Laboratory data Standard for eHealth Record in Hong Kong

LOINC Workshop 2013

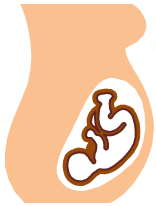
John Mok
Health Informatician

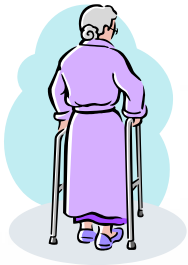
Outline

- Background of eHR
- Planning of eHR for laboratory record
- Adopted laboratory record standards
- Proposed laboratory report models
- eHR Test Description for laboratory
- LOINC adoption strategy
- Q&A

Electronic Health Record

- An electronic womb-to-tomb health record comprising of all important health data about a person which can be accessed at anytime, anywhere by the authorized person.





Brief Introduction of eHR

ehealth
HKSAR GOVT

Guiding Principles for eHR development

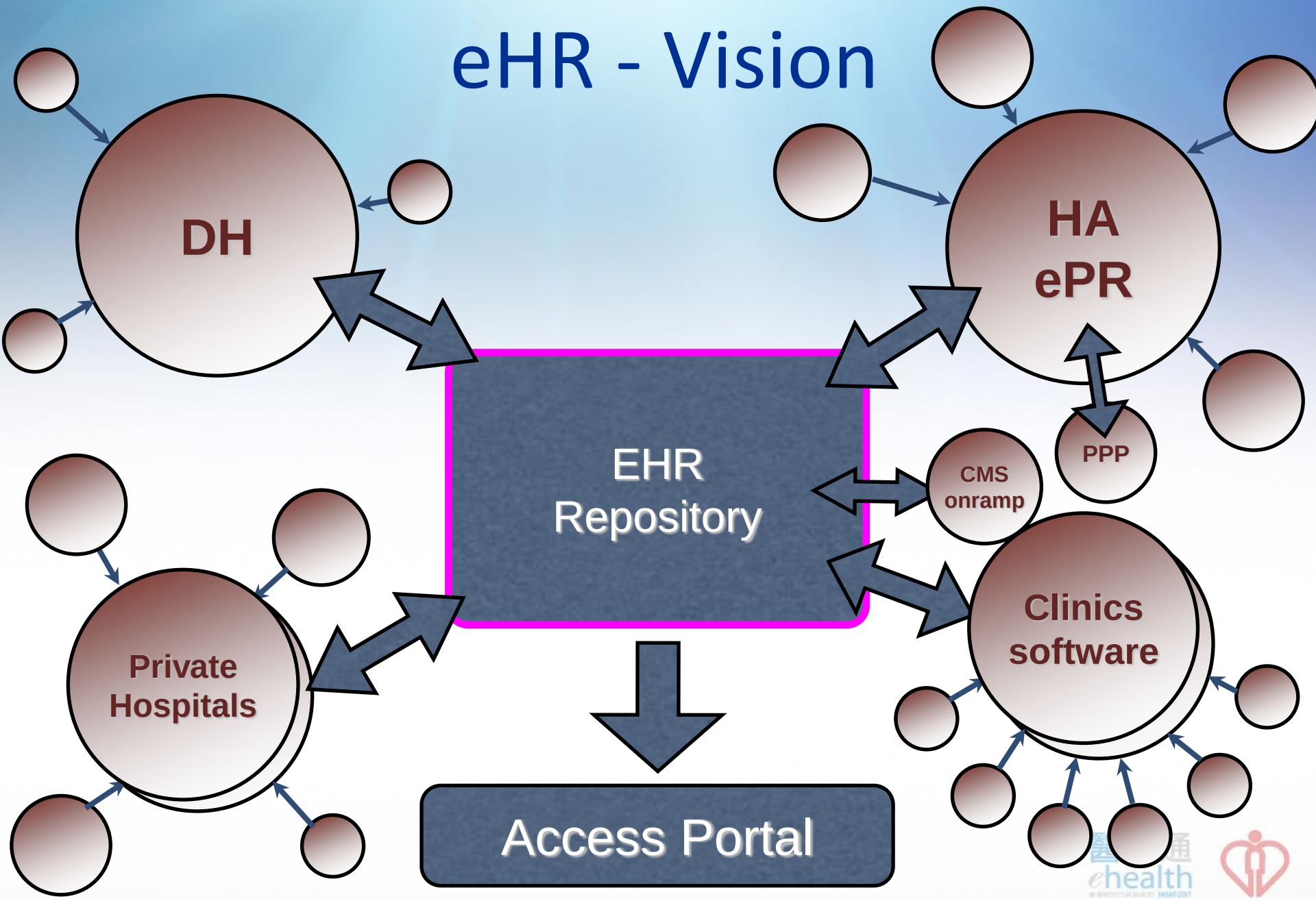
- Government led model
- Compelling but not compulsory record sharing
- Privacy and security of paramount importance
- Open technical standards
- Building block approach

