health Informatics Analyst I, HA
FHIR mapping for Laboratory Record (General) & Laboratory Record (Anatomical Pathology)	Michael Cheung Systems Manager, HA
Open discussion	

- Fully supported by Electronic Health Record Office

Update on eHealth+

By Ms Louise Wong (Health Informatics Analyst I, Hospital Authority)

eHealth+ Introduction

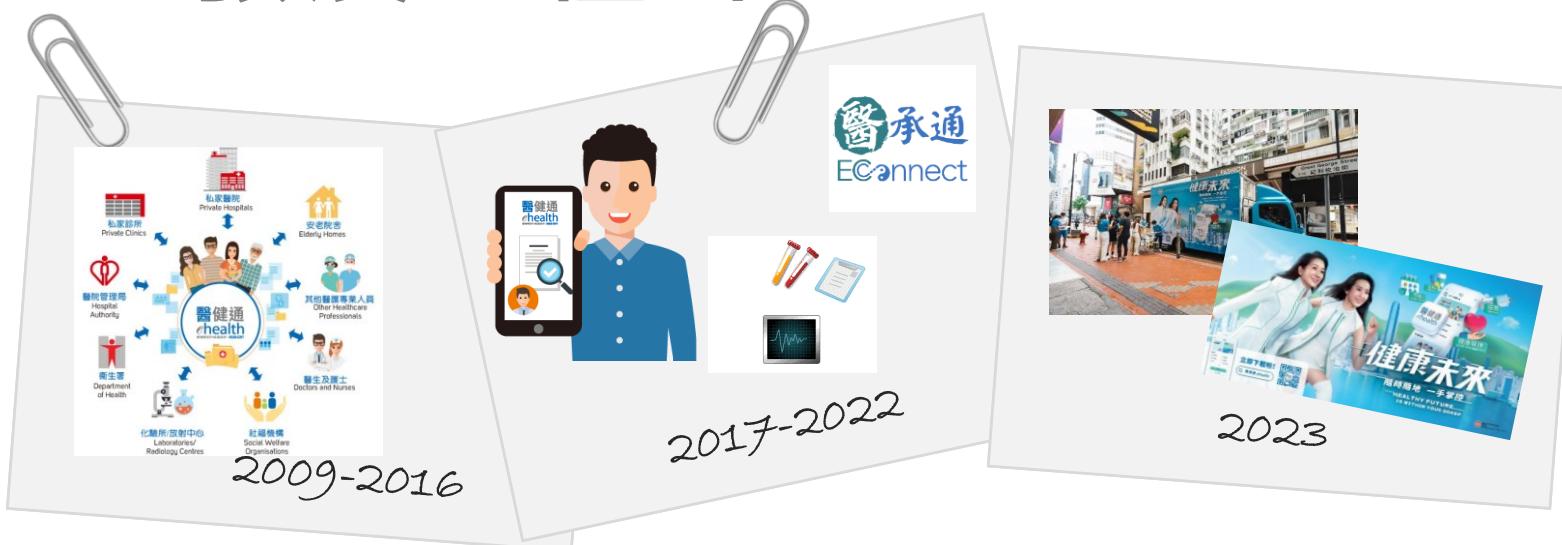
Fifth Connectathon of HL7 HONG KONG FHIR ®

Connectathon Series 2023-2024

21 Oct 2024



發展里程碑



第一及第二階段發展 2009-2022

今日醫健通 2024

醫健通 + 2024 - 2028

- 《電子健康紀錄互通系統條例》(2015)
- 電子健康紀錄互通平台(2016)
- 醫健通流動應用程式(2021)
- **600萬登記人數**
- **320萬醫健通流動應用程式下載量**
- **每月取覽量240 000次**

- 集醫療數據互通、服務提供及流程管理於一身的**綜合醫療資訊基建**

未來醫療發展趨勢



醫健通+支援個人治理流程的核心功能



醫健通 health

你好，病人奇異果

預約紀錄 / 系統

未來 過去

+ 預約紀錄 + 立即預約

醫健通紀錄

2023年12月24日 星期日 下午 02:30

門診

醫健通紀錄

2023年12月24日 星期日 下午 12:30

ALIANTV WEATLUPADE OLIVEINTUEDAOV

搜尋結果

HEALTHCARE MEDICAL CENTRE LIMITED TEST
HEALTHCARE MEDICAL CENTRE LIMITED TEST

醫護服務地點 供參考的醫護機構

TESTING HEALTHCARE MEDICAL CENTRE (SHATIN-NEW TOWN TOWER)_test
醫療中心 (沙田-新城市商業大廈)_test

HEALTHCARE MEDICAL CENTRE LIMITED TEST
HEALTHCARE MEDICAL CENTRE LIMITED TEST

供參考的醫護機構 (0)

+ 立即預約 檢查互通同意紀錄

e+ 預約/e+ 轉介



一站式、全天候電子預約

- 市民:** 預約公、私營醫護服務、接收提醒信息
- 醫護:** 排期、資源分配、確保緊急需要的病人獲得及時治理



e+登錄/e+認證



個人醫健通二維碼

- 快速、非接觸式的身份識別和驗證

醫健通
e-health

你好，病人奇異果 ◉

檢查紀錄

此流動應用程式會顯示由私營醫護機構上載的一般常規檢查的診斷化驗紀錄。紀錄一般會稍後（約14日）發佈。

選擇年份

您亦可登入HA GO 查閱您在醫院管理局的紀錄 [前往](#)

2023

RBC Count >
金域檢驗(香港)有限公司_test
2023年10月19日

Brain plain CT >
金域檢驗(香港)有限公司_test
2023年10月19日

構想圖像僅作參考之用

< 化驗紀錄

CBP
金域檢驗(香港)有限公司_test
2023年10月19日

報告

Laboratory Test (Reference Range)	Results Unit
Haemoglobin, Blood (11.7 - 14.9)	12.5 g/dL
WBC (3.7 - 9.2)	11.7 $\times 10^9/L$
Platelet (145 - 370)	271 $\times 10^9/L$
MCV (82.0 - 97.0)	91.4 fL
MCH (27.0 - 33.0)	31.5 pg
MCHC (32.0 - 35.0)	34.4 g/dL

< 影像報告

X光造影報告
ABC 造影中心
2023年10月2日

e+影像/e+化驗報告



電子檢測報告

- 隨時隨地、永久取覽
- 方便進行分析及比較、節省重複檢測成本、省卻保存紙本和影像報告的不便



e+藥物



電子藥物管理

- 收集所有藥物紀錄，透過系統進行核對，提高藥物安全性
- 新服務模式：藥品整合、補給、送遞、用藥提醒、遙距醫療



e+ 證書



電子醫療證明書

- 隨時隨地、永久取覽
- 省卻保存紙本的不便

我的健康記錄

文件
abc_lab_report.pdf

簽發（醫療保健提供者）
ABC 診所

簽發日期
2023 一月 21

描述

上載

My Health Record

資料夾容量
15 / 100 Mb

+ 上傳健康記錄文件

abc_lab_report.pdf
上傳日期: 21/06/2023
處理中
10MB

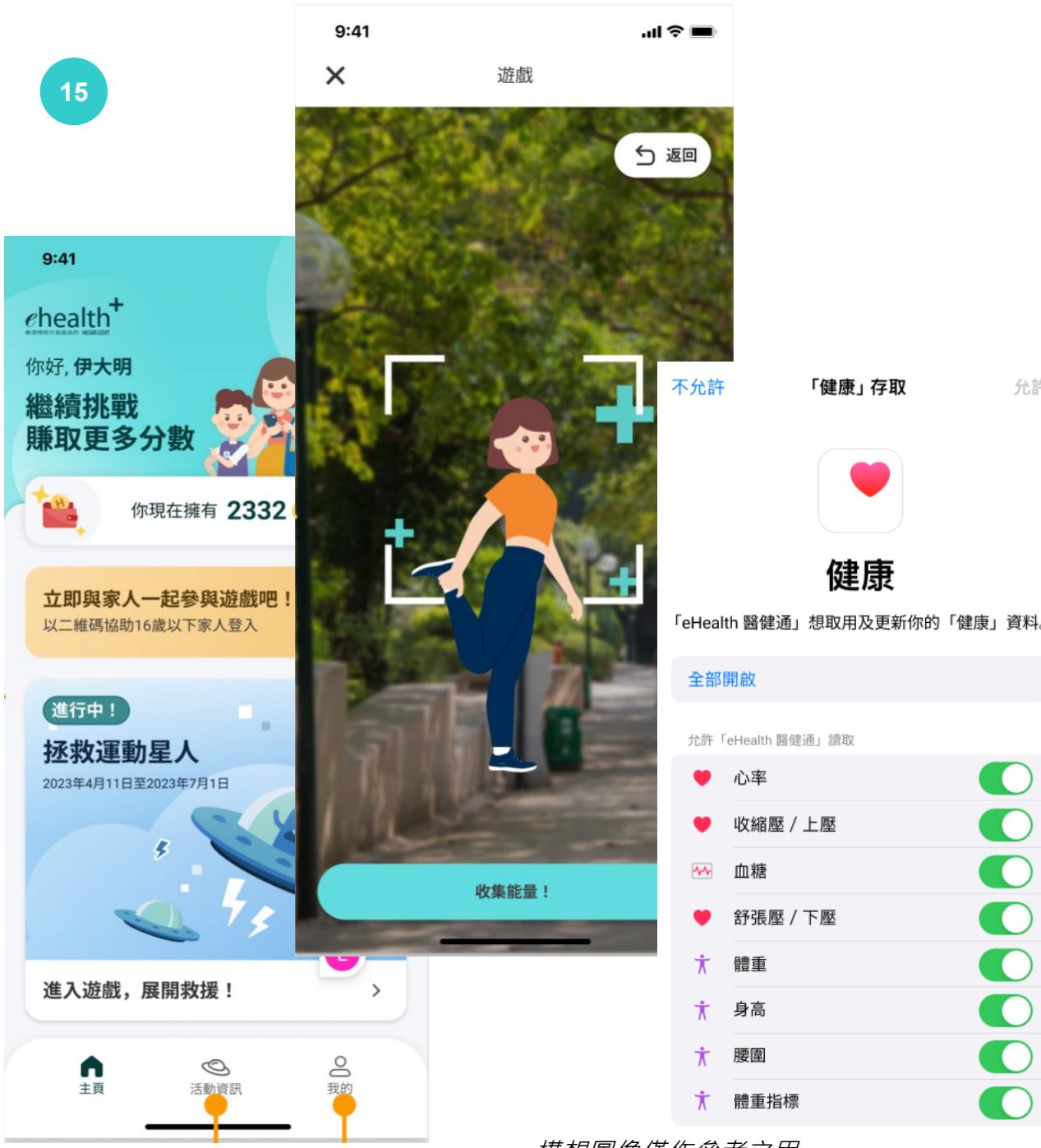
XXX_doc.pdf
上傳日期: 22/05/2023
完成
5MB

e+ 便攜紀錄



跨境電子健康紀錄

- 取覽健康紀錄
- 上載境外電子病歷



e+ 健康監察、 e+生活



個人綜合健康工具

- 管理醫護服務流程
- 掌握健康信息
- 監測健康狀況
- 建立健康生活習慣

個人終身電子健康紀錄



謝謝



Dataset briefing for Laboratory Record (General) & Laboratory Record (Anatomical Pathology)

By

Mr John Mok (Health Informatician, Hospital Authority)

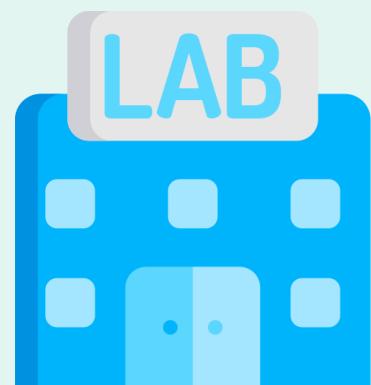
Ms Jo Shum (Health Informatics Analyst I, Hospital Authority)



香港特別行政區政府 HKSARGOV

Introduction on Laboratory Data Standards

Laboratory Record Standards and Data Sharing Approaches



Level 3

Report Image + Standardised Data

Level 2

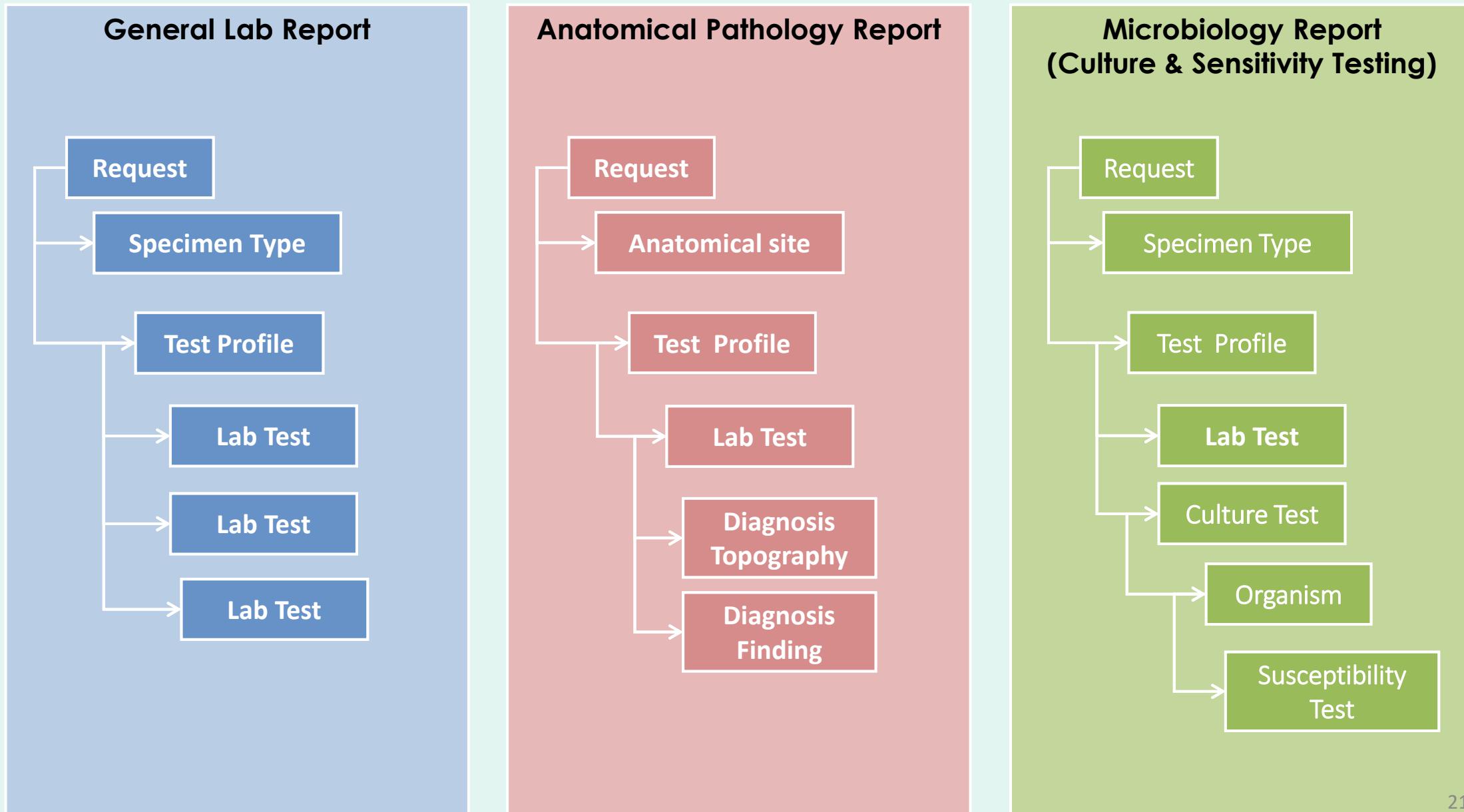
Report Image + Local Data

Level 1

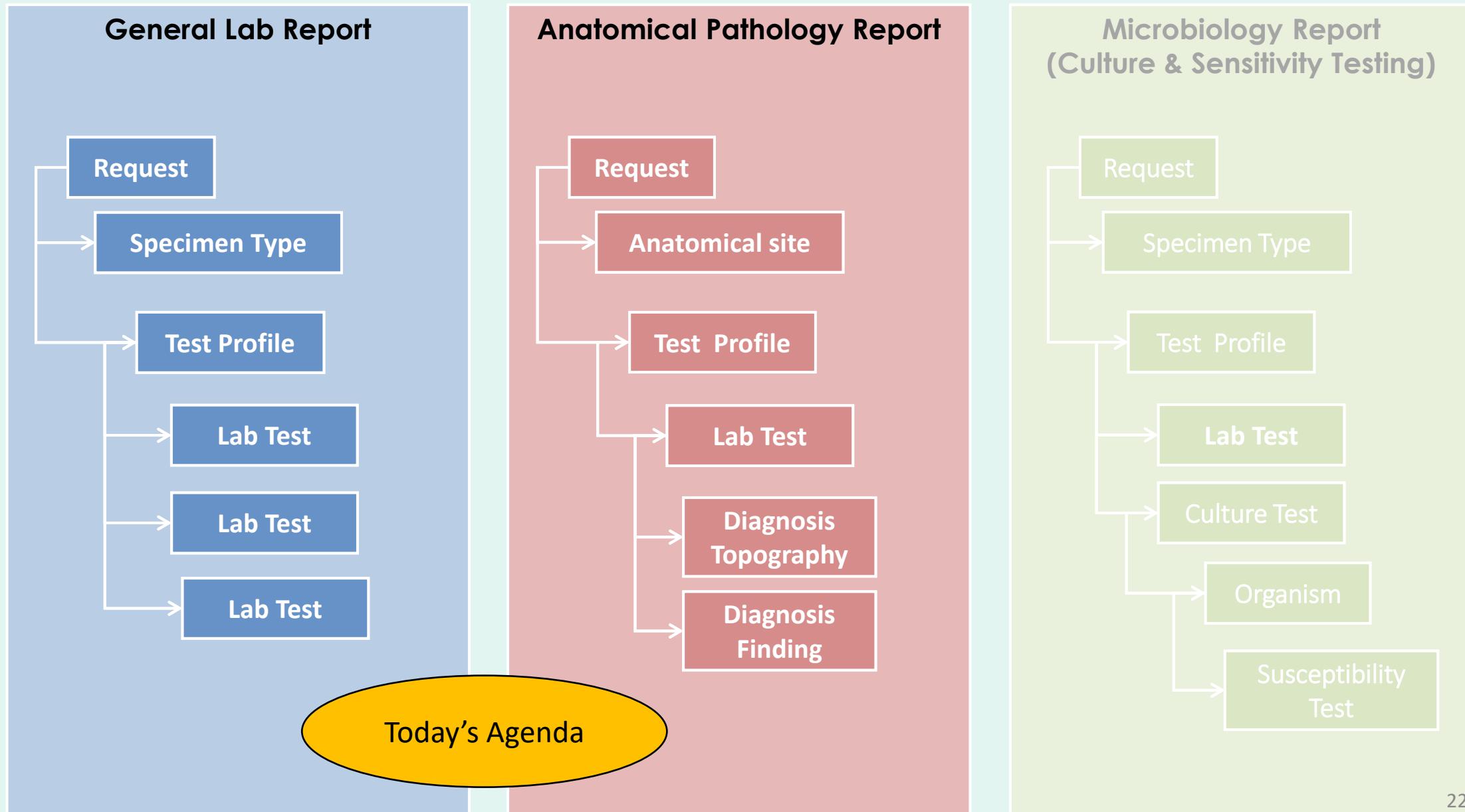
Report Image



Tailored Record Standards for Varied Lab Reporting Models



Tailored Record Standards for Varied Lab Reporting Models



Data Sharing = Report Image

+ Structured Data
(Local Data / Standardised Data)