Patient-oriented system

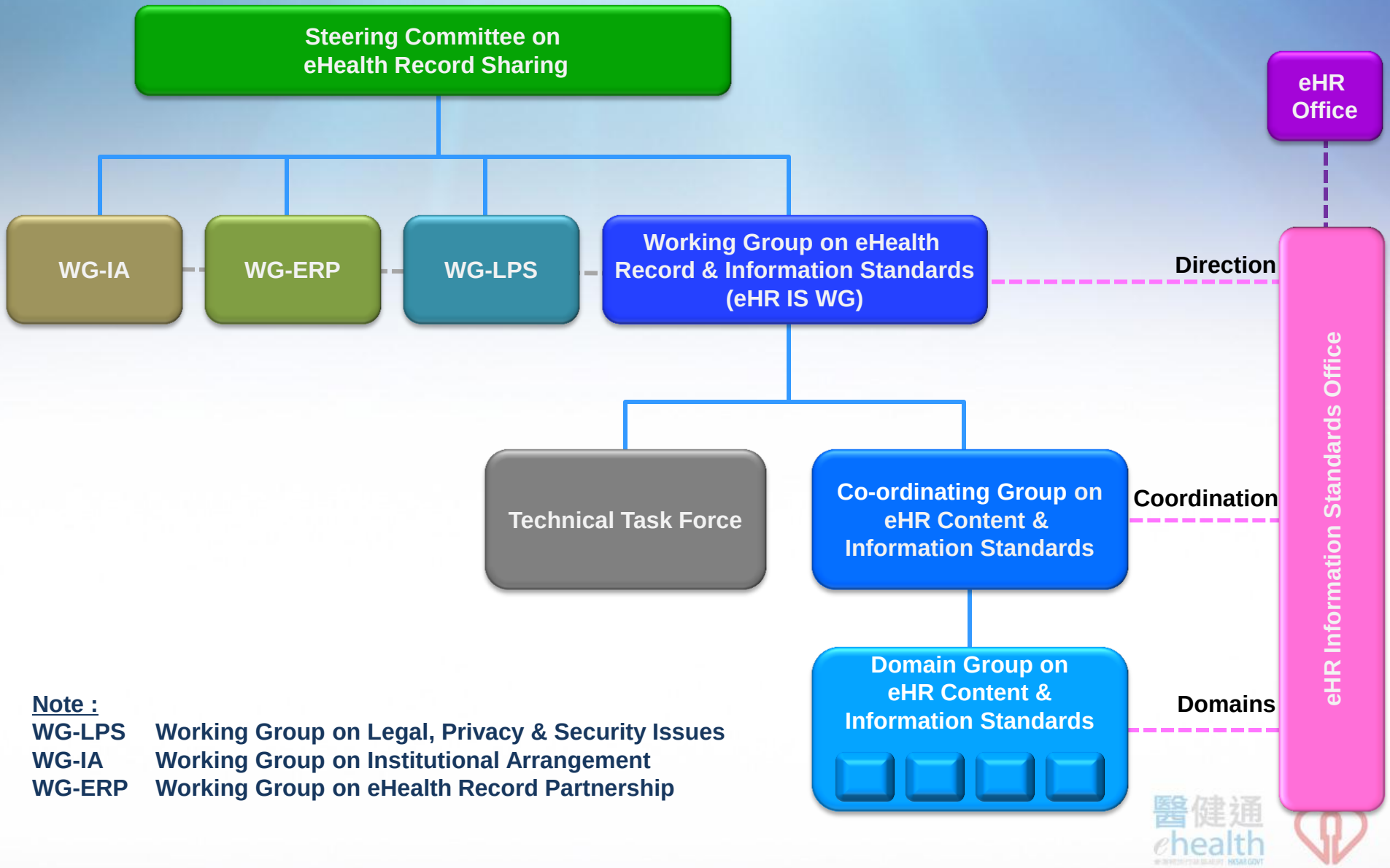
Standard-based records

Protocol-based operations

eHR - Vision


DH
HA ePR
EHR Repository
CMS onramp
PPP
Private Hospitals
Clinics software
Access Portal

Organisation Structure for eHR Information Standards



Note :

WG-LPS	Working Group on Legal, Privacy & Security Issues
WG-IA	Working Group on Institutional Arrangement
WG-ERP	Working Group on eHealth Record Partnership

eHR Information Standards
Domain Group on Laboratory Record

Member Name	Association
Existing Member	
Dr K C LEE	HA-Pathology IT Steering Group, Hospital Authority
Ms Juliet CHENG	Food and Health Bureau
Ms Judy CHAN	Food and Health Bureau
Dr Kwok Tim CHAN	Department of Health
Dr Pak Wing CHIM	Department of Health
Dr Janice LO	Department of Health
Dr Chung Ping HO	HK Medical Association
Dr Kui Fat CHAN	Hong Kong College of Pathologists
Ms Marianne LEUNG	Hong Kong Association of Medical Laboratories
Ms Denna KO	Hong Kong Private Hospitals Association
Mr Gary CHU	Hong Kong Private Hospitals Association
Mr Chi Lim KWOK	Hong Kong Institute of Medical Laboratory Sciences
Ms Amber LAM	HAITS- LIS Project Team
Mr Sam YEUNG	HAITS- LIS Project Team
Mr Hudson CHAN	eHR PMO
Ms Clara CHEUNG	eHR PMO
Ms Vicky FUNG	eHR ISO
Mr John MOK	eHR ISO

We meet Three times per year

醫健通

To develop information standards on laboratory record to facilitate the sharing of laboratory data to the eHR

Standardisation for eHR

- Ensure accurate interpretation of health data by all parties
- Support reuse of data
- Reduce duplicated efforts in data entry
- Facilitate interoperability of systems for data captured at different platforms
- Improve efficiency of healthcare services
- Assist in protection of public health

Phased Approach – A Proposal

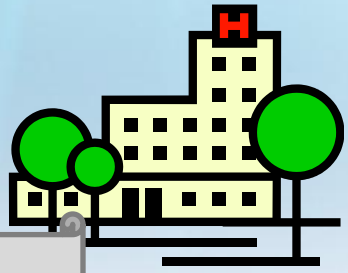
2012 Jun

eHR Section	Level 1	Level 2	Level 3
eHR Participant			
Encounter			
Referral			
Clinical note / summary			
Adverse reaction / allergy			
Clinical alert			
Problem			
Procedure			
Birth record			
Assessment / physical exam			
Social history			
Past medical history			
Family history			
Drug – prescription record			
Drug – dispensary record			
Immunization			
Clinical request			
Diagnostic test result – Laboratory			
Diagnostic test result – Radiology			
Diagnostic test result – Other investigation			
Care & treatment plan			