ABC Laboratory

PATIENT Lab No. : 23C56999
Requester : Dr Chan Tak Man Clinic

CLINICAL CHEMISTRY 臨床生化學

Specimen Type: Blood	Specimen Collection Time: 15/Jul/2017 @ 07:14	Specimen Received: 15/Jul/2017 @ 07:34				
Tests	Results	Unit	Ref. Range	Results	Unit	Ref. Range
Renal Function Tests 腎臟功能檢測						
Sodium	145	mmol/L	136 – 145	145	meq/L	136 – 145
Potassium	3.8	mmol/L	3.5 – 5.1	3.8	meq/L	3.5 – 5.1
Chloride#	106	mmol/L	98 – 107	106	meq/L	98 – 107
Bicarbonate#	22	mmol/L	22 – 29	22	meq/L	22 – 29
Urea	7.7	mmol/L	2.9 – 8.2	22	mg/dL	8 – 23
Creatinine	61	μmol/L	44-80	0.69	mg/dL	0.50 – 0.90
Glucose fasting	8.7	↑ mmol/L	3.9 – 6.0	157	mg/dL	70 – 108

+ Local Data (Level 2)

Continued on Page 2....

Final Report

Priority: ROUTINE on 15/Jul/2017 @ 11:44

Tests marked with # are not included in the scope of accreditation by HKAS under the HKLAS scheme.
***** ARCHIVE ***** The above stated reference ranges have been established to be age & gender-specific. ****
HKAS has accredited Seven-Day Adventist Corporation (HK) Limited-Clinical Laboratory, Adventist Health (Reg. No. HKLAS 8258) under HKLAS for performing specific examinations as listed in its scope of accreditation.

Clinical Chemistry CLAB-MOE01b



Report Image (Level 1)

Map to

eHR Recognised Terminology

+ Standardised Data (Level 3)

General Lab Report Example

eHR Recognised Terminology for Standardising Laboratory Data

International
Reference Terminology



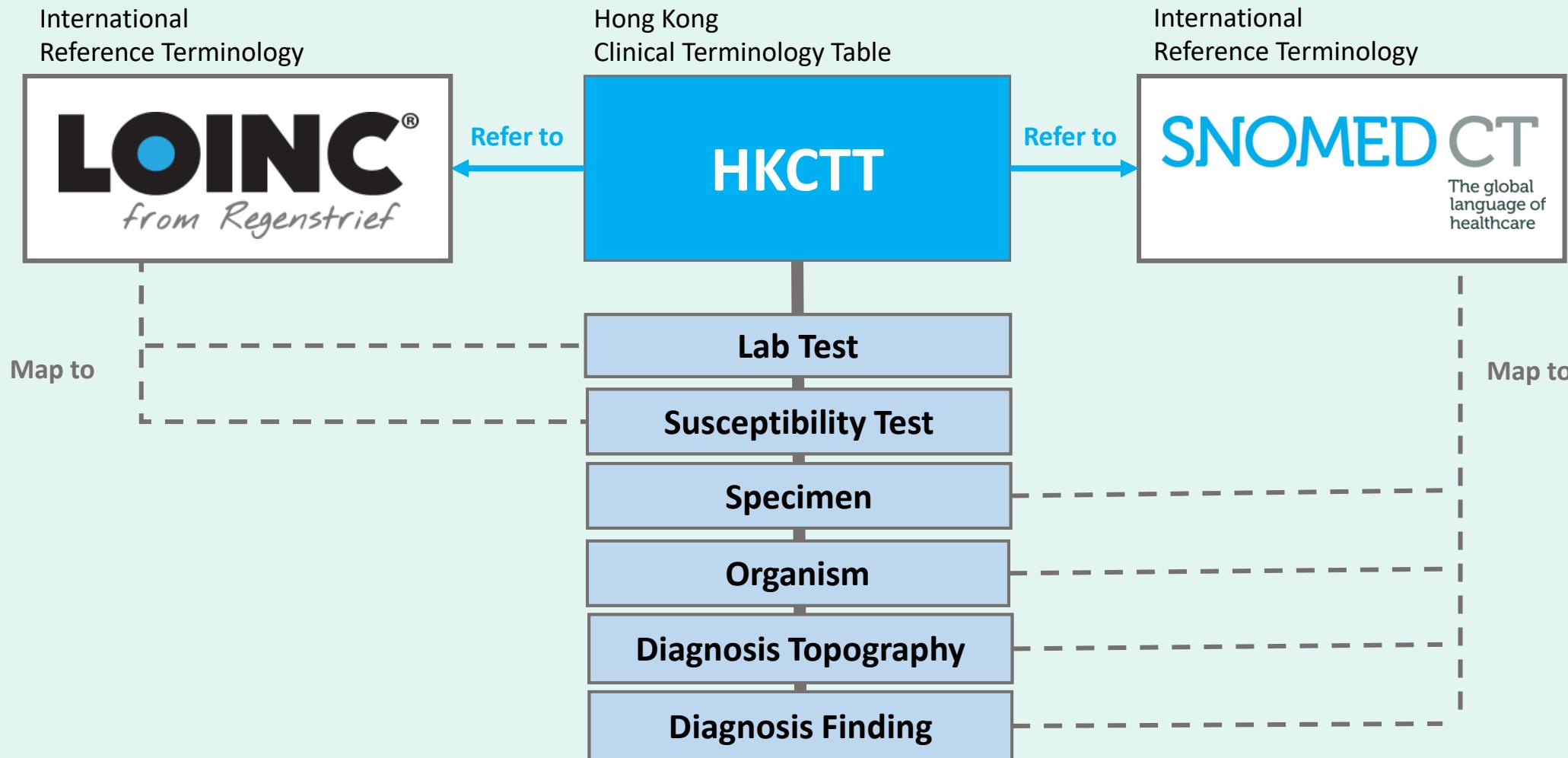
Hong Kong
Clinical Terminology Table



International
Reference Terminology



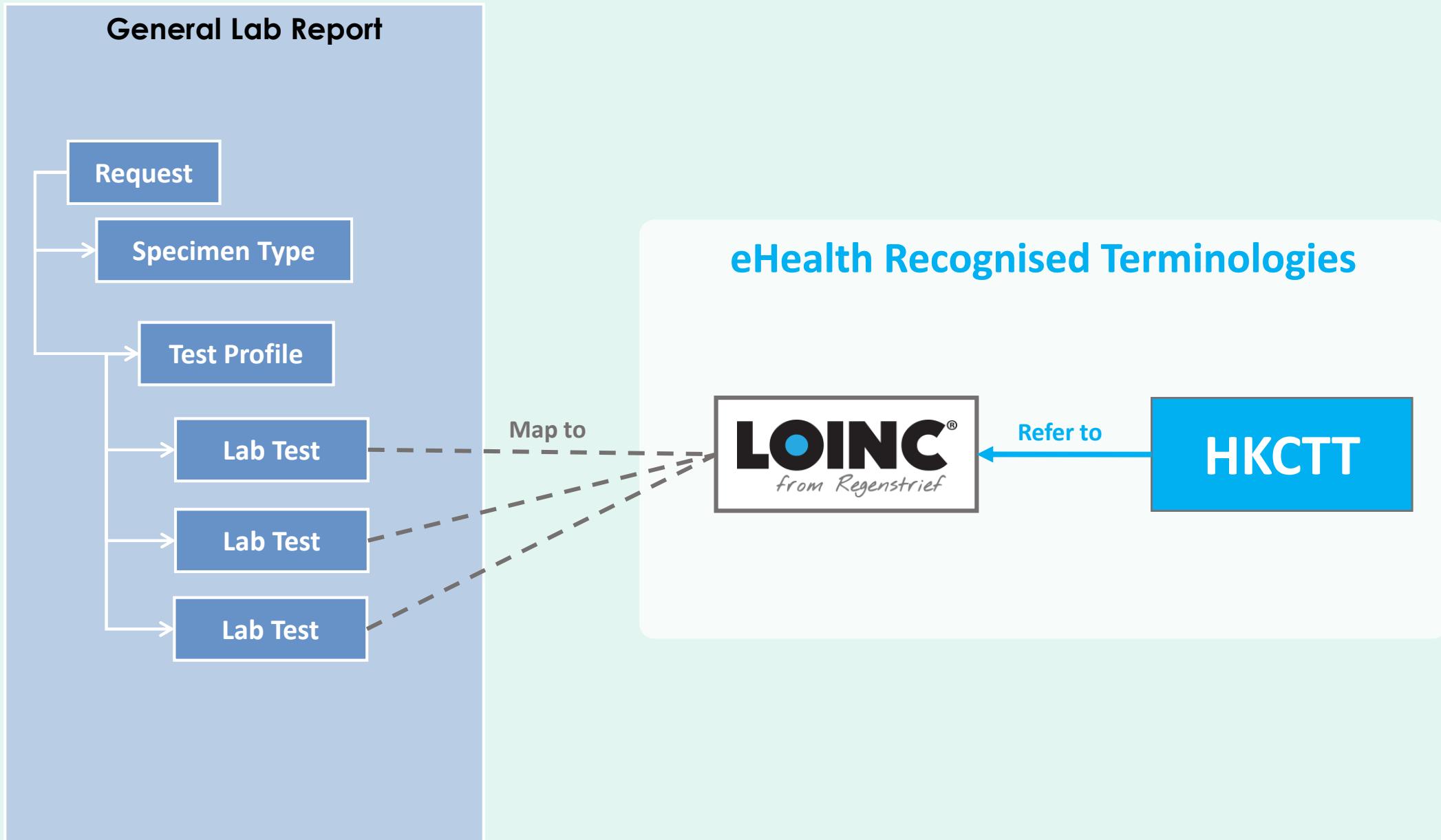
eHR Recognised Terminology for Standardising Laboratory Data



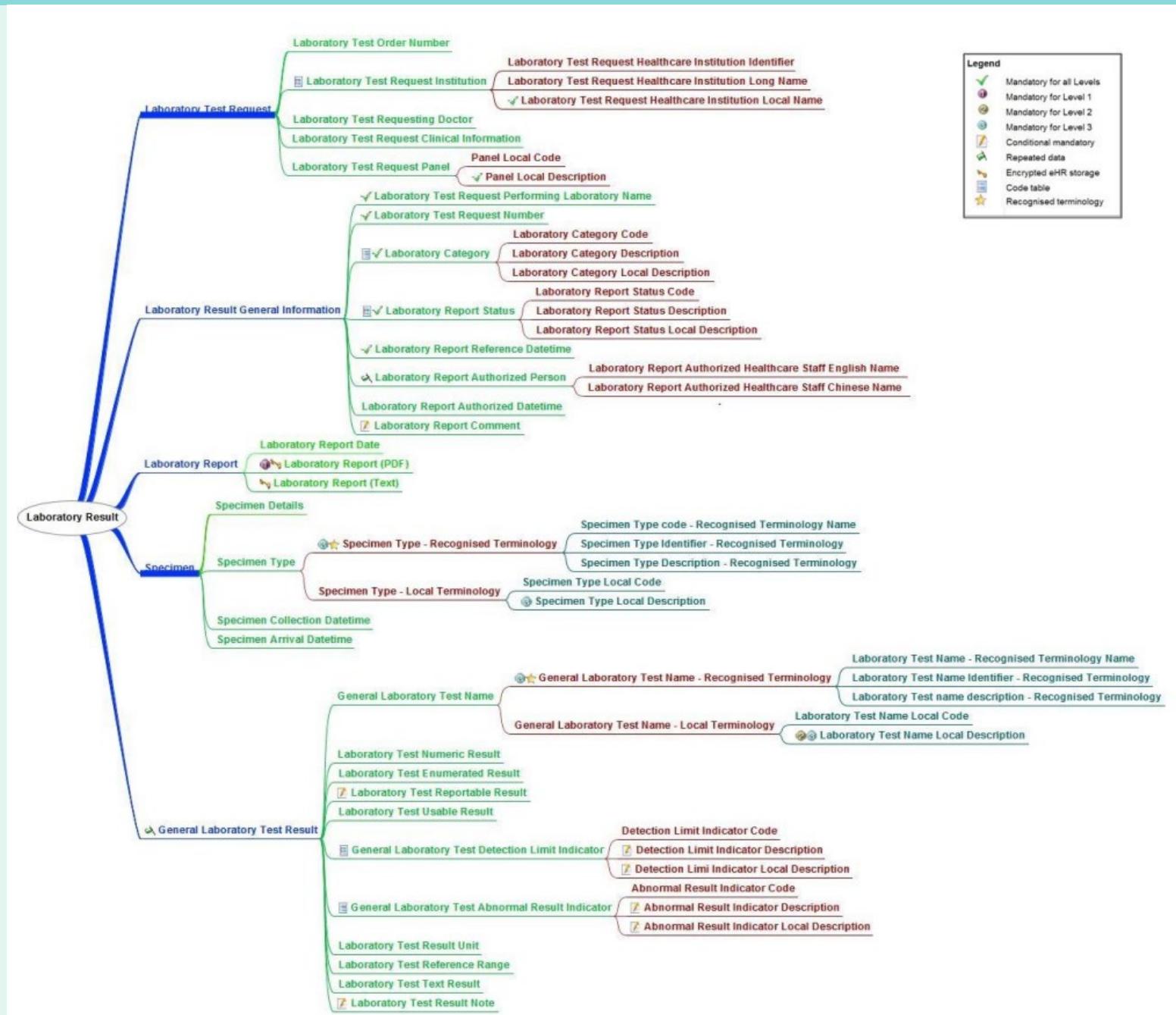


General Laboratory Data Sharing

LABGEN Dataset Highlight



LABGEN Dataset Mindmap



Legend

- ✓ Mandatory for all Levels
- Mandatory for Level 1
- Mandatory for Level 2
- Mandatory for Level 3
- Conditional mandatory
- ▢ Repeated data
- 🔒 Encrypted eHR storage
- ☰ Code table
- ★ Recognised terminology



ABC Laboratory		HKLAS MED								
PATIENT		Lab No. :	23C56999							
		Requester :	Dr Chan Tak Man Clinic							
CLINICAL CHEMISTRY 臨床生化學										
Specimen Type: Blood										
Specimen Collection Time: 15/Jul/2017 @ 07:14	Specimen Received: 15/Jul/2017 @ 07:34									
Tests	Results	Unit	Ref. Range	Results	Unit	Ref. Range				
Renal Function Tests 腎臟功能檢測										
Sodium 鹽	145	mmol/L	136 ~ 145	145	meq/L	136 ~ 145				
Potassium 鈉	3.8	mmol/L	3.5 ~ 5.1	3.8	meq/L	3.5 ~ 5.1				
Chloride# 氯	106	mmol/L	98 ~ 107	106	meq/L	98 ~ 107				
Bicarbonate# 碳酸氫鎂	22	mmol/L	22 ~ 29	22	meq/L	22 ~ 29				
Urea 尿素	7.7	mmol/L	2.9 ~ 8.2	22	mg/dL	8 ~ 23				
Creatinine 肌酸酐	61	μmol/L	44~80	0.69	mg/dL	0.50 ~ 0.90				
Glucose fasting 空腹血糖值	8.7	↑ mmol/L	3.9 ~ 6.0	157	mg/dL	70 ~ 108				
Continued on Page 2....										
Final Report										
Priority: ROUTINE on 15/Jul/2017 @ 11:44										
<small>Tests marked with * are not included in the scope of accreditation by HKLAS under the HKLAS scheme.</small> <small>***** ARCHIVE *****</small> <small>* The above stated reference ranges have been established to be age & gender-specific. **</small> <small>HKLAS has accredited Seventh-Day Adventist Corporation (HK) Limited-Clinical Laboratory, Adventist Health (Reg. No. HKLAS 8288) under HKLAS for performing specific examinations as listed in its scope of accreditation.</small>										
<table border="1"> <tr> <td>Clinical Chemistry</td> <td>CLAB-MOE01b</td> </tr> <tr> <td colspan="2"> </td> </tr> </table>							Clinical Chemistry	CLAB-MOE01b		
Clinical Chemistry	CLAB-MOE01b									

LABGEN – Share PDF (Level 1)



Report
Image*
PDF

Laboratory Report
Reference Date/time*

Panel Local Description*

Laboratory Test Request Performing Laboratory Name*

ABC Laboratory

HKLAS MED

PATIENT Lab No. : 23C56999

Requester : Dr Chan Tak Man Clinic

Laboratory Test Request Number*

Laboratory Test Request
Healthcare Institution Local Name*

Laboratory Category*

CLINICAL CHEMISTRY 臨床生化學

Specimen Type: Blood

Specimen Collection Time: 15/Jul/2017 @ 07:14

Specimen Received: 15/Jul/2017 @ 07:34

Tests	Results	Unit	Ref. Range	Results	Unit	Ref. Range
Renal Function Tests 腎臟功能檢測						
Sodium 鹽	145	mmol/L	136 ~ 145	145	meq/L	136 ~ 145
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Chloride# 氯	106	mmol/L	98 ~ 107	106	meq/L	98 ~ 107
Bicarbonate# 碳酸氫鎂	22	mmol/L	22 ~ 29	22	meq/L	22 ~ 29
Urea 尿素	7.7	mmol/L	2.9 ~ 8.2	22	mg/dL	8 ~ 23
Creatinine 肌酸酐	61	μmol/L	44~80	0.69	mg/dL	0.50 ~ 0.90
Glucose fasting 空腹血糖值	8.7	↑ mmol/L	3.9 ~ 6.0	157	mg/dL	70 ~ 108

Continued on Page 2....

Priority: **ROUTINE** on 15/Jul/2017 @ 11:44

Final Report

Laboratory Report Status*

Tests marked with # are not included in the scope of accreditation by HKLAS under the HKCLAS scheme.
 ARCHIVE
 * The above stated reference ranges have been established to be age & gender-specific. **
 HKAS has accredited Seven-Day Adventist Corporation (HK) Limited-Clinical Laboratory, Adventist Health (Reg. No. HKCLAS 8255) under HKCLAS for performing specific examinations as listed in its scope of accreditation.

Clinical Chemistry	CLAB-MOE01b

LABGEN – Share PDF & Standardized Data (Level 3)



(Level 1)

Report
Image*

Laboratory Report
Reference Date/time*

Panel Local Description*

(Level 3)

RT Binding

- RT Name*
- RT Identifier*
- RT Description*
- Local Code
- Local Description*

RT

Laboratory Test Name*

Laboratory
Test Result*

Abnormal
Result Indicator

Test Unit

Reference Range

Continued on Page 2....

Final Report

Laboratory Report Status*

C

Priority: ROUTINE on 15/Jul/2017 @ 11:44
Tests marked with # are not included in the scope of accreditation by HKLAS under the HKCLAS scheme.
ARCHIVE The above stated reference ranges have been established to be age & gender-specific. HKLAS has accredited Seven-day Adventist Corporation (HK) Limited-Clinical Laboratory, Adventist Health (Reg. No. HKLAS 8288) under HKCLAS for performing specific examinations as listed in its scope of accreditation.

Clinical Chemistry CLAB-MOE01b

醫健通
eHealth
31
香港特別行政區政府 HKSARGOVT

* Mandatory

RT

Recognised Terminology - LOINC

C

eHR Codex Table

LABGEN – Share PDF (Level 1)



Example

Laboratory test order

- Format for e-Referral consent :
<Referring HCP ID>:<Referral document reference number>

8088450656:12345678900000000306

Laboratory Test Request Number

23C56999

Laboratory Test Request Performing Laboratory Name

ABC Laboratory

Laboratory Test Request Healthcare Institution Name

Dr Chan Tak Man Clinic

Panel Local Description

Renal Function Test, Glucose

Laboratory Report Reference Date/time

- Specimen collection / arrival / registration

15/07/2023 07:14

Laboratory Category

C

Clinical Chemistry

Laboratory Report Status

C

Final Report

Report Image



Mandatory

Conditional Mandatory

Optional

eHR Codex Table



Example

Laboratory Test Name

RT

RT Name

LOINC

RT Identifier

14771-0

RT Description

Fasting glucose [Moles/volume] in Serum or Plasma

Local Description

Glucose fasting

Laboratory Test Result

- Reportable/ Numeric/ Enumerated/ Text/ Usable

8.7

Test Unit

mmol/L

Abnormal Result Indicator

C

H

Reference Range

3.9 – 6.0

Mandatory

Conditional Mandatory

Optional

C eHR Codex Table

RT

Recognised Terminology - LOINC

Standardised Lab Data to Provide Cumulative View for Continuous Patient Care across different Healthcare Providers



The screenshot illustrates the eHealth Laboratory Record interface, designed for managing laboratory test results across different healthcare institutions. The interface includes a navigation bar with links for COVID-19 Related Records, Lab Report Reference, and Date/time. A sidebar on the left provides access to Clinical Note & Summary, Referral, Investigation Report, and Laboratory Record sections. The main content area displays a Laboratory Record search interface with fields for Date View, Document View, and a dropdown for Chemical Pathology. It also shows a note about expected longer processing times for selected periods. Below this, a table lists test results from two institutions: ABC Lab and XYZ Lab, comparing dates, PDF reports, and specific test values like Urea and Creatinine. A callout box highlights a Urea result of 7.1 mmol/L with a red upward arrow and a reference range of 2.6-6.6. The bottom right corner features a green box with the text "Interoperable Lab Data through Terminology Binding".

Laboratory Record

Date View Document View Last 2 years OR To Reset

Chemical Pathology

Longer time may be expected if the selected period is more than 2 years.

Date Profile Description

16-Apr-2024 Glucose (Fasting), Lipid Profile (Direct), Renal Function Test (RFT) with eGFR

18-Oct-2023 Glucose (Fasting), Lipid Profile (Direct), Renal Function Test (RFT) with eGFR

Report Image Panel Local Description

Institution ABC Lab XYZ Lab

ABC Lab XYZ Lab

Last 1 year

Institution	ABC Lab	XYZ Lab
Date	16-Apr-2024 12:30	18-Oct-2023 11:30
PDF Report	PDF	PDF
Sodium, Serum or Plasma	140	132
Potassium, Serum or Plasma	4.0	
Urea, Serum or Plasma	7.1 ↑	
Creatinine, Serum or Plasma	94 ↑	83
Glomerular filtration rate/1.73 sq M.predicted, Creatinine-based formula (MDRD)	52 ↓	> 60
Triglyceride, Serum or Plasma	1.1	1.1

eHR Test Name
(Standardised names for Level 3 data)

Feedback

Interoperable Lab Data through Terminology Binding

Lab Report Image in eHR Viewer



Lab Report Reference Date/time

Report Image

Panel Local Description

ABC Laboratory

To: ABC Clinic

Patient: CHAN, SIU MING
HKID : P722215(0)
Ref No.: 23830001230000006333
Collection: 14/09/2023
First Reported Date: 14/09/2023
Sample: Blood

Lab No.: 2309140010 Page: 1 of 2
Sex/Age: F/63Y DOB: 01/01/1960
Chit No.:
Registration: 14/09/2023 17:01
Report Printing: 19/09/2023 15:01

Test 測試名稱	S.I. Unit	Conventional Unit
	Result 結果	Ref. 參考值
	Result 結果	Ref. 參考值
BIOCHEMISTRY		
Lipid Profile (Direct) 血脂組合(直接)		
Cholesterol Total	總膽固醇 ↑ 7.0 mmol/L <5.2	mg/dL <200
HDL-Cholesterol	高密度膽固醇 1.8 mmol/L >1.3	mg/dL >50
CHOL/HDL Ratio	總/高密度膽固醇比率 3.9 Ratio ≤5	
	Interpretation : Goal: <5.0; Ideal: <3.0	
Triglycerides	三酸甘油脂 0.7 mmol/L <1.7	mg/dL <150
LDL-Cholesterol (Direct)	低密度膽固醇(直接) ↑ 4.6 mmol/L <2.6	mg/dL <100
Lipid Profile Interpretation (in mmol/L):		
Age Groups		
Cholesterol	>17 yrs Desirable: <5.2	10-17 yrs <4.4
	Borderline high: 5.2 - 6.2	2-9 yrs <4.4
	High: >6.2	4.4 - 5.1
		>5.1

If you suspect that some letters, numbers or symbols are not displayed properly, please contact the Registration Office Hotline 34676230.

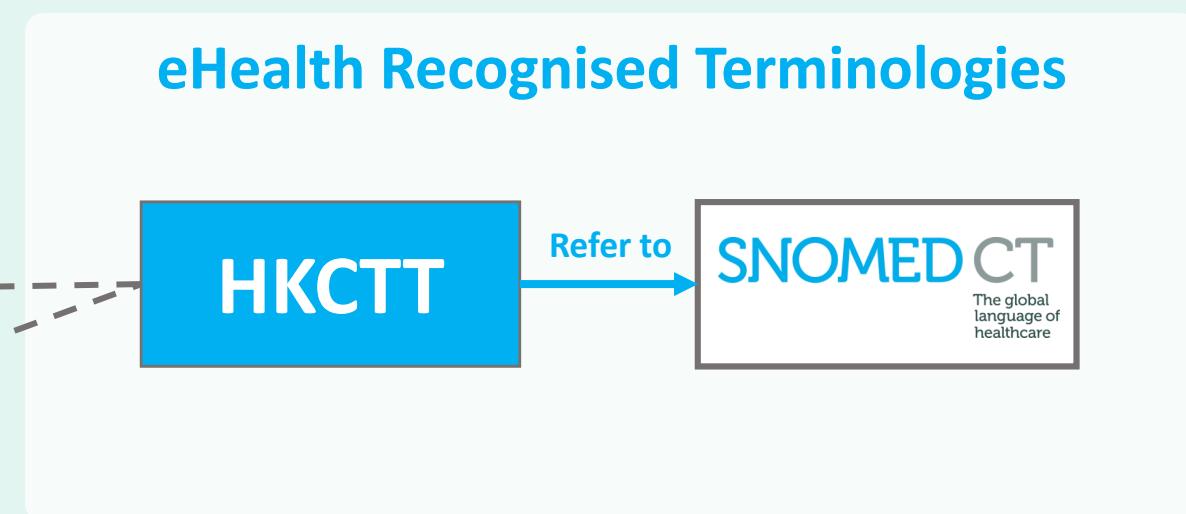
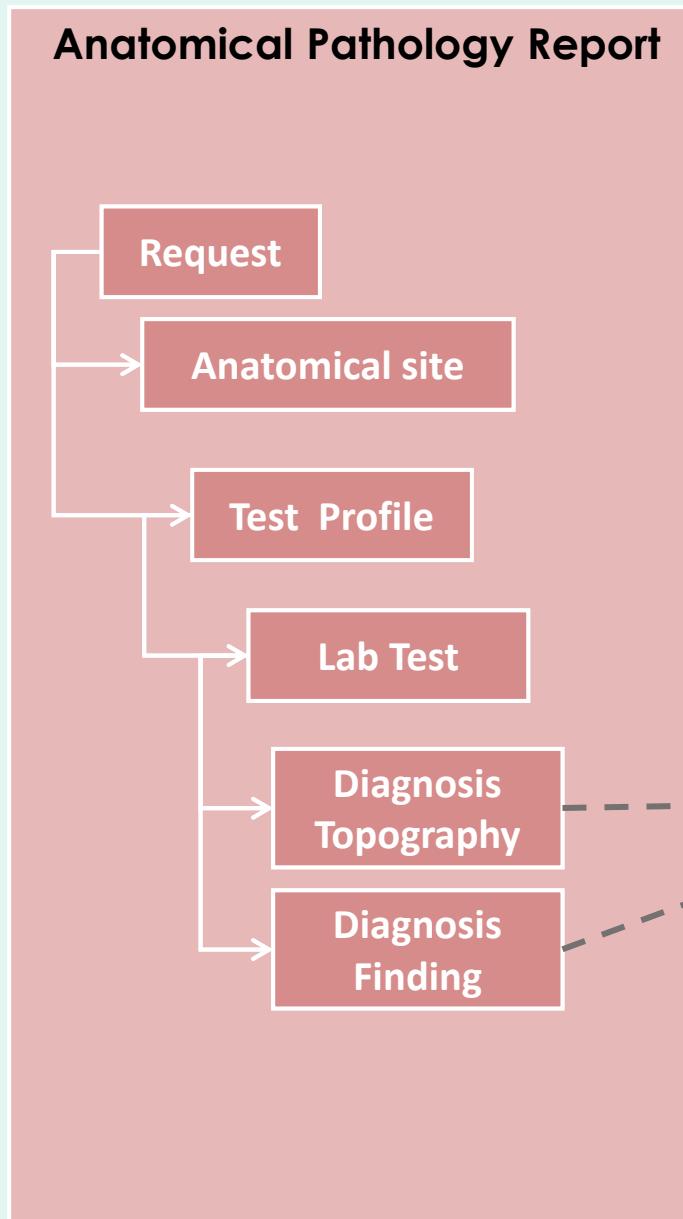
Performing Institution: ABC Laboratory
Report Status: Final Report

Laboratory Report Status

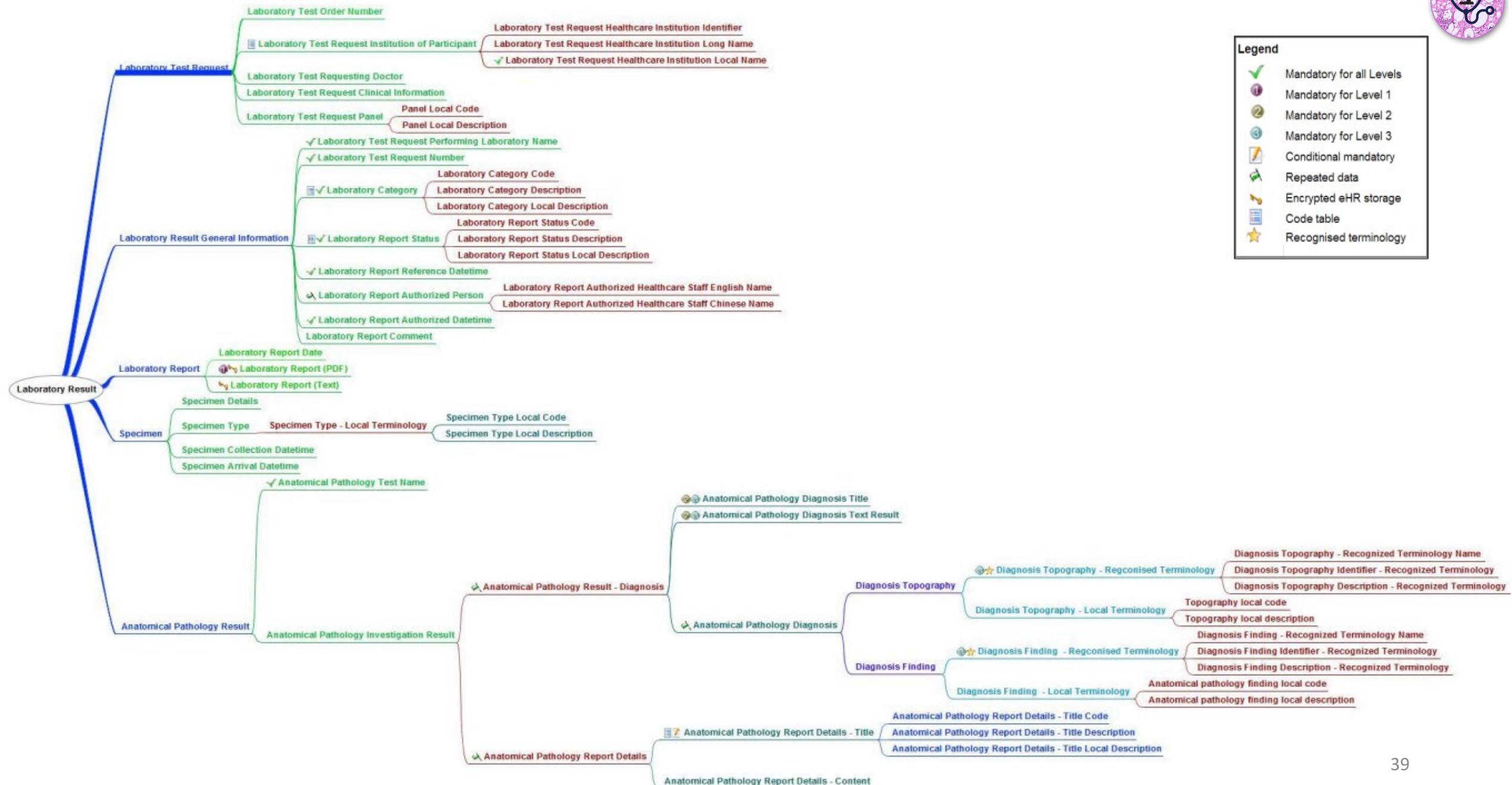


Anatomical Pathology Data Sharing

LABAP Dataset Highlight



LABAP Dataset Mindmap





ABC Laboratory

HKID No: *PRCI7782564

Lab No.: 17AH-004311

Name: LABAP TEST USER 1

DOB: 02/01/1991

Sex/Age: F/26Y

Requesting clinic: Dr CHAN Medical Centre

Report To: Dr CHAN Medical Centre

Requesting doctor: Dr CHAN Tai Man

Date Collected: 10/11/2017

Date & Time Rec'd: 10/11/2017 14:00

PMI No.: 8000461909

CIMS Ix No.: DH1711102966671

Reference: PRCI778256419836

Clinical Summary & Diagnosis:

Lumps at face, with discharge and foul smell, suspected malignancy

Histology Report - Final Report

GROSS EXAMINATION:

1 small piece of tissue measuring 3x10mm was received. Bisected and all embedded in 2 blocks.