Key : Phase 1 | Phase 2 | Phase 3 | Phase 4 | Phase 5

醫健通 ehealth

Glucose test result



Automated paper

1

Lab report in PDF

Test
Glucose
LN=14749-6
Unit=mmol/L

3

Fully Interoperable eHR

2

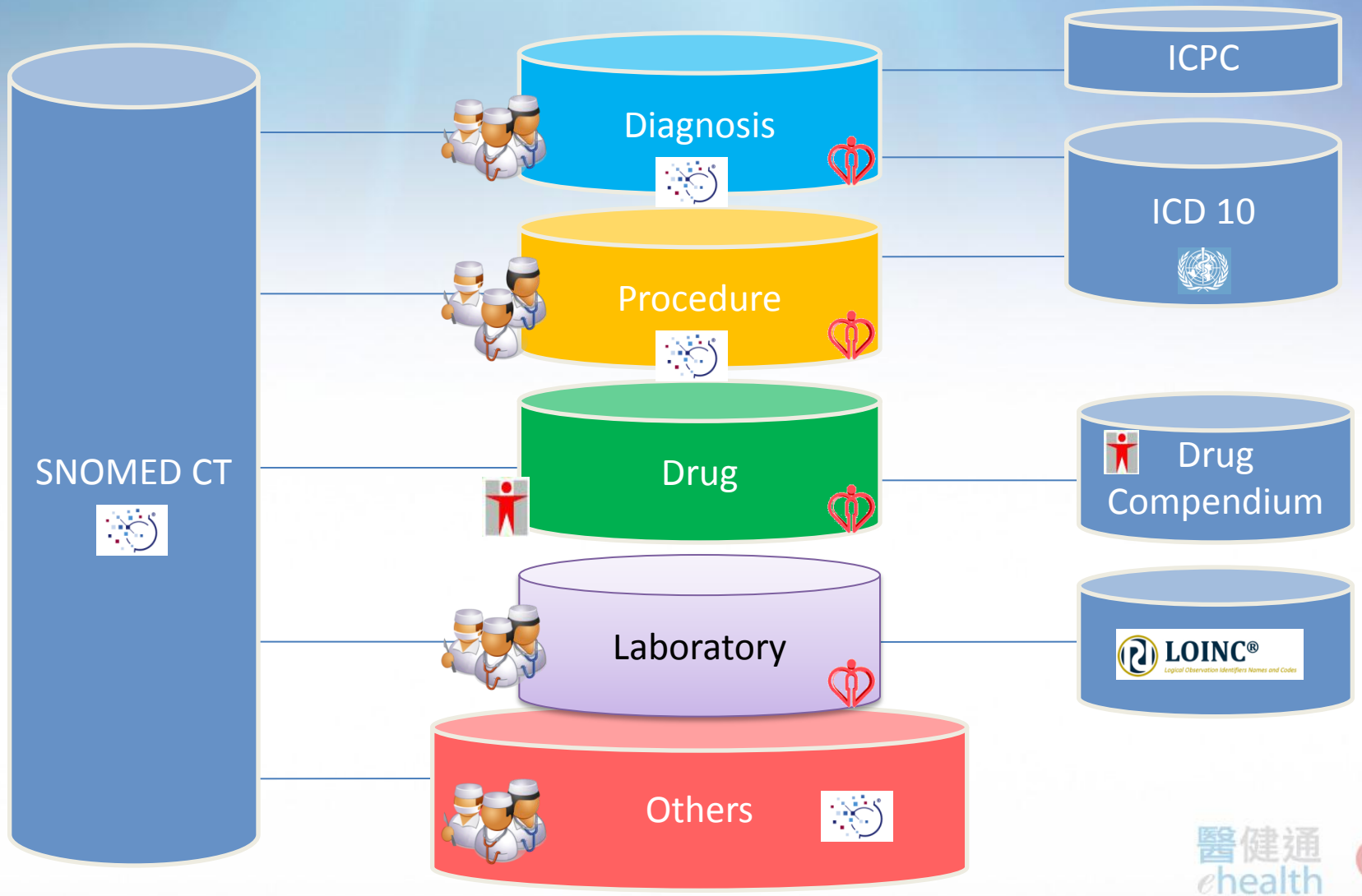
Test
Glucose

Structured data

eHR Test Mapping Reference List

Test mapping	
Glucose	14749-6
Glucose [Moles/volume] in Serum or Plasma	

Recognised Terminologies



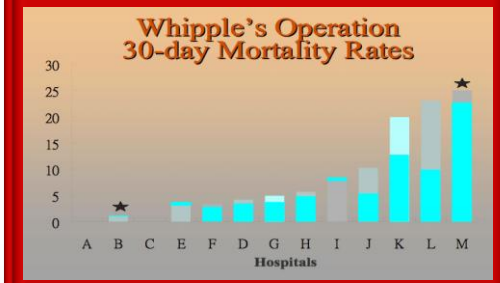
Hong Kong Clinical Terminology Table

SNOMED CT

HKCTT
- Diagnosis
- Procedure
- Drug
- Laboratory
- Others

- ICPC2
- ICD 10
- Registered Pharm Products
- LOINC®

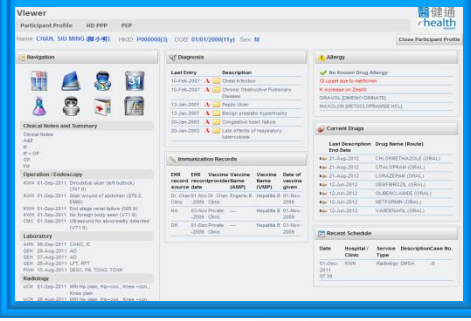
Secondary Use



Clinical Data Repository

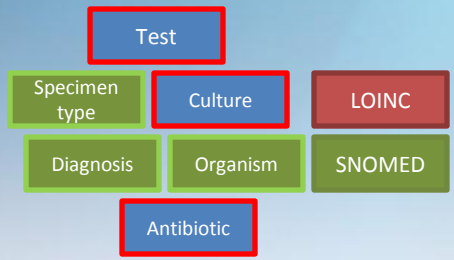
eHR

eHR



Laboratory data standards for eHR

Laboratory Standards Roadmap

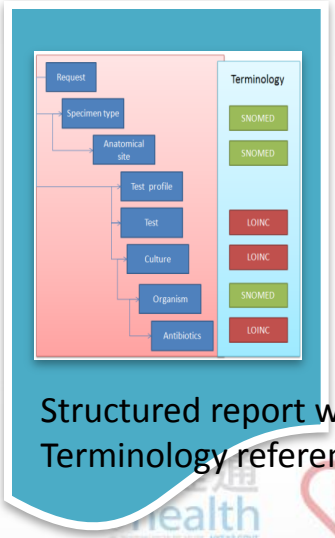


Lab Data

Test Mapping List