MICROSCOPIC EXAMINATION:

The slide shows a hyperplastic epidermis with channels containing brightly eosinophilic elastic fibers and basophilic debris. The adjacent dermis contains foci of foreign body cells. Special stains for micro-organisms (PAS and GMS) are negative

DIAGNOSIS:

SKIN, biopsy - SUBACUTE DERMATITIS.

***** End of report *****

Authorized by: Dr WONG Yee San

Report date & time: 13/11/2017 14:29

Checked by:

Printed on: 13/11/2017 14:29

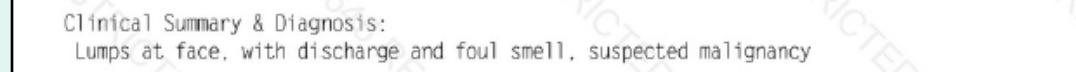
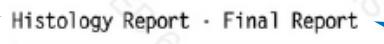


8000461909

Page No.: 1/1

LABAP – Share PDF (Level 1)



Laboratory Test Request Performing Laboratory Name*	ABC Laboratory	
 Report Image*	Laboratory Test Request Number*	Laboratory Test Request Healthcare Institution Local Name*
HKID No: *PRCI7782564 Name: LABAP TEST USER 1 DOB: 02/01/1991 Sex/Age: F/26Y	Lab No.: 17AH-004311	Requesting clinic: Dr CHAN Medical Centre Report To: Dr CHAN Medical Centre Requesting doctor: Dr CHAN Tai Man Date Collected: 10/11/2017 Date & Time Rec'd: 10/11/2017 14:00
Anatomical pathology test name*	 Clinical Summary & Diagnosis: Lumps at face, with discharge and foul smell, suspected malignancy	
 Histology Report - Final Report	Laboratory Report Status*	
<p>GROSS EXAMINATION: 1 small piece of tissue measuring 3x10mm was received. Bisected and all embedded in 2 blocks.</p> <p>MICROSCOPIC EXAMINATION: The slide shows a hyperplastic epidermis with channels containing brightly eosinophilic elastic fibers and basophilic debris. The adjacent dermis contains foci of foreign body cells. Special stains for micro-organisms (PAS and GMS) are negative</p> <p>DIAGNOSIS: SKIN, biopsy - SUBACUTE DERMATITIS.</p>		
***** End of report *****		
Authorized by: Dr WONG Yee San Checked by:	Report date & time: 13/11/2017 14:29 Printed on: 13/11/2017 14:29 Page No.: 1/1	 8000461909

* Mandatory

LABAP – Share PDF (Level 1) & Standardized Data (Level 3)



<p>Laboratory Test Request Performing Laboratory Name*</p> <p>ABC Laboratory</p> <p>HKID No.: *PRCI7782564 Name: LABAP TEST USER 1 DOB: 02/01/1991 Sex/Age: F/26Y</p> <p>Lab No.: 17AH-004311</p> <p>Requesting clinic: Dr CHAN Medical Centre Report To: Dr CHAN Medical Centre Requesting doctor: Dr CHAN Tai Man Date Collected: 10/11/2017 Date & Time Rec'd: 10/11/2017 14:00</p> <p>PMI No.: 8000461909 CIMS Ix No.: DH1711102966671 Reference: PRCI778256419836</p> <p>Clinical Summary & Diagnosis: Lumps at face, with discharge and foul smell, suspected malignancy</p> <p>Anatomical pathology test name*</p> <p>C Anatomical Pathology Report Details</p> <p>C Anatomical Pathology Diagnosis</p> <p>PDF</p> <p>Report Image*</p>	<p>Laboratory Test Request Number*</p> <p>Laboratory Test Request Healthcare Institution Local Name*</p> <p>Laboratory Report Reference Date/time*</p> <p>Histology Report - Final Report</p> <p>Laboratory Report Status* C</p> <p>GROSS EXAMINATION: 1 small piece of tissue measuring 3x10mm was received. Bisected and all embedded in 2 blocks.</p> <p>MICROSCOPIC EXAMINATION: The slide shows a hyperplastic epidermis with channels containing brightly eosinophilic elastic fibers and basophilic debris. The adjacent dermis contains foci of foreign body cells. Special stains for micro-organisms (PAS and GMS) are negative</p> <p>DIAGNOSIS: SKIN biopsy - SUBACUTE DERMATITIS.</p> <p>Diagnosis Topography Diagnosis Finding</p> <p>RT WONG Yee RT</p> <p>*** End of report *****</p> <p>Report date & time: 13/11/2017 14:29 Printed on: 13/11/2017 14:29 Page No.: 1/1</p> <p>Barcode: 8000461909</p>
--	---

- Binding**
- RT Name*
 - RT Identifier*
 - RT Description*
 - Local Code
 - Local Description*

LABAP – Share PDF (Level 1)



Example

<input checked="" type="checkbox"/> Laboratory test request performing laboratory name	ABC Laboratory
<input checked="" type="checkbox"/> Laboratory test request healthcare institution local name	Dr Chan Medical Centre
<input checked="" type="checkbox"/> Laboratory test request number	17AH-004311
<input checked="" type="checkbox"/> Anatomical pathology test name	Histology Report
<input type="radio"/> Specimen details	Lump at face
<input checked="" type="checkbox"/> Laboratory Report Reference Date/time <ul style="list-style-type: none">• Specimen collection / arrival / registration	10/11/2017
<input checked="" type="checkbox"/> Laboratory report authorization datetime	13/11/2017 14:29
<input type="radio"/> Laboratory report date	13/11/2017 14:29
<input checked="" type="checkbox"/> Laboratory Category C	Anatomical Pathology
<input checked="" type="checkbox"/> Laboratory Report Status C	Final Report
<input checked="" type="checkbox"/> Laboratory report (PDF)	
<input checked="" type="checkbox"/> Mandatory	
<input type="radio"/> Optional	
C	eHR Codex Table



Example

Anatomical Pathology Diagnosis Title

DIAGNOSIS :

Anatomical Pathology Diagnosis Text Result

SKIN, biopsy - SUBACUTE
DERMATITIS

Anatomical Pathology Report Details - Title code

(C)

GROSS

Anatomical Pathology Report Details - Title description

Gross Examination

Anatomical Pathology Report Details - Title local description

GROSS EXAMINATION:

Anatomical Pathology Report Details - Content

1 small piece of tissue measuring
3X10mm was received. Bisected
and all embedded in 2 blocks.

Mandatory

Conditional Mandatory

Optional

eHR Codex Table



LABAP – Share PDF & Standardized Data (Level 3)



Diagnosis Topography

RT

RT Name

HKCTT

RT Identifier

8002974

RT Description

Skin structure

Local Identifier

T-0100,05,001

Local Description

SKIN



Diagnosis Finding

RT

RT Name

HKCTT

RT Identifier

44378

RT Description

Subacute dermatitis

Local Identifier

DD-00014,01,001

Local Description

SUBACUTE DERMATITIS

✓ Mandatory



Conditional Mandatory

RT

Recognised Terminology - HKCTT

Anatomical Pathology Records in eHR Viewer



Laboratory Report Reference Date/time*

Laboratory Category*

eHR Codex Table

Anatomical Pathology Report Details

Laboratory Record

Date View Document View Anatomical Pathology

Last 2 years

Default View

Specimen Details/Anatomical Pathology Test Name (Laboratory Report Status)

Reports with different report status - Order by Lab report authorised date/time

Anatomical Pathology

Report:
Final Report (10-NOV-2017)

DIAGNOSIS:
SKIN, biopsy - SUBACUTE DERMATITIS

GROSS EXAMINATION:
1 small piece of tissue measuring 3X10mm was received. Bisected and all embedded in 2 blocks.

MICROSCOPIC EXAMINATION:
The slide shows a hyperplastic epidermis with channels containing brightly eosinophilic elastic fibers and basophilic debris. The adjacent dermis contains foci of foreign body cells. Special stains for micro-organisms (PAS and GMS) are negative

Display sequence

- Specimen
- Clinical Information
- Diagnosis
- Comment
- Gross Examination
- Microscopic Examination

Others Pathology Report Section
(If multiple , sort by alphabetical order of Anatomical Pathology Title)

醫健通 eHealth

46 香港特別行政區政府 HKSARGOVT

Lab Report Image in eHR Viewer



Laboratory Document

Date View Document View

Laboratory: All Period: All

Lumps at face/Histology report 11-Nov-2017 ABC Lab

Lab Report Reference Date/time

Report Image

Panel Local Description

ABC Laboratory

HKID No: %PRCI7782564
Name: LABAP TEST USER 1
DOB: 02/01/1991
Sex/Age: F/26Y

Lab No.: 17AH-004311

Requesting clinic: Dr CHAN Medical Centre
Report To: Dr CHAN Medical Centre
Requesting doctor: Dr CHAN Tai Man
Date Collected: 10/11/2017
Date & Time Rec'd: 10/11/2017 14:00

PMI No.: 8000461909
CIMS Ix No.: DH1711102966671
Reference: PRCI778256419836

Clinical Summary & Diagnosis:
Lumps at face, with discharge and foul smell, suspected malignancy

Histology Report - Final Report

GROSS EXAMINATION:
1 small piece of tissue measuring 3x10mm was received. Bisected and all embedded in 2 blocks.

MICROSCOPIC EXAMINATION:
The slide shows a hyperplastic epidermis with channels containing brightly eosinophilic elastic fibers and basophilic debris. The adjacent dermis contains foci of foreign body cells. Special stains for micro-organisms (PAS and GMS) are negative

DIAGNOSIS:
SKIN, biopsy - SUBACUTE DERMATITIS.

If you suspect that some letters, numbers or symbols are not displayed properly, please contact the Registration Office Hotline 34676230.

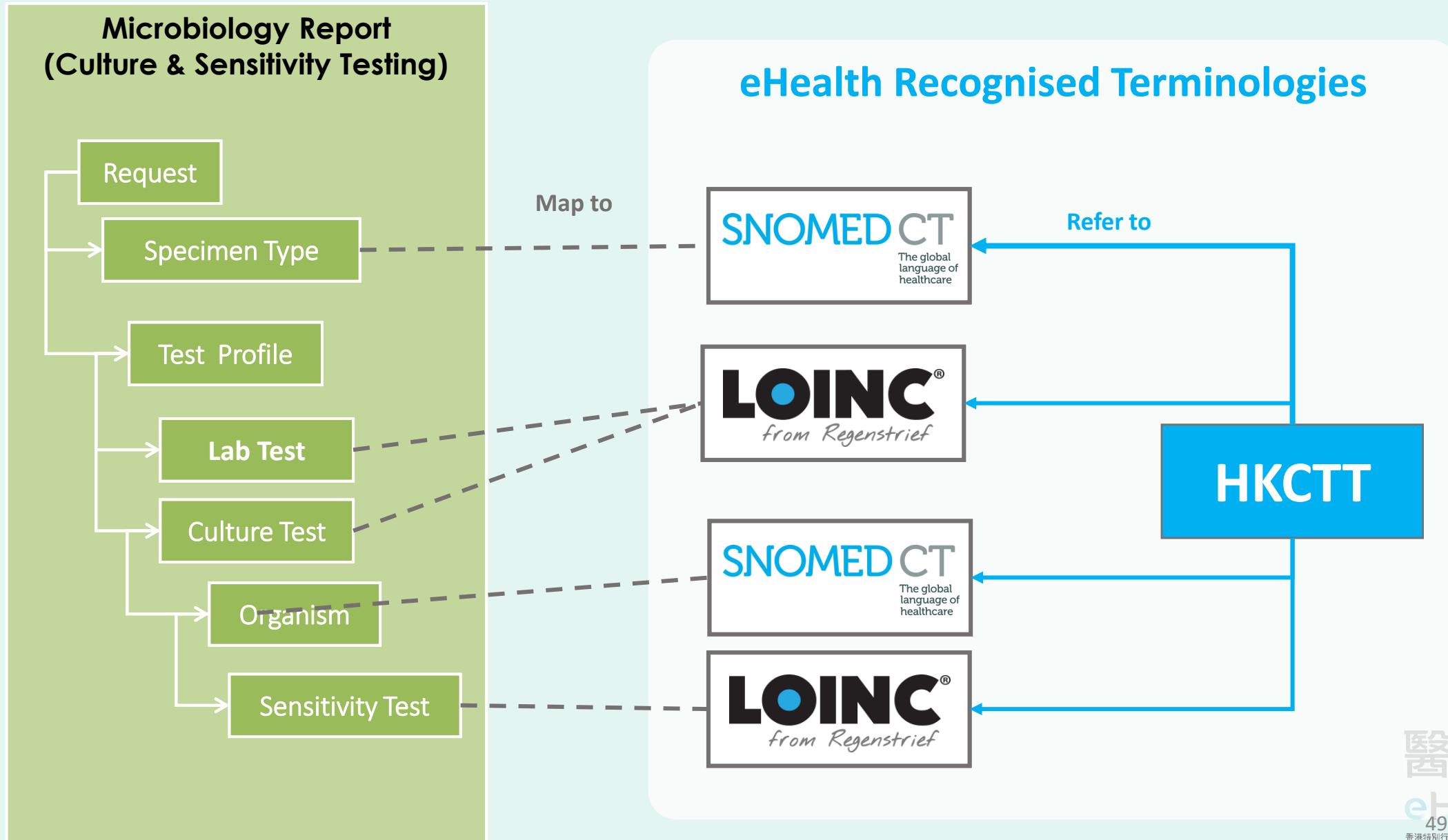
Performing Institution: ABC Laboratory
Report Status: Final Report

Laboratory Report Status

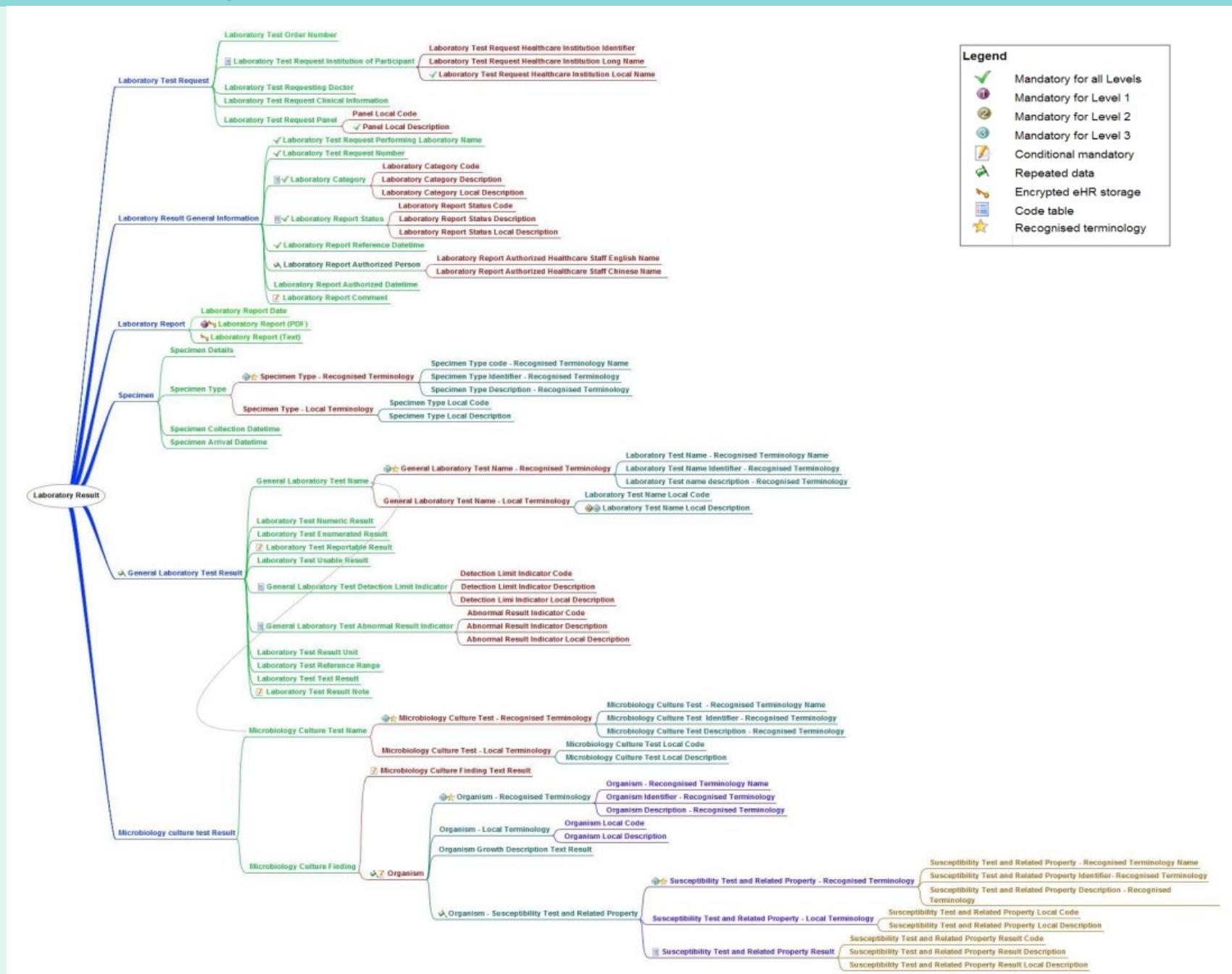


Microbiology (Culture & Sensitivity Test) Data Sharing

LABMB Dataset Highlight



LABMB Dataset Mindmap



LABMB – Share PDF (Level 1)



Laboratory Test Request Performing Laboratory Name*

ABC Laboratory

C Laboratory Report Status*

Final Report

Panel Local Description*

Microbiological Examination of Respiratory Specimens

Laboratory Report Reference Date/time*

Date Collected : 24/03/2022
Date Received : 24/03/2022

Specimen : Sputum

Respiratory Bacterial culture :

Organism 1 : Enterococcus faecium

Antibiotics	ORGANISM
Ampicillin	R
Vancomycin (MIC)	R

Organism 1 : Enterococcus faecium MIC of Vancomycin (MIC) : 32 ug/ml

Laboratory Test Request Number*

Lab No: 20M7013801

Name:

HKID No:

Sex/Age: M/49Y

Req. Loc.: XYZ Clinic

Doctor: Dr. CHAN Tai Man

Laboratory Test Request Healthcare Institution Local Name*

Laboratory Test Request

Healthcare Institution Local Name*

Report Image*

PDF

LABMB – Share PDF (Level 1) & Standardized Data (Level 3)



Laboratory Test Request Performing Laboratory Name*	<u>ABC Laboratory</u>	Lab No: 20M7013801 Name: HKID No: Sex/Age: M/49Y Req. Loc.: XYZ Clinic Doctor: Dr. CHAN Tai Man	Laboratory Test Request Number*
C Laboratory Report Status*	Final Report	Laboratory Test Request Healthcare Institution Local Name*	
Panel Local Description*	<u>Microbiological Examination of Respiratory Specimens</u>		
Laboratory Report Reference Date/time*	Date Collected : 24/03/2022 Date Received : 24/03/2022		
RT Specimen type	Specimen : Sputum		
RT Microbiology culture test*	Respiratory Bacterial culture :		
RT Organism	Organism 1 : Enterococcus faecium		
RT Susceptibility test	Antibiotics	ORGANISM 1	Susceptibility test result C
RT Binding	Ampicillin Vancomycin (MIC)	R R	Report Image*
• RT Name*	Organism 1 : Enterococcus faecium MIC of Vancomycin (MIC) : 32 ug/ml		
• RT Identifier*			
• RT Description*			
• Local Code			
• Local Description*			

* Mandatory

RT

Recognised Terminology – HKCTT , SNOMED CT, LOINC

C

eHR Codex Table



Example

Panel Local Description

Microbiological Examination of Respiratory Specimens

Specimen Type

Sputum

Laboratory Report Reference Date/time
• *Specimen collection / arrival / registration*

24/03/2022 10:45

Laboratory Category

(C)

Microbiology & Virology

Laboratory Report Status

(C)

Final Report

Report Image



LABMB – Share PDF & Standardized Data (Level 3)



Example

Specimen type

RT

RT Name

HKCTT

RT Identifier

5700284

RT Description

Sputum

Local Description

Sputum

Microbiology Culture Test Name /
Laboratory Test Name

RT

RT Name

LOINC

RT Identifier

32355-0

RT Description

Bacteria identified in Specimen by Respiratory culture

Local Description

Respiratory Bacterial culture :

醫健通
eHealth
54
香港特別行政區政府 HKSARGOV

Mandatory

Conditional Mandatory

RT

Recognised Terminology – HKCTT, SNOMED CT, LOINC

LABMB – Share PDF & Standardized Data (Level 3)



Example

Organism

RT

RT Name

HKCTT

RT Identifier

5000968

RT Description

Enterococcus faecium

Local Description

Enterococcus faecium

Susceptibility Test

RT

RT Name

LOINC

RT Identifier

18864-9

RT Description

Ampicillin [Susceptibility]

Local Description

Ampicillin

Susceptibility Test Result

C

R

Conditional Mandatory

C

eHR Codex Table

RT

Recognised Terminology – HKCTT, SNOMED CT, LOINC

Microbiology Records in eHR Viewer



醫健通 eHealth 香港特別行政區 HKSARCOV

All Local Non-Local Help

COVID-19 Related

Lab Report Reference Date/time

Laboratory Record

- Chemical Pathology
- Haematology
- Immunology
- Microbiology & Virology**
- Anatomical Pathology
- Toxicology
- Transplantation & Immunogenetics
- Molecular Pathology
- General & Other

Lab Category

eHR Test Name
(Standardised names for Level 3 data)

Laboratory Record

Date View Document View Period: All OR [] To []

Microbiology & Virology Search Reset

Longer time may be expected if the selected period is more than 2 years.

Date	Profile Description	Institution
03-Mar-2023	Mid-Stream Urine/Urine Culture	VUC4_A
03-Mar-2023	Mid-Stream Urine/Urine Culture	VUC4_A
03-Mar-2023	Mid-Stream Urine/Urine Culture	VUC4_A
24-Mar-2022	SPUTUM/Sputum Culture	VUC4_A
12-Mar-2022	Rectal Swab/CRE Screening	VUC4_A

Specimen Type/Panel Local Description

Laboratory Cumulative Result(s)

Last 1 year

Institution	Date
VUC4_A	24-Mar-2022 10:45

PDF Report Report Image

Specimen Type	
Microscopy, Smear	Moderate numbers of WBC seen A few epithelial cell seen
Bacteria, Respiratory culture	Enterococcus faecium
Appearance, Sputum	Purulent Blood-stained

Feedback

56

Microbiology Culture Results in eHR Viewer



醫健通 All Local Non-Local Laboratory Record

Laboratory Details

Attending Institution	XYZ CLINIC	Reference Date	24-Mar-2022 10:45
Requesting Institution	XYZ CLINIC	Collection Date	24-Mar-2022 10:45
Performing Institution	ABC LABORATORY		
Request Number	22B2162542		
Comment	There are no zone diameter breakpoints in the CLSI standard for cefoperazone/sulbactam tested, the result is for reference only.		
Specimen Type	SPUTUM		
Test Name	Content	Reference Range	Comment
Microscopy :	T Moderate numbers of WBC seen A few epithelial cell seen		
▼ Sputum culture :			
Organism 1: Enterococcus faecium	Heavy growth		
• Ampicillin	Resistant		
• Vancomycin	Sensitive		

Close

Feedback

57 GOVT

Institution VUC4_A VUC4_A VUC4_A VUC4_A VUC4_A

Strategy for Laboratory Data Sharing



Checklist - Lab Data Sharing to eHealth





Terminology Mapping Strategy

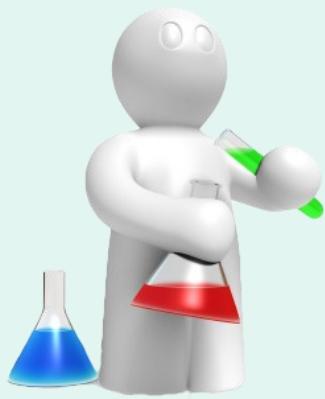
1. To identify structured data for mapping



2. To map the common large volume tests (80/20 rule)



3. To dedicate resources on terminology maintenance



Medical Lab Experts
is the

Links to terminology eLearning:



香港特別行政區政府 HKSARGOV

80
20

eHR Common 300 Laboratory Tests



eHR Common Laboratory Test List

389 laboratory LOINC terms are defined in eHR Common Laboratory Test List.

The list is based on the study of 16,658,509 laboratory test data which were shared by healthcare providers (HCPs) to eHR Sharing System in 2 weeks of year 2021.

Top 389 LOINC terms were ranked with 97.1% coverage of total HCPs shared laboratory test data volume.

The list is governed by eHR Information Standards Domain Group on Laboratory Records.

LOINC Terms of Use

<http://loinc.org/terms-of-use>

Rank	LOINC	LOINC Description	eHR Description	eHR Laboratory Category
1	14682-9	Creatinine [Moles/volume] in Serum or Plasma	Creatinine, Serum or Plasma	Chemical Pathology
2	2951-2	Sodium [Moles/volume] in Serum or Plasma	Sodium, Serum or Plasma	Chemical Pathology
3	2823-3	Potassium [Moles/volume] in Serum or Plasma	Potassium, Serum or Plasma	Chemical Pathology
4	22664-7	Urea [Moles/volume] in Serum or Plasma	Urea, Serum or Plasma	Chemical Pathology
5	718-7	Hemoglobin [Mass/volume] in Blood	Haemoglobin, Blood	Haematology
6	30428-7	MCV [Entitic volume]	Erythrocyte mean corpuscular volume (MCV)	Haematology
7	28539-5	MCH [Entitic mass]	Erythrocyte mean corpuscular haemoglobin (MCH)	Haematology
8	26453-1	Erythrocytes [#/volume] in Blood	Erythrocytes, Blood	Haematology
9	26464-8	Leukocytes [#/volume] in Blood	Leukocytes, Blood	Haematology
10	20570-8	Hematocrit [Volume Fraction] of Blood	Hematocrit (HCT), Blood	Haematology
11	26515-7	Platelets [#/volume] in Blood	Platelets, Blood	Haematology
12	28540-3	MCHC [Mass/volume]	Erythrocyte mean corpuscular haemoglobin concentration (MCHC)	Haematology
13	1742-6	Alanine aminotransferase [Enzymatic activity/volume] in Serum or Plasma	Alanine aminotransferase, Serum or Plasma	Chemical Pathology
14	30385-9	Erythrocyte distribution width [Ratio]	Erythrocyte distribution width (RDW)	Haematology
15	1751-7	Albumin [Mass/volume] in Serum or Plasma	Albumin, Serum or Plasma	Chemical Pathology
16	6768-6	Alkaline phosphatase [Enzymatic activity/volume] in Serum or Plasma	Alkaline phosphatase, Serum or Plasma	Chemical Pathology
17	2885-2	Protein [Mass/volume] in Serum or Plasma	Protein, Serum or Plasma	Chemical Pathology
18	14631-6	Bilirubin.total [Moles/volume] in Serum or Plasma	Bilirubin, Serum or Plasma	Chemical Pathology
19	5909-7	Blood smear finding [Identifier] in Blood by Light microscopy	Smear finding, Blood, Microscopy	Haematology
20	10834-0	Globulin [Mass/volume] in Serum by calculation	Globulin, Serum, Calculated	Chemical Pathology
21	28542-9	Platelet mean volume [Entitic volume] in Blood	Platelet mean volume (MPV), Blood	Haematology
22	26474-7	Lymphocytes [#/volume] in Blood	Lymphocytes, Blood	Haematology
23	26484-6	Monocytes [#/volume] in Blood	Monocytes, Blood	Haematology
24	26499-4	Neutrophils [#/volume] in Blood	Neutrophils, Blood	Haematology
25	26449-9	Eosinophils [#/volume] in Blood	Eosinophils, Blood	Haematology
26	26444-0	Basophils [#/volume] in Blood	Basophils, Blood	Haematology

How to map lab test to



LOINC code 14328-9 : Leukocytes [Presence] in Sputum by Light microscopy



COMPONENT (ANALYTE)

The substance or entity being measured or observed.

e.g. Leukocytes



PROPERTY

The characteristic or attribute of the analyte.

e.g. Presence



TIME

The interval of time over which an observation was made.

e.g. Point in time



SYSTEM (SPECIMEN)

The specimen or thing upon which the observation was made.

e.g. Sputum



SCALE

How the observation value is quantified or expressed: quantitative, ordinal, nominal.

e.g. Ordinal



METHOD

OPTIONAL A high-level classification of how the observation was made. Only needed when the technique affects the clinical interpretation of the results.

e.g. Light Microscopy

Same Component, Different LOINC Concepts

.getComponentIcon()	GetPropertyIcon()	TIME	getSystemIcon()	getScaleIcon()	METHOD
Leukocytes	Presence or Threshold	Point in time	Sputum	Ordinal	Light Microscopy
< 14328-9 > Leukocytes [Presence] in Sputum by Light microscopy					
Leukocytes	Number concentration	Point in time	Blood	Quantitative	
< 26464-8 > Leukocytes [#/volume] in Blood					
Leukocytes	Morphology	Point in time	Bone marrow	Nominal	
< 11157-5 > Leukocytes [Morphology] in Bone marrow					
Leukocytes	Number = Count/Time	24 hours	Urine sediment	Quantitative	Microscopy
< 11157-5 > Leukocytes [Morphology] in Bone marrow					

LOINC Mapping Example

Test 測試名稱		Result 結果	S.I. Unit
Glucose (Fasting)	葡萄糖(空腹)	4.7	mmol/L
LOINC Code 14771-0	Description Fasting glucose [Moles/volume] in Serum or Plasma		
HbA1c (IFCC)*	糖化紅蛋白(IFCC)	36	mmol/ mol
LOINC Code 59261-8	Description Hemoglobin A1c/Hemoglobin.total in Blood by IFCC protocol		
HbA1c (NGSP)*	糖化紅蛋白(NGSP)	5.4	%
LOINC Code 4548-4	Description Hemoglobin A1c/Hemoglobin.total in Blood		

To Download HKCTT Lab Terms For Standardised Data Preparation

HKCTT

Clinical Administration Standards Download Information | UPPPDOCOR022 UPPPDOCOR022 [Logout](#)

eHR Recognised Terminologies  Click here for the latest [List of Third Party Terminologies](#)

HKCTT for CMS Adaptation				
Release Date	HKCTT Version	Engine Version	Remarks	Download
04-Oct-2023	2023.10.04_707 (1.0.78)	1.X		Download
17-Jan-2014	2014.01.17_33 (0.0.1)	0.X	No further update of offline HKCTT data.	Download

HKCTT				
Release Date	Version	Nature		Download
04-Oct-2023	2023.10.04_708	All natures		Download
04-Oct-2023	2023.10.04_704	Diagnosis, Procedure		Download
04-Oct-2023	2023.10.04_705	Laboratory Test, Organism, Specimen, Anatomical Pathology Terms		Download
04-Oct-2023	2023.10.04_706	Pharmaceutical Product, Drug related Substances, Drug related Qualifier		Download
21-Oct-2022	2022.10.21_678	Allergens		Download
21-Oct-2022	2022.10.21_679	ADR Causative Agents		Download
21-Oct-2022	2022.10.21_680	Vaccines		Download
21-Oct-2022	2022.10.21_681	Prescribed Drugs		Download
21-Oct-2022	2022.10.21_682	Dispensed Drugs		Download
10-Feb-2022	2022.02.10_656	中醫病名, 中醫辨證, 中醫治法, 中醫療法		Download
10-Feb-2022	2022.02.10_657	中藥產品		Download

Question & Answer



Thank You



eHR Data Compliance Testing



Step 1: Engage & Pre-assessment

- Data field & codex mapping
- Terminology mapping

Step 2: Technical readiness

- IT technical testing
- Business case testing

Step 3: Upload & Post-implementation Review

eHR Codex Table – Laboratory Category

Laboratory category

Purpose: To indicate the performing laboratory category

Reference: Hospital Authority

Term ID	eHR Value	eHR Description	Definition
9050067	CHEM	Chemical Pathology	Chemical Pathology Laboratory
9050170	HAEM	Haematology	Haematology Laboratory
9050190	IMMUN	Immunology	Immunology Laboratory
9050266	MICRO	Microbiology & Virology	Microbiology and Virology Laboratory
9050013	PATH	Anatomical Pathology	Anatomical Pathology Laboratory
9050443	TRL	Toxicology	Toxicology Laboratory
9050446	TI	Transplantation & Immunogenetics	Transplantation and Immunogenetics Laboratory
9050272	MOLPATH	Molecular Pathology	Molecular Pathology Laboratory
9050147	GEOT	General & Other	General Laboratory and Other Laboratory



eHR Codex Table – Laboratory Report Status

Laboratory report status

Purpose: To indicate the laboratory report reporting status

Reference: Hospital Authority

Term ID	eHR Value	eHR Description	Definition
9050361	P	Provisional/Preliminary report	A provisional report is issued when provisional or partial results become available and report is submitted to eHR. A final report will always follow after the provisional report.
9050137	F	Final report	A completed report for the laboratory request.
9050010	A	Amended report	An Amended report is issued when the final report of diagnosis or test result(s) have been changed or amended. Amended report includes information with the latest submitted provisional report/final report/supplementary report.
9050427	S	Supplementary report	A supplementary report is issued when additional information is available when provisional/ final/ amended report has been submitted to eHR.
9050470	U	Unspecified report status	Laboratory report status cannot be provided.



eHR Codex Table – Abnormal Result Indicator

Abnormal result indicator

Purpose: To indicate the laboratory test numeric result that is above or below the reference range of the test

Reference: Hospital Authority

Term ID	eHR Value	eHR Description
9050244	L	Low
9050174	H	High



eHR Codex Table – Susceptibility Test and Related Property Result

Susceptibility test and related property result

Purpose: To indicate the result of antibiotic susceptibility test and related property of the isolated organism

Reference: Hospital Authority

Term ID	eHR Value	eHR Description
9050402	S	Sensitive
9050200	I	Intermediate
9050378	R	Resistant
9050353	P	Positive
9050285	N	Negative
9050193	U	Indeterminate
9050521	SDD	Susceptible Dose Dependent



eHR Codex Table – Anatomical Pathology Report Structure

Anatomical pathology report structure table

Purpose: To describe the anatomical pathology report structure in section

Reference: Hospital Authority

Term ID	eHR Value	eHR Description
9050077	CLIN	Clinical Information
9050420	SPEC	Specimen
9050160	GROSS	Gross Examination
9050000	MICRO	Microscopic Examination
9050083	COMM	Comment
9050319	OTH	Other Pathology Report Section



FHIR mapping for Laboratory Record (General) & Laboratory Record (Anatomical Pathology)

HL7 HONG KONG – 5TH CONNECTATHON

OCT 21, 2024

What is “Connectathon”?