Editorial policy

Interchange Format Specification

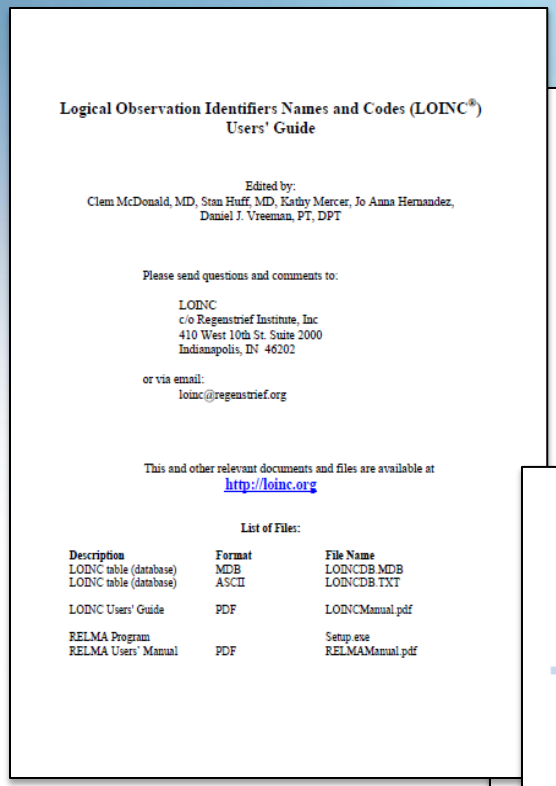


Structured report with Terminology reference

HL7 message

eHR

References



Logical Observation Identifiers Names and Codes (LOINC®)
Users' Guide

Edited by:
Clem McDonald, MD, Stan Huff, MD, Kathy Mercer, Jo Anna Hernandez, Daniel J. Vreeman, PT, DPT

Please send questions and comments to:

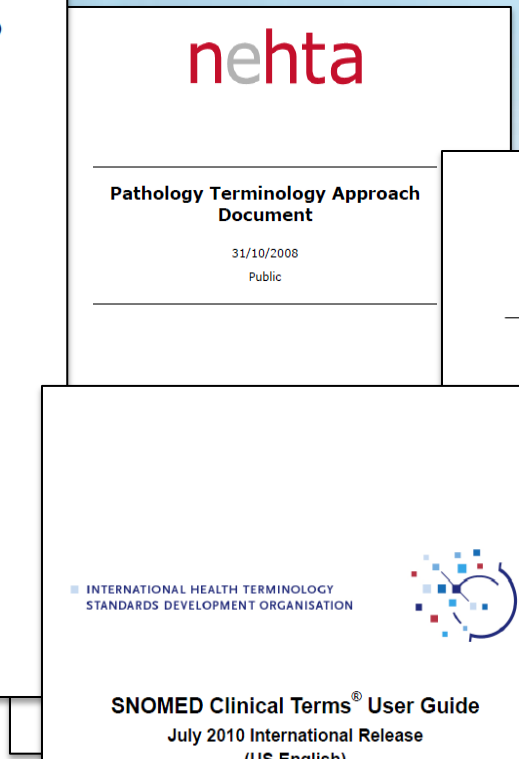
LOINC
c/o Regenstrief Institute, Inc
410 West 10th St. Suite 2000
Indianapolis, IN 46202

or via email:
loinc@regenstrief.org

This and other relevant documents and files are available at
http://loinc.org

List of Files:

Description	Format	File Name
LOINC table (database)	MDB	LOINCDB.MDB
LOINC table (database)	ASCII	LOINCDB.TXT
LOINC Users' Guide	PDF	LOINCManual.pdf
RELMA Program		Setup.exe
RELMA Users' Manual	PDF	RELMAManual.pdf