Connectathon has two very important purposes and one very important principle. A Connectathon is an event that is centered on an open consensus built Interoperability (Connection) specification. The purpose of a Connectathon is both to prove that the specification is complete as well as to prove that implementations written to that specification can ‘connect’. The most important principle of a Connectathon is that it is a safe place for failure in these endeavors. That is that it is free of negative consequences of a mistake in someone’s implementation and that the specification might need to be refined.

Source: <https://healthcaresecprivacy.blogspot.com/2013/11/what-is-connectathon.html>

Our Purpose

EHR

- Consent HL7 interface specification for HK eHealth
- Speed up private data sharing

HL7 HK

- Form a community on HL7 & FHIR in HK to develop healthcare interface standards

Topic

- ◆ Resources

- DiagnosticsReport
- ServiceRequest
- Specimen
- Observation

- ◆ Challenge

eHR Level of Compliance

HK eHR	HL7	Data field	Field Content	
			Value	PDF
1	1	institutional (free text) description	institutional (free text) description	Y
2	2	<ul style="list-style-type: none">• institution-defined code• institutional description	institutional description +/- institution-defined code	Y
3.1	3	<ul style="list-style-type: none">• institution-defined code• institutional description• international code (HK)	<ul style="list-style-type: none">• institution-defined code• institutional description• international code (HK)	Y
3.2	3	<ul style="list-style-type: none">• institution-defined code• institutional description• international code (HK)• fully specified	<ul style="list-style-type: none">• institution-defined code• institutional description• international code (HK)	Y

Free text / PDF report only

Structural data (local code)

Structural data
(follow and included
“recognized terminology”)

eHR domain level

Data Domain	Level 1	Level 2	Level 3
PMI, Encounter			
Allergy / ADR			
Immunisation			
Medication (Prescription / Dispensing)			
Problem			
Procedure			
Clinical Note / Summary, Investigation report, Referral			
Medical Certificate			
Laboratory (General, Microbiology, Pathology)			
Radiology			

FHIR Resources

Categorized	Alphabetical	R2 Layout	By Maturity	Security Category	By Standards Status	By Committee
Foundation	Conformance <ul style="list-style-type: none"> CapabilityStatement N StructureDefinition N ImplementationGuide 1 SearchParameter 3 MessageDefinition 1 OperationDefinition N CompartmentDefinition 1 StructureMap 2 GraphDefinition 1 ExampleScenario 0 Terminology <ul style="list-style-type: none"> CodeSystem N ValueSet N ConceptMap 3 NamingSystem 2 TerminologyCapabilities 0 Security <ul style="list-style-type: none"> Provenance 3 AuditEvent 3 Consent 2 Documents <ul style="list-style-type: none"> Composition 2 DocumentManifest 2 DocumentReference 3 CatalogEntry 0 Other <ul style="list-style-type: none"> Basic 1 Binary N Bundle N Linkage 0 MessageHeader 4 OperationOutcome N Parameters N Subscription 3 SubscriptionStatus 0 SubscriptionTopic 0 					
Base	Individuals <ul style="list-style-type: none"> Patient N Practitioner 3 PractitionerRole 2 RelatedPerson 2 Person 2 Group 1 Entities #1 <ul style="list-style-type: none"> Organization 3 OrganizationAffiliation 0 HealthcareService 2 Endpoint 2 Location 3 Entities #2 <ul style="list-style-type: none"> Substance 2 BiologicallyDerivedProduct 0 Device 2 DeviceMetric 1 NutritionProduct 0 Workflow <ul style="list-style-type: none"> Task 2 Appointment 3 AppointmentResponse 3 Schedule 3 Slot 3 VerificationResult 0 Management <ul style="list-style-type: none"> Encounter 2 EpisodeOfCare 2 Flag 1 List 1 Library 3 					
Clinical	Summary <ul style="list-style-type: none"> AllergyIntolerance 3 AdverseEvent 0 Condition (Problem) 3 Procedure 3 FamilyMemberHistory 2 ClinicalImpression 0 DetectedIssue 1 Diagnostics <ul style="list-style-type: none"> Observation N Media 1 DiagnosticReport 3 Specimen 2 Medications <ul style="list-style-type: none"> MedicationRequest 3 MedicationAdministration 2 MedicationDispense 2 MedicationStatement 3 Medication 3 MedicationKnowledge 0 Immunization 3 ImmunizationEvaluation 0 ImmunizationRecommendation 1 Care Provision <ul style="list-style-type: none"> CarePlan 2 CareTeam 2 Goal 2 ServiceRequest 2 Request & Response <ul style="list-style-type: none"> Communication 2 CommunicationRequest 2 DeviceRequest 1 DeviceUseStatement 0 GuidanceResponse 2 SupplyRequest 1 SupplyDelivery 1 					

DiagnosticReport

The findings and interpretation of diagnostic tests performed on patients, groups of patients, devices, and locations, and/or specimens derived from these. The report includes clinical context such as requesting and provider information, and some mix of atomic results, images, textual and coded interpretations, and formatted representation of diagnostic reports.

10.3.1 Scope and Usage

This resource is an event resource from a FHIR workflow perspective - see [Workflow](#). It is the intent of the Orders and Observation Workgroup to align this resource with the workflow pattern for [event resources](#).

A diagnostic report is the set of information that is typically provided by a diagnostic service when investigations are complete. The information includes a mix of atomic results, text reports, images, and codes. The mix varies depending on the nature of the diagnostic procedure, and sometimes on the nature of the outcomes for a particular investigation. In FHIR, the report can be conveyed in a variety of ways including a [Document](#), [RESTful API](#), or [Messaging](#) framework. Included within each of these, would be the DiagnosticReport resource itself.

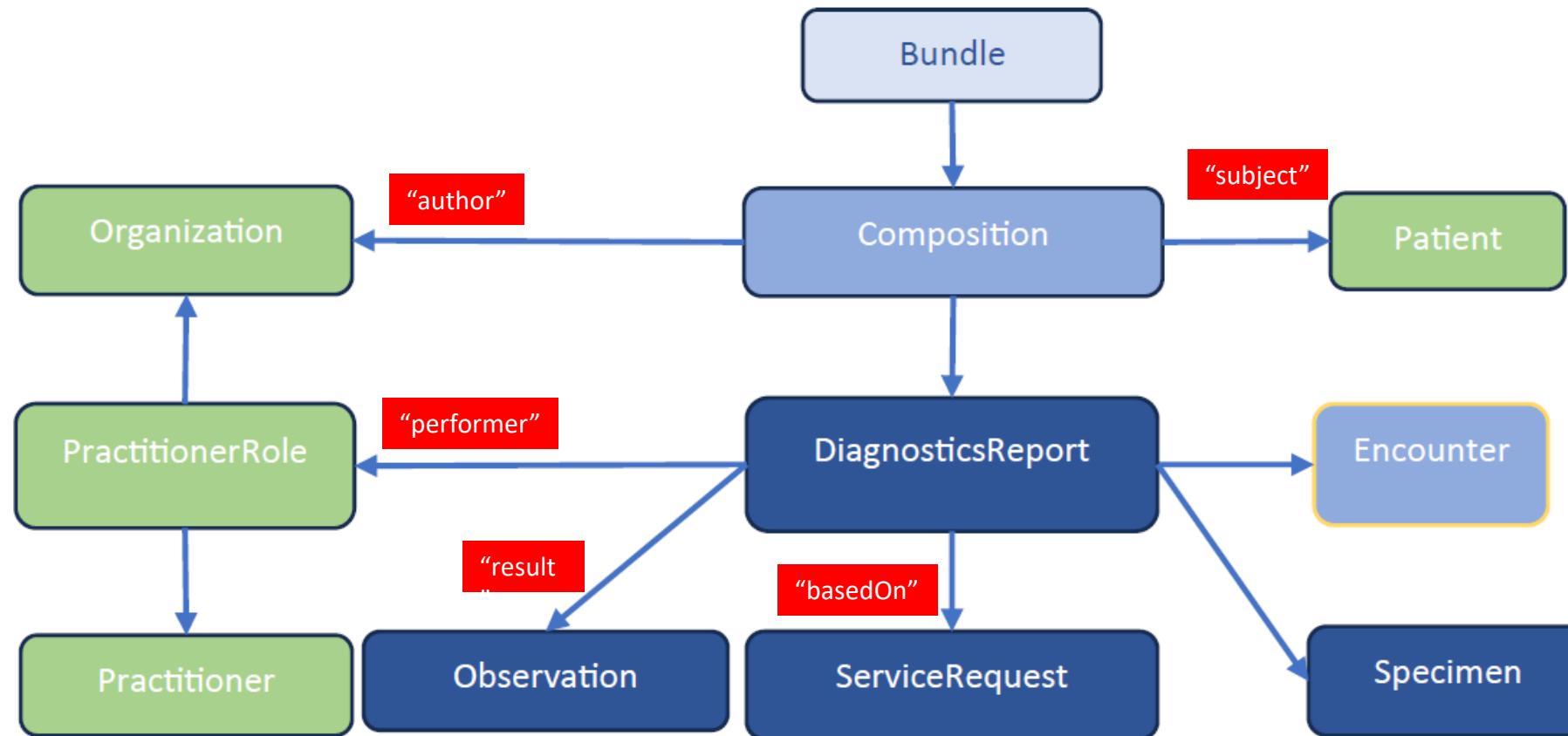
The DiagnosticReport resource has information about the diagnostic report itself, and about the subject and, in the case of laboratory tests, the specimen of the report. It can also refer to the request details and atomic observations details or image instances. Report conclusions can be expressed as a simple text blob, structured coded data or as an attached fully formatted report such as a PDF.

The DiagnosticReport resource is suitable for the following kinds of diagnostic reports:

- Laboratory (Clinical Chemistry, Hematology, Microbiology, etc.)
- Pathology / Histopathology / related disciplines
- Imaging Investigations (x-ray, CT, MRI etc.)
- Other diagnostics - Cardiology, Gastroenterology etc.
- Product quality tests such as pH, Assay, Microbial limits, etc. on product and substance

The DiagnosticReport resource is not intended to support cumulative result presentation (tabular presentation of past and present results in the resource). The DiagnosticReport resource does not yet provide full support for detailed structured reports of sequencing; this is planned for a future release.

Composition structure for Laboratory Record

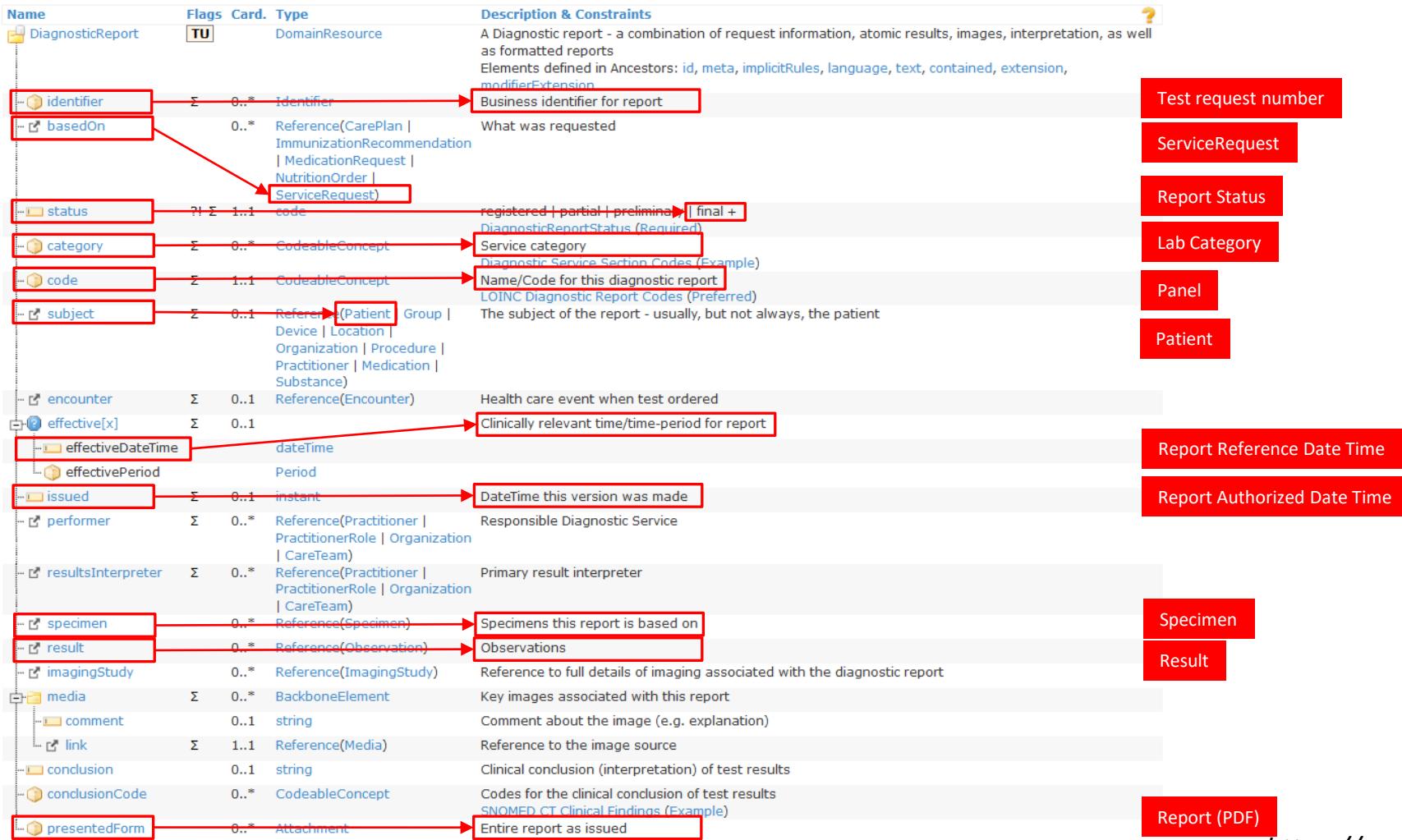


DiagnosticReport Structure

Name	Flags	Card.	Type	Description & Constraints
DiagnosticReport	TU		DomainResource	A Diagnostic report - a combination of request information, atomic results, images, interpretation, as well as formatted reports Elements defined in Ancestors: id, meta, implicitRules, language, text, contained, extension, modifierExtension
identifier	Σ	0..*	Identifier	Business identifier for report
basedOn		0..*	Reference(CarePlan ImmunizationRecommendation MedicationRequest NutritionOrder ServiceRequest)	What was requested
status	?! Σ	1..1	CodeableConcept	registered partial preliminary final + DiagnosticReportStatus (Required)
category	Σ	0..*	CodeableConcept	Service category Diagnostic Service Section Codes (Example)
code	Σ	1..1	CodeableConcept	Name/Code for this diagnostic report LOINC Diagnostic Report Codes (Preferred)
subject	Σ	0..1	Reference(Patient Group Device Location Organization Procedure Practitioner Medication Substance)	The subject of the report - usually, but not always, the patient
encounter	Σ	0..1	Reference(Encounter)	Health care event when test ordered
effective[x]	Σ	0..1		Clinically relevant time/time-period for report
effectiveDateTime			dateTime	
effectivePeriod			Period	
issued	Σ	0..1	instant	DateTime this version was made
performer	Σ	0..*	Reference(Practitioner PractitionerRole Organization CareTeam)	Responsible Diagnostic Service
resultsInterpreter	Σ	0..*	Reference(Practitioner PractitionerRole Organization CareTeam)	Primary result interpreter
specimen		0..*	Reference(Specimen)	Specimens this report is based on
result		0..*	Reference(Observation)	Observations
imagingStudy		0..*	Reference(ImagingStudy)	Reference to full details of imaging associated with the diagnostic report
media	Σ	0..*	BackboneElement	Key images associated with this report
comment		0..1	string	Comment about the image (e.g. explanation)
link	Σ	1..1	Reference(Media)	Reference to the image source
conclusion		0..1	string	Clinical conclusion (interpretation) of test results
conclusionCode		0..*	CodeableConcept	Codes for the clinical conclusion of test results SNOMED CT Clinical Findings (Example)
presentedForm		0..*	Attachment	Entire report as issued

<https://www.hl7.org/FHIR/diagnosticreport.html>

DiagnosticReport Structure



<https://www.hl7.org/FHIR/diagnosticreport.html>

DiagnosticReport (LABGEN) Example

```
{  
  "fullUrl": "DiagnosticReport/3439322d-ab3c-46af-a991-184ad7bc8cc5",  
  "resource": {  
    "resourceType": "DiagnosticReport",  
    "id": "3439322d-ab3c-46af-a991-184ad7bc8cc5",  
    "meta": {  
      "versionId": "1",  
      "lastUpdated": "2022-09-27T15:22:56.319+08:00"  
    },  
    "extension": [  
      {  
        "url": "https://ehealth.gov.hk/FHIR/1003520-LabReportStatusDesc",  
        "valueString": "Final report"  
      },  
      {  
        "url": "https://ehealth.gov.hk/FHIR/1003521-LabReportStatusLocalDesc",  
        "valueString": "Final report"  
      }  
    ],  
    "identifier": [  
      {  
        "system": "https://ehealth.gov.hk/FHIR/HCP/local/RequestNum",  
        "value": "21017888"  
      }  
    ],  
    "basedOn": [  
      {  
        "reference": "ServiceRequest/31ccc180-e5f4-4a28-bbb5-788227ac36df"  
      }  
    ],  
    "status": "final",  
    "category": [  
      {  
        "coding": [  
          {  
            "system": "https://ehealth.org.hk/fhir/LabCatCode",  
            "code": "CHEM",  
            "display": "Chemical Pathology"  
          }  
        ],  
        "text": "Chemistry"  
      }  
    ],  
    "code": {  
      "coding": [  
        {  
          "system": "https://ehealth.gov.hk/FHIR/HCP/local/PanelCode",  
          "code": "LIPID",  
          "display": "Lipid"  
        }  
      ]  
    },  
    "subject": {  
      "reference": "Patient/419a662e-cf78-4d99-be8f-9794126dbec2"  
    },  
    "effectiveDateTime": "2021-02-25T10:35:15.000+08:00",  
    "issued": "2021-02-25T11:50:02.000+08:00",  
    "performer": [  
      {  
        "reference": "PractitionerRole/3af5c1f3-017d-422c-b2ea-3edbd7036f91"  
      }  
    ]  
  }  
}
```

The diagram highlights specific fields from the FHIR JSON example:

- Report Status**: Points to the "status" field in the "resource" object.
- Lab Category**: Points to the "category" field in the "resource" object.
- Panel**: Points to the "code" field in the "resource" object.
- Test request number**: Points to the "value" field of the first "identifier" object in the "resource" object.
- Report Reference Date Time**: Points to the "issued" field in the "resource" object.
- ServiceRequest**: Points to the "reference" field of the first "basedOn" object in the "resource" object.