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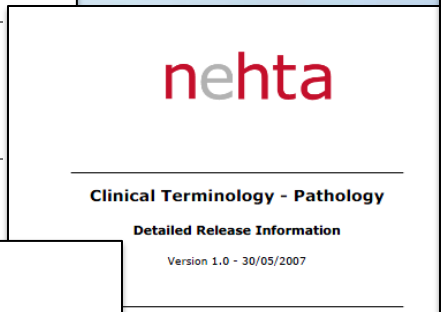
Pathology Terminology Approach Document

31/10/2008

Public



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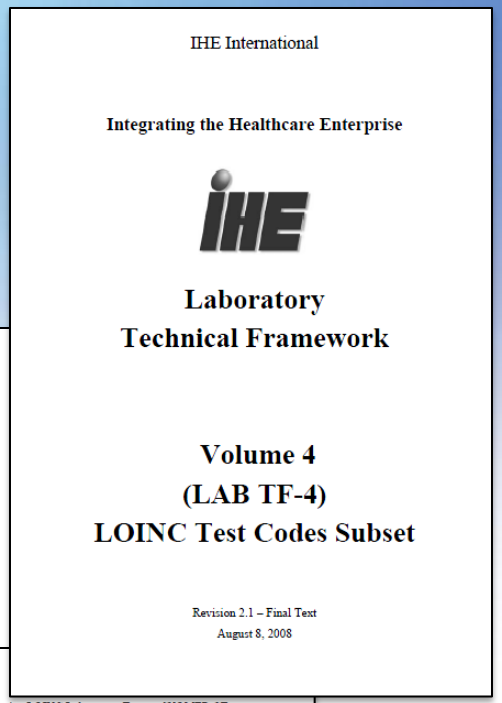
Clinical Terminology - Pathology

Detailed Release Information

Version 1.0 - 30/05/2007



IHE International

Integrating the Healthcare Enterprise

IHE

Laboratory
Technical Framework

Volume 4
(LAB TF-4)
LOINC Test Codes Subset

Revision 2.1 – Final Text
August 8, 2008

INTERNATIONAL HEALTH TERMINOLOGY STANDARDS DEVELOPMENT ORGANISATION

SNOMED Clinical Terms® User Guide
July 2010 International Release
(US English)

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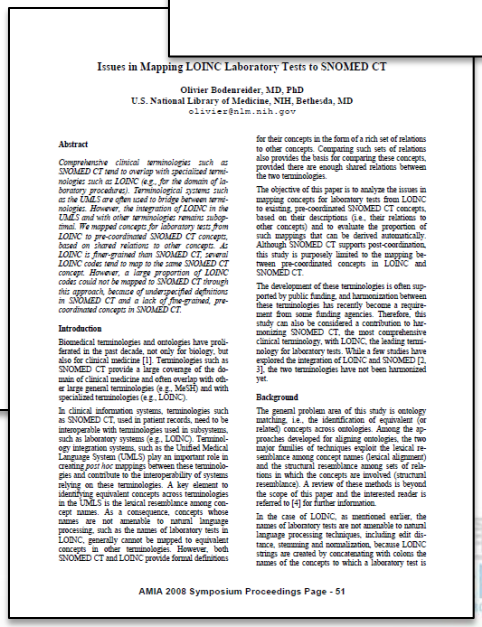
CVR #: 30363434



Issues in Mapping LOINC Laboratory Tests to SNOMED CT

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olivier@nlm.nih.gov

Abstract

Comprehensive clinical terminologies such as SNOMED CT tend to overlap with specialized terminologies such as LOINC (e.g., for the domain of laboratory procedures). Terminological systems such as the UMLS are often used to bridge between terminologies. However, the integration of LOINC in the UMLS and with other terminologies remains suboptimal. We mapped concepts for laboratory tests from LOINC to pre-coordinated SNOMED CT concepts, based on shared relations to other concepts. As LOINC is finer-grained than SNOMED CT, several LOINC codes tend to map to the same SNOMED CT concept. However, a large proportion of LOINC codes could not be mapped to SNOMED CT through this approach, because of underspecified definitions in SNOMED CT and a lack of fine-grained, pre-coordinated concepts in SNOMED CT.

Introduction

Biomedical terminologies and ontologies have proliferated in the past decade, not only for biology, but also for clinical medicine [1]. Terminologies such as SNOMED CT provide a large coverage of the domain of clinical medicine and often overlap with other large general terminologies (e.g., MeSH) and with specialized terminologies (e.g., LOINC).

In clinical information systems, terminologies such as SNOMED CT, used in patient records, need to be interoperable with terminologies used in subsystems, such as laboratory systems (e.g., LOINC). Terminology integration systems, such as the Unified Medical Language System (UMLS) play an important role in creating *post hoc* mappings between these terminologies and contribute to the interoperability of systems relying on these terminologies. A key element to identifying equivalent concepts across terminologies in the UMLS is the lexical resemblance among concept names. As a consequence, concepts whose names are not amenable to natural language processing, such as the names of laboratory tests in LOINC, generally cannot be mapped to equivalent concepts in other terminologies. However, both SNOMED CT and LOINC provide formal definitions for their concepts in the form of a rich set of relations to other concepts. Comparing such sets of relations also provides the basis for comparing these concepts, provided there are enough shared relations between the two terminologies.

The objective of this paper is to analyze the issues in mapping concepts for laboratory tests from LOINC to existing, pre-coordinated SNOMED CT concepts, based on their descriptions (i.e., their relations to other concepts) and to evaluate the proportion of such mappings that can be derived automatically. Although SNOMED CT supports post-coordination, this study is purposely limited to the mapping between pre-coordinated concepts in LOINC and SNOMED CT.

The development of these terminologies is often supported by public funding, and harmonization between these terminologies has recently become a requirement from some funding agencies. Therefore, this study can also be considered a contribution to harmonizing SNOMED CT, the most comprehensive clinical terminology, with LOINC, the leading terminology for laboratory tests. While a few studies have explored the integration of LOINC and SNOMED [2, 3], the two terminologies have not been harmonized yet.

Background

The general problem area of this study is ontology matching, i.e., the identification of equivalent (or related) concepts across ontologies. Among the approaches developed for aligning ontologies, the two major families of techniques exploit the lexical resemblance among concept names (lexical alignment) and the structural resemblance among sets of relations in which the concepts are involved (structural resemblance). A review of these methods is beyond the scope of this paper and the interested reader is referred to [4] for further information.

In the case of LOINC, as mentioned earlier, the names of laboratory tests are not amenable to natural language processing techniques, including edit distance, stemming and normalization, because LOINC strings are created by concatenating with colons the names of the concepts to which a laboratory test is

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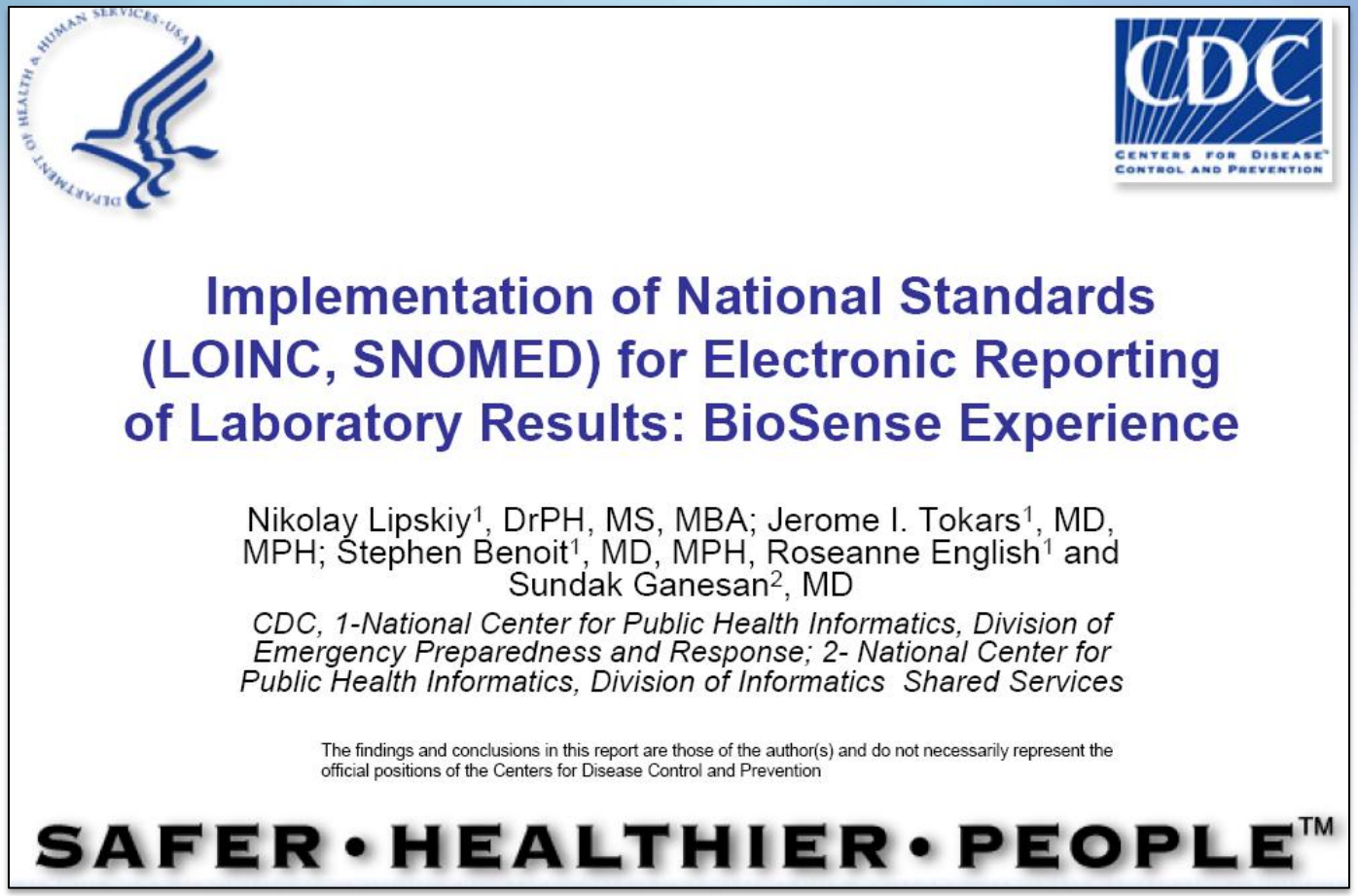
Lab data Terminology Adoption