DiagnosticReport (LABAP) Example

```
"status": "final",  
"category": [  
  {  
    "coding": [  
      {  
        "system": "https://ehealth.gov.hk/FHIR/LabCatCode",  
        "code": "PATH",  
        "display": "Anatomical Pathology"  
      }  
    ],  
    "text": "Pathology"  
  }  
,  
  {"code": {  
    "text": "Gynaecologic cytology Report"  
  },  
  "subject": {  
    "reference": "Patient/cf20ea48-2eb3-4330-91c2-ac9197a4b6f3"  
  },  
  "effectiveDateTime": "2017-11-10T12:00:00+08:00",  
  "issued": "2017-11-13T14:29:00+08:00",  
  "performer": [  
    {  
      "reference": "PractitionerRole/bb2cf10f-7710-4914-8071-6f886bf9ead3"  
    }  
  ]},  
  "Report Status",  
  "Lab Category",  
  "Anatomical pathology test name"
```

ServiceRequest

Name	Flags	Card.	Type	Description & Constraints	
ServiceRequest	TU		DomainResource	A request for a service to be performed + Rule: <i>orderDetail SHALL only be present if code is present</i> Elements defined in Ancestors: id, meta, implicitRules, language, text, contained, extension, modifierExtension	?
- identifier	Σ	0..*	Identifier	Identifiers assigned to this order	Laboratory test order number (e-Referral number)
- instantiatesCanonical	Σ	0..*	canonical(ActivityDefinition PlanDefinition)	Instantiates FHIR protocol or definition	
- instantiatesUri	Σ	0..*	uri	Instantiates external protocol or definition	
- basedOn	Σ	0..*	Reference(CarePlan ServiceRequest MedicationRequest)	What request fulfills	
- replaces	Σ	0..*	Reference(ServiceRequest)	What request replaces	
- requisition	Σ	0..1	Identifier	Composite Request ID	
- status	?!	Σ 1..1	code	draft active on-hold revoked completed entered-in-error unknown RequestStatus (Required)	
- intent	?!	Σ 1..1	code	proposal plan directive order original-order reflex-order filler-order instance-order option RequestIntent (Required)	
- category	Σ	0..*	CodeableConcept	Classification of service Service Request Category Codes (Example)	
- priority	Σ	0..1	code	routine urgent asap stat RequestPriority (Required)	
- doNotPerform	?!	Σ 0..1	boolean	True if service/procedure should not be performed	
- code	Σ	0..1	CodeableConcept	What is being requested/ordered Procedure Codes (SNOMED CT) (Example)	
- orderDetail	Σ I	0..*	CodeableConcept	Additional order information Service Request Order Details Codes (Example)	

<https://www.hl7.org/FHIR/servicerequest.html>

ServiceRequest Example

```
{  
  "fullUrl": "ServiceRequest/31ccc180-e5f4-4a28-bbb5-788227ac36df",  
  "resource": {  
    "resourceType": "ServiceRequest",  
    "id": "31ccc180-e5f4-4a28-bbb5-788227ac36df",  
    "identifier": [  
      {  
        "system": "https://ehealth.gov.hk/HCP/OrderNum",  
        "value": "8088450656:12345678900000000111"  
      }  
    ],  
    "status": "completed",  
    "intent": "order",  
    "subject": {  
      "reference": "Patient/419a662e-cf78-4d99-be8f-9794126dbec2"  
    },  
    "encounter": {  
      "reference": "Encounter/cee5d6cc-bf18-4622-81ec-82757184f487"  
    },  
    "requester": {  
      "reference": "PractitionerRole/134beb51-92ec-4ce8-8a38-75e1f7460357"  
    },  
    "supportingInfo": [  
      {  
        "reference": "Laboratory test request clinical information",  
        "display": "?PR bleed ?hematuria"  
      }  
    ]  
  }  
},
```

Lab test order number

Specimen

Name	Flags	Card.	Type	Description & Constraints	
Specimen	TU		DomainResource	Sample for analysis Elements defined in Ancestors: id, meta, implicitRules, language, text, contained, extension, modifierExtension	
identifier	Σ	0..*	Identifier	External Identifier	
accessionIdentifier	Σ	0..1	Identifier	Identifier assigned by the lab	
status	?!	Σ 0..1	code	available unavailable unsatisfactory entered-in-error SpecimenStatus (Required)	
type	Σ	0..1	CodeableConcept	Kind of material that forms the specimen hl7v3-specimenType (Example)	Specimen Type
subject	Σ	0..1	Reference(Patient Group Device Substance Location)	Where the specimen came from. This may be from patient(s), from a location (e.g., the source of an environmental sample), or a sampling of a substance or a device	
receivedTime	Σ	0..1	dateTime	The time when specimen was received for processing	Specimen arrival datetime
parent		0..*	Reference(Specimen)	Specimen from which this specimen originated	
request		0..*	Reference(ServiceRequest)	Why the specimen was collected	
collection		0..1	BackboneElement	Collection details	
collector	Σ	0..1	Reference(Practitioner PractitionerRole)	Who collected the specimen	
collected[x]	Σ	0..1		Collection time	Specimen collection datetime
collectedDateTime			dateTime		
collectedPeriod			Period		

<https://www.hl7.org/FHIR//specimen.html>

Specimen (LABGEN) Example

```
{  
  "fullUrl": "Specimen/b74bd922-5304-4f28-bdc9-c249a18ab43a",  
  "resource": {  
    "resourceType": "Specimen",  
    "id": "b74bd922-5304-4f28-bdc9-c249a18ab43a",  
    "extension": [  
      {  
        "url": "1003530-SpecimenDetail",  
        "valueString": "Left lower quadrant"  
      }  
    ],  
    "type": {  
      "coding": [  
        {  
          "system": "https://ehealth.gov.hk/FHIR/HCP/local/SpecimenType",  
          "code": "BLOOD",  
          "display": "Blood"  
        }  
      ]  
    },  
    "subject": {  
      "reference": "Patient/419a662e-cf78-4d99-be8f-9794126dbec2"  
    },  
    "receivedTime": "2021-02-25T11:35:15.000+08:00",  
    "request": [  
      {  
        "reference": "ServiceRequest/31ccc180-e5f4-4a28-bbb5-788227ac36df"  
      }  
    ],  
    "collection": {  
      "collectedDateTime": "2021-02-25T11:35:15.000+08:00"  
    }  
  }  
}
```

Specimen details

Specimen type

Specimen arrival datetime

Specimen collection datetime

Specimen (LABAP) Example

```
{  
  "fullUrl": "Specimen/a4793303-e477-416b-9b45-88beec7286ba",  
  "resource": {  
    "resourceType": "Specimen",  
    "id": "a4793303-e477-416b-9b45-88beec7286ba",  
    "extension": [  
      {  
        "url": "https://ehealth.gov.hk/FHIR/1003530-SpecimenDetail",  
        "valueString": "Cervix"  
      }  
    ],  
    "receivedTime": "2017-11-10T14:00:00+08:00",  
    "collection": {  
      "collectedDateTime": "2017-11-10T12:00:00+08:00"  
    }  
  }  
}
```

Specimen details

Specimen arrival datetime

Specimen collection datetime

Observation

10.1 Resource Observation - Content

Orders and Observations  Work Group	Maturity Level: N	Normative (from v4.0.0)	Security Category: Patient	Compartments: Device, Encounter, Patient, Practitioner, RelatedPerson
--	----------------------	-------------------------	-------------------------------	---



This page has been approved as part of an [ANSI](#) standard. See the [Observation Package](#) for further details.

Measurements and simple assertions made about a patient, device or other subject.

10.1.1 Scope and Usage

This resource is an [event resource](#) from a FHIR workflow perspective - see [Workflow](#).

Observations are a central element in healthcare, used to support diagnosis, monitor progress, determine baselines and patterns and even capture demographic characteristics. Most observations are simple name/value pair assertions with some metadata, but some observations group other observations together logically, or even are multi-component observations. Note that the [DiagnosticReport](#) resource provides a clinical or workflow context for a set of observations and the Observation resource is referenced by DiagnosticReport to represent laboratory, imaging, and other clinical and diagnostic data to form a complete report.

Uses for the Observation resource include:

- Vital signs such as [body weight](#), [blood pressure](#), and [temperature](#)
- Laboratory Data like [blood glucose](#), or an [estimated GFR](#)
- Imaging results like [bone density](#) or fetal measurements
- Clinical Findings* such as [abdominal tenderness](#)
- Device measurements such as [EKG data](#) or [Pulse Oximetry data](#)
- Clinical assessment tools such as [APGAR](#) or a [Glasgow Coma Score](#)
- Personal characteristics: such as [eye-color](#)
- Social history like tobacco use, family support, or cognitive status
- Core characteristics like pregnancy status, or a death assertion

*The boundaries between clinical findings and disorders remains a challenge in medical ontology. Refer the [Boundaries](#) section below and in [Condition](#) for general guidance. These boundaries can be clarified by profiling Observation for a particular use case.

Observation Structure (1)

Name	Flags	Card.	Type	Description & Constraints	
Observation	N		DomainResource	Measurements and simple assertions + Rule: <i>dataAbsentReason SHALL only be present if Observation.value[x] is not present</i> + Rule: <i>If Observation.code is the same as an Observation.component.code then the value element associated with the code SHALL NOT be present</i> Elements defined in Ancestors: id , meta , implicitRules , language , text , contained , extension , modifierExtension	
- identifier	Σ	0..*	Identifier	Business Identifier for observation	
- basedOn	Σ	0..*	Reference(CarePlan DeviceRequest ImmunizationRecommendation MedicationRequest NutritionOrder ServiceRequest)	Fulfils plan, proposal or order	
- partOf	Σ	0..*	Reference(MedicationAdministration MedicationDispense MedicationStatement Procedure Immunization ImagingStudy)	Part of referenced event	
- status	?!	Σ	1..1	code	registered preliminary final amended + ObservationStatus (Required)
- category		0..*	CodeableConcept	Classification of type of observation Observation Category Codes (Preferred)	
- code	Σ	1..1	CodeableConcept	Type of observation (code / type) LOINC Codes (Example)	
- subject	Σ	0..1	Reference(Patient Group Device Location Organization Procedure Practitioner Medication Substance)	Who and/or what the observation is about	
- focus	Σ [TU]	0..*	Reference(Any)	What the observation is about, when it is not about the subject of record	
- encounter	Σ	0..1	Reference(Encounter)	Healthcare event during which this observation is made	
- effective[x]	Σ	0..1		Clinically relevant time/time-period for observation	
effectiveDateTime			dateTime		
effectivePeriod			Period		
effectiveTiming			Timing		
effectiveInstant			instant		
- issued	Σ	0..1	instant	Date/Time this version was made available	
- performer	Σ	0..*	Reference(Practitioner PractitionerRole Organization CareTeam Patient RelatedPerson)	Who is responsible for the observation	

<https://www.hl7.org/FHIR/observation.html>

Observation Structure (2)

			Actual result	Laboratory Test Result value
<input checked="" type="checkbox"/> <code>value[x]</code>	Σ I	0..1		
↳ <code>valueQuantity</code>			Quantity	
↳ <code>valueCodeableConcept</code>			CodeableConcept	
↳ <code>valueString</code>			string	
↳ <code>valueBoolean</code>			boolean	
↳ <code>valueInteger</code>			integer	
↳ <code>valueRange</code>			Range	
↳ <code>valueRatio</code>			Ratio	
↳ <code>valueSampledData</code>			SampledData	
↳ <code>valueTime</code>			time	
↳ <code>valueDateTime</code>			dateTime	
↳ <code>valuePeriod</code>			Period	
<input checked="" type="checkbox"/> <code>dataAbsentReason</code>	I	0..1	CodeableConcept	Why the result is missing DataAbsentReason (Extensible)
<input checked="" type="checkbox"/> <code>interpretation</code>		0..*	CodeableConcept	High, low, normal, etc. Observation Interpretation Codes (Extensible)
<input checked="" type="checkbox"/> <code>note</code>		0..*	Annotation	Comments about the observation
<input checked="" type="checkbox"/> <code>bodySite</code>		0..1	CodeableConcept	Observed body part SNOMED CT Body Structures (Example)
<input checked="" type="checkbox"/> <code>method</code>		0..1	CodeableConcept	How it was done Observation Methods (Example)
<input checked="" type="checkbox"/> <code>specimen</code>		0..1	Reference(Specimen)	Specimen used for this observation
<input checked="" type="checkbox"/> <code>device</code>		0..1	Reference(Device DeviceMetric)	(Measurement) Device
<input checked="" type="checkbox"/> <code>referenceRange</code>	I	0..*	BackboneElement	Provides guide for interpretation + Rule: Must have at least a low or a high or text
↳ <code>low</code>	I	0..1	SimpleQuantity	Low Range, if relevant
↳ <code>high</code>	I	0..1	SimpleQuantity	High Range, if relevant
↳ <code>type</code>		0..1	CodeableConcept	Reference range qualifier Observation Reference Range Meaning Codes (Preferred)
↳ <code>appliesTo</code>		0..*	CodeableConcept	Reference range population Observation Reference Range Applies To Codes (Example)
↳ <code>age</code>		0..1	Range	Applicable age range, if relevant
↳ <code>text</code>		0..1	string	Text based reference range in an observation
<input checked="" type="checkbox"/> <code>hasMember</code>	Σ	0..*	Reference(Observation QuestionnaireResponse MolecularSequence)	Related resource that belongs to the Observation group

<https://www.hl7.org/FHIR/observation.html>

Observation Example - 1

```
{
  "fullUrl": "Observation/257dc93b-ae7b-4127-85cb-fba81168cb74",
  "resource": {
    "resourceType": "Observation",
    "id": "257dc93b-ae7b-4127-85cb-fba81168cb74",
    "extension": [
      {
        "url": "https://ehealth.gov.hk/FHIR/1003543-LabTestNumericResult",
        "valueDecimal": 3.8
      },
      {
        "url": "https://ehealth.gov.hk/FHIR/1003545-LabReportableResult",
        "valueString": "3.8"
      }
    ],
    "status": "final",
    "code": {
      "coding": [
        {
          "system": "http://loinc.org",
          "code": "70204-3",
          "display": "Cholesterol non HDL [Moles/volume] in Serum or Plasma"
        },
        {
          "system": "https://ehealth.gov.hk/FHIR/HCP/local/LabTest",
          "code": "NHDLC",
          "display": "Non-HDL Cholesterol"
        }
      ]
    }
  }
}
```

Result Value

Result Status

Laboratory test name

Observation Example - 1 (cont.)

```
},
  "subject": {
    "reference": "Patient/419a662e-cf78-4d99-be8f-9794126dbec2"
  },
  "valueQuantity": {
    "unit": "mmol/L"
  },
  "referenceRange": [
    {
      "text": "<4.9"
    }
  ]
}
```

Unit

Reference range

Observation Example - 2

```
        },
        {
          "url": "https://ehealth.gov.hk/FHIR/1003545-LabReportableResult",
          "valueString": "3.9"
        }
      ],
      "status": "final",
      "code": {
        "coding": [
          {
            "system": "http://loinc.org",
            "code": "32309-7",
            "display": "Cholesterol.total/Cholesterol in HDL [Molar ratio] in Serum or Plasma"
          },
          {
            "system": "https://ehealth.gov.hk/FHIR/HCP/local/LabTest",
            "code": "C/H",
            "display": "Chol/HDL Ratio"
          }
        ]
      },
      "subject": {
        "reference": "Patient/419a662e-cf78-4d99-be8f-9794126dbec2"
      },
      "valueQuantity": {
        "unit": ""
      },
      "interpretation": [
        {
          "coding": [
            {
              "system": "https://ehealth.gov.hk/fhir/AbnormalResultIndCode",
              "code": "H",
              "display": "High"
            }
          ],
          "text": "High"
        }
      ],
      "resultValue": "3.9",
      "laboratoryTestName": "Cholesterol.total/Cholesterol in HDL [Molar ratio] in Serum or Plasma or Chol/HDL Ratio",
      "abnormalResultIndicator": "H",
      "referenceRange": [
        {
          "text": "<3.5"
        }
      ]
    }
```

Result Value

Laboratory test name

Abnormal result indicator

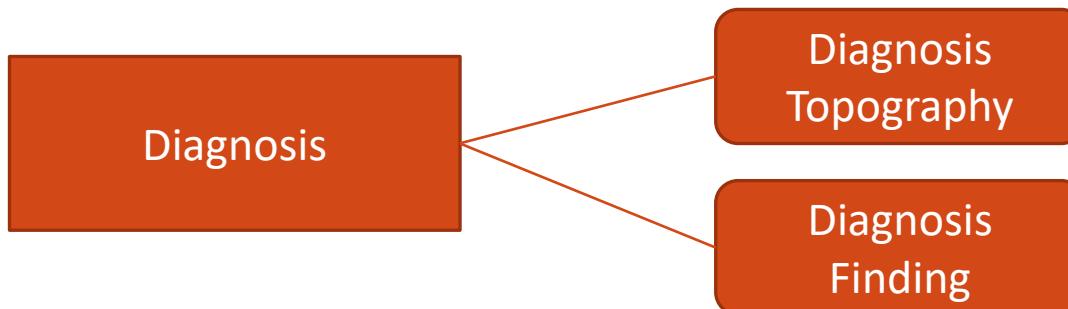
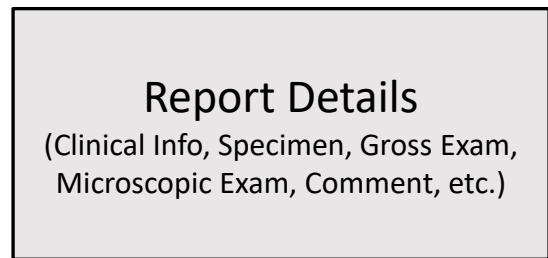
Laboratory test – Level 2 / 3

```
"code": {  
  "coding": [  
    {  
      "system": "http://loinc.org",  
      "code": "70204-3",  
      "display": "Cholesterol non HDL [Moles/volume] in Serum or Plasma"  
    },  
    {  
      "system": "https://ehealth.gov.hk/FHIR/HCP/local/LabTest",  
      "code": "NHDLC",  
      "display": "Non-HDL Cholesterol"  
    }  
  ]  
},
```

Recognised terminology name
Test name identifier
Test name description

Test name local code
Test name local description

Observation on LABAP



			IMMUNIZATION IMAGINGSTUDY		
- status	?!	Σ	1..1	code	registered preliminary final amended + ObservationStatus (Required)
- category			0..*	CodeableConcept	Classification of type of observation Observation Category Codes (Preferred)
- code		Σ	1..1	CodeableConcept	Type of observation (code / type) LOINC Codes (Example)

Result Status ("Final")
Observation Category (AP)
Observation Code

LABAP Report Details

Report Details

(Clinical Info, Specimen, Gross Exam, Microscopic Exam, Comment, etc.)

eHR Codex Table – Anatomical Pathology Report Structure

Anatomical pathology report structure table
Purpose: To describe the anatomical pathology report structure in section
Reference: Hospital Authority

Term ID	eHR Value	eHR Description
9050077	CLIN	Clinical Information
9050420	SPEC	Specimen
9050160	GROSS	Gross Examination
9050000	MICRO	Microscopic Examination
9050083	COMM	Comment
9050319	OTH	Other Pathology Report Section

```
{  
  "fullUrl": "Observation/0b90909e-768c-43b0-9210-54669ed5f5ec",  
  "resource": {  
    "resourceType": "Observation",  
    "id": "0b90909e-768c-43b0-9210-54669ed5f5ec",  
    "status": "final",  
    "category": [  
      {  
        "coding": [  
          {  
            "system": "https://ehealth.gov.hk/FHIR/APcategory",  
            "code": "APReportDetail"  
          }  
        ]  
      }  
    ],  
    "code": {  
      "coding": [  
        {  
          "system": "https://ehealth.gov.hk/FHIR/APReportDetail",  
          "code": "MICRO",  
          "display": "Microscopic Examination"  
        }  
      ],  
      "text": "MICROSCOPIC EXAMINATION:"  
    },  
    "subject": {  
      "reference": "Patient/cf20ea48-2eb3-4330-91c2-ac9197a4b6f3"  
    },  
    "valueString": "Specimen Adequacy : Satisfactory for evaluation; endocervical / transformation zone component absent. The slide shows some atypical squamous cells featuring mild nuclear hyperchromasia and irregularity."  
  }  
}
```

LABAP Diagnosis

Diagnosis

```
{
  "fullUrl": "Observation/2d60f3b1-2977-4df2-a09a-7d8e0171f6bf",
  "resource": {
    "resourceType": "Observation",
    "id": "2d60f3b1-2977-4df2-a09a-7d8e0171f6bf",
    "status": "final",
    "category": [
      {
        "coding": [
          {
            "system": "https://ehealth.gov.hk/FHIR/APcategory",
            "code": "Diagnosis"
          }
        ],
        "text": "Laboratory"
      }
    ],
    "code": {
      "coding": [
        {
          "system": "https://ehealth.gov.hk/FHIR/HCP/local/APDiagTitle"
        }
      ],
      "text": "DIAGNOSIS : "
    },
    "subject": {
      "reference": "Patient/cf20ea48-2eb3-4330-91c2-ac9197a4b6f3"
    },
    "valueString": "CERVIX, cytology - ATYPICAL SQUAMOUS CELLS OF UNDETERMINED SIGNIGICANCE; ABSENCE OF ENDOCERVICAL/TRANSFORMATION ZONE COMPONENT."
  }
}
```

LABAP Diagnosis Topography

Diagnosis
Topography

```
{  
  "fullUrl": "Observation/8a0f7453-3469-49b9-987d-139749403913",  
  "resource": {  
    "resourceType": "Observation",  
    "id": "8a0f7453-3469-49b9-987d-139749403913",  
    "status": "final",  
    "category": [  
      {  
        "coding": [  
          {  
            "system": "https://ehealth.gov.hk/FHIR/APcategory",  
            "code": "Topography"  
          }  
        ]  
      }  
    ],  
    "code": {  
      "coding": [  
        {  
          "system": "https://ehealth.gov.hk/FHIR/HKCTT",  
          "code": "8003128",  
          "display": "Endocervical Structure"  
        },  
        {  
          "system": "https://ehealth.gov.hk/FHIR/HCP/local/DiagTopography",  
          "code": "CERV1",  
          "display": "CERVIX"  
        }  
      ],  
      "subject": {  
        "reference": "Patient/cf20ea48-2eb3-4330-91c2-ac9197a4b6f3"  
      }  
    }  
  }  
}
```

L3 code & description

Local code & description

LABAP Diagnosis Topography

Diagnosis Finding

```
{  
    "fullUrl": "Observation/9022048c-b128-48cd-97a2-416e0be1e7a7",  
    "resource": {  
        "resourceType": "Observation",  
        "id": "9022048c-b128-48cd-97a2-416e0be1e7a7",  
        "status": "final",  
        "category": [  
            {  
                "coding": [  
                    {  
                        "system": "https://ehealth.gov.hk/FHIR/APcategory",  
                        "code": "DiagFinding"  
                    }  
                ]  
            }  
        ],  
        "code": {  
            "coding": [  
                {  
                    "system": "https://ehealth.gov.hk/FHIR/HKCTT",  
                    "code": "8002400",  
                    "display": "Atypical squamous cells of undetermined significance"  
                },  
                {  
                    "system": "https://ehealth.gov.hk/FHIR/HCP/local/DiagFing",  
                    "code": "ATYPSQUA1",  
                    "display": "ATYPICAL SQUAMOUS CELLS OF UNDETERMINED SIGNIGICANCE"  
                }  
            ]  
        },  
        "subject": {  
            "reference": "Patient/9022048c-b128-48cd-97a2-416e0be1e7a7"  
        }  
    }  
}
```

L3 code & description

Local code & description

Laboratory report (PDF)

Name	Flags	Card.	Type	Description & Constraints
DiagnosticReport	TU		DomainResource	A Diagnostic report - a combination of request information, atomic results, images, interpretation, as well as formatted reports Elements defined in Ancestors: id , meta , implicitRules , language , text , contained , extension , modifierExtension
identifier	Σ	0..*	Identifier	Business identifier for report
basedOn		0..*	Reference(CarePlan ImmunizationRecommendation MedicationRequest NutritionOrder ServiceRequest)	What was requested
status	?! Σ	1..1	CodeableConcept	registered partial preliminary final + DiagnosticReportStatus (Required)
category	Σ	0..*	CodeableConcept	Service category Diagnostic Service Section Codes (Example)
code	Σ	1..1	CodeableConcept	Name/Code for this diagnostic report LOINC Diagnostic Report Codes (Preferred)
subject	Σ	0..1	Reference(Patient Group Device Location Organization Procedure Practitioner Medication Substance)	The subject of the report - usually, but not always, the patient
encounter	Σ	0..1	Reference(Encounter)	Health care event when test ordered
effective[x]	Σ	0..1		Clinically relevant time/time-period for report
effectiveDateTime			dateTime	
effectivePeriod			Period	
issued	Σ	0..1	instant	DateTime this version was made
performer	Σ	0..*	Reference(Practitioner PractitionerRole Organization CareTeam)	Responsible Diagnostic Service
resultsInterpreter	Σ	0..*	Reference(Practitioner PractitionerRole Organization CareTeam)	Primary result interpreter
specimen		0..*	Reference(Specimen)	Specimens this report is based on
result		0..*	Reference(Observation)	Observations
imagingStudy		0..*	Reference(ImagingStudy)	Reference to full details of imaging associated with the diagnostic report
media	Σ	0..*	BackboneElement	Key images associated with this report
comment		0..1	string	Comment about the image (e.g. explanation)
link	Σ	1..1	Reference(Media)	Reference to the image source
conclusion		0..1	string	Clinical conclusion (interpretation) of test results



[presentedForm](#)

0..* [Attachment](#)

[Entire report as issued](#)

Attachment

Name	Flags	Card.	Type	Description & Constraints	?
Attachment	N		Element	Content in a format defined elsewhere + Rule: If the Attachment has data, it SHALL have a contentType Elements defined in Ancestors: id, extension	
contentType	Σ	0..1	code	Mime type of the content, with charset etc. MimeType (Required)	application/pdf
language	Σ	0..1	code	Human language of the content (BCP-47) Common Languages (Preferred but limited to All languages)	
data		0..1	base64Binary	Data inline, base64ed	
url	Σ	0..1	url	Uri where the data can be found	
size	Σ	0..1	unsignedInt	Number of bytes of content (if url provided)	
hash	Σ	0..1	base64Binary	Hash of the data (sha-1, base64ed)	
title	Σ	0..1	string	Label to display in place of the data	
creation	Σ	0..1	dateTime	Date attachment was first created	

```
"presentedForm": [
  {
    "contentType": "application/pdf",
    "data": "xLjQNJeLjz9MNCjQgMCBvYmoNPDwvTG1uZWfyaXp1ZCAxL0wgMjk10DczL08gNi9FIDI5MTE0Ni9OIDEvVCAyOTU2NzQvSCBbIDc3NiAIDe2IDAwMDAwIG4NCjAwMDAwMDA5NjMgMDAwMDAgbg0KMDAwMDAwMTA20SAwMDAwMCBuDQowMDAwMDAxMjg2IDAwMDAwIG4NCjAwMDAwMI...NCjAwMDAwMD0MzEgMDAwMDAgbg0KMDAwMDAwMTgyNCAwMDAwMCBuDQowMDAwMDAyMjM4IDAwMDAwIG4NCjAwMDAwMDIzODkgMDAwMDA...DgqMDAwMDAgbg0KMDAwMDAwMzL2MC4wMDAwMCBuDQowMDAwMDA0MDT5TDAwMDAwTG4NCjAwMDAwMDQwODMgMDAwMDAgbg0KMDAwMDAwM...
```

PDF size limit

- The size of PDF embedded is limited to 10MB

DiagnosticReport.Status



Level	Code	Display	Definition
1	<code>registered</code>	Registered	The existence of the report is registered, but there is nothing yet available.
1	<code>partial</code>	Partial	This is a partial (e.g. initial, interim or preliminary) report: data in the report may be incomplete or unverified.
2	<code>preliminary</code>	Preliminary	Verified early results are available, but not all results are final.
1	<code>final</code>	Final	The report is complete and verified by an authorized person.
1	<code>amended</code>	Amended	Subsequent to being final, the report has been modified. This includes any change in the results, diagnosis, narrative text, or other content of a report that has been issued.
2	<code>corrected</code>	Corrected	Subsequent to being final, the report has been modified to correct an error in the report or referenced results.
2	<code>appended</code>	Appended	Subsequent to being final, the report has been modified by adding new content. The existing content is unchanged.
1	<code>cancelled</code>	Cancelled	The report is unavailable because the measurement was not started or not completed (also sometimes called "aborted").
1	<code>entered-in-error</code>	Entered in Error	The report has been withdrawn following a previous final release. This electronic record should never have existed, though it is possible that real-world decisions were based on it. (If real-world activity has occurred, the status should be "cancelled" rather than "entered-in-error".).
1	<code>unknown</code>	Unknown	The authoring/source system does not know which of the status values currently applies for this observation. Note: This concept is not to be used for "other" - one of the listed statuses is presumed to apply, but the authoring/source system does not know which.

DiagnosticReport.Status Mapping

The diagram illustrates the mapping between the FHIR DiagnosticReport.Status code system and the eHR Codex Table - Laboratory Report Status. The UML Class Diagram shows a class named 'status' with two associations: one to 'ServiceRequest' via 'code' (with multiplicity 1..1) and another to 'category' (with multiplicity 0..1). The 'code' association is annotated with 'registered | partial | preliminary | final + DiagnosticReportStatus (Required)'. The 'eHR Codex Table – Laboratory Report Status' table maps these codes to specific report types.

Level	Code	Display
1	registered	Registered
1	partial	Partial
2	preliminary	Preliminary
1	final	Final
1	amended	Amended
2	corrected	Corrected
2	appended	Appended
1	cancelled	Cancelled
1	entered-in-error	Entered in Error
1	unknown	Unknown

eHR Codex Table – Laboratory Report Status

Laboratory report status
Purpose: To indicate the laboratory report reporting status
Reference: Hospital Authority

Term ID	eHR Value	eHR Description	Definition
9050361	P	Provisional/Preliminary report	A provisional report is issued when provisional or partial results become available and report is submitted to eHR. A final report will always follow after the provisional report.
9050137	F	Final report	A completed report for the laboratory request.
9050010	A	Amended report	An Amended report is issued when the final report of diagnosis or test result(s) have been changed or amended. Amended report includes information with the latest submitted provisional report/final report/supplementary report.
9050427	S	Supplementary report	A supplementary report is issued when additional information is available when provisional/ final/ amended report has been submitted to eHR.
9050470	U	Unspecified report status	Laboratory report status cannot be provided.

Challenge

Specifications

- Specifications can be found at
 - <https://github.com/hl7hongkong/HL7-Hong-Kong-FHIR-Connectathon-202410>

The screenshot shows a GitHub repository page for the project "hl7hongkong / HL7-Hong-Kong-FHIR-Connectathon-202410". The repository is public and has 1 branch and 2 commits. The commits are by MichaelCheung-FHIR and update documents related to laboratory records and a presentation. The README file is also present. The page title is "Fifth Connectathon of HL7 HK FHIR® Connectathon Series 2023-2024".

Code Issues Pull requests Actions Projects Security Insights

main 1 Branch Tags Go to file Code

MichaelCheung-FHIR	Update the documents	418297f · yesterday	2 Commits
Part_1_Laboratory_Record-Anatomical_Patholo...	Update the documents	yesterday	
Part_2_Laboratory_Record-General_Laboratory	Update the documents	yesterday	
Presentation	Update the documents	yesterday	
README.md	Update the documents	yesterday	

README

Fifth Connectathon of HL7 HK FHIR® Connectathon Series 2023-2024

Exercise

- Following the instructions at the GitHub
 - Submit the answers via
 - Fork the repository by pull request and update the related files
 - Google Form
 - <https://forms.gle/vU9fgXP4dBiDyfvK7>

Format of the exercise

- Based on the scenario, select the correct answer (multiple choice)

Open Discussion

Closing remarks

By Mr Pascal Tse (Vice Chairman, HL7 Hong Kong)

Connectathon Series 2024

Fifth HL7 Hong Kong FHIR Connectathon

Topics: Laboratory Record (General) & Laboratory Record (Anatomical Pathology)

- Part 1: Face to face Session (21 Oct 2024)
- Part 2: Online Follow-up Meetings

Zoom Sessions	Time
Oct 25, 2024	Time: 7pm

What's next?

Proposed Schedule of Connectathon

	Date	Topics
1	Nov 2023	Patient Encounter, Medication, GOPC PPP data download
2	Feb 2024	Allergy/ADR, Immunisation
3	6 May 2024	Problem, Procedure
4	5 Aug 2024	Clinical Note / Summary, Investigation report, Referral, Medical Certificate
5	21 Oct 2024	Laboratory Record (General) & Laboratory Record (Anatomical Pathology)
6	Nov – Dec 2024	Laboratory Record (Microbiology), Radiology, PMI
7	Jan – Mar 2025	Chinese Medicine

See you soon