Like a Question –
Urine Culture?

SNOMED CT

Like an Answer –
Escherichia coli

Both LOINC and SNOMED CT being used



Implementation of National Standards (LOINC, SNOMED) for Electronic Reporting of Laboratory Results: BioSense Experience

Nikolay Lipskiy[1], DrPH, MS, MBA; Jerome I. Tokars[1], MD, MPH; Stephen Benoit[1], MD, MPH, Roseanne English[1] and Sundak Ganesan[2], MD

CDC, 1-National Center for Public Health Informatics, Division of Emergency Preparedness and Response; 2- National Center for Public Health Informatics, Division of Informatics Shared Services

The findings and conclusions in this report are those of the author(s) and do not necessarily represent the official positions of the Centers for Disease Control and Prevention

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Terminology -
A brief introduction of LOINC

LOINC - Background

- Logical Observation Identifiers Names and Codes
- LOINC system was initiated in 1994 by the Regenstrief Institute, a non-profit medical research organization associated with Indiana University.
- Developed for data exchange of lab results among different institutions

Why LOINC

- Most widely adopted reference terminology for Laboratory
- Nearly 60,000 terms and where 44,000 related to laboratory *(in 2011 figures)*
- Free to use
- Frequent update

An example of a LOINC code

Six-axis

LOINC code	2951-2
• Component	• Sodium
• Property	• SCnc
• Timing	• Pt
• System	• Ser/Plas
• Scale	• Qn
• Method	

Sodium [Moles/volume] in Serum or Plasma

LOINC mapping examples

Test Description	Test unit	LOINC_CODE	LONG_COMMON_NAME
CALCULUS ANALYSIS		14638-1	Calculus analysis [interpretation] in Stone
Cholinesterase (Pseudo)	kU/L	2098-2	Cholinesterase [Enzymatic activity/volume] in Serum or Plasma
Copper	umol/L	14665-4	Copper [Molecules/volume] in Serum or Plasma
Ferritin	ug/L	2276-4	Ferritin [Mass/volume] in Serum or Plasma
Occult Blood		2335-8	Hemoglobin.gastrointestinal [Presence] in Stool
IGE	kIU/L	19113-0	IgE [Units/volume] in Serum
LEAD	umol/L	14807-2	Lead [Molecules/volume] in Blood
Lithium	mmol/L	14334-7	Lithium [Molecules/volume] in Serum or Plasma
Appearance		9335-1	Appearance of Body fluid
Amylase	U/L	1795-4	Amylase [Enzymatic activity/volume] in Body fluid
Chloride	mmol/L	2072-7	Chloride [Molecules/volume] in Body fluid
Creatinine	umol/L	25386-4	Creatinine [Molecules/volume] in Body fluid
Glucose	mmol/L	14745-4	Glucose [Molecules/volume] in Body fluid
LDH	U/L	2529-6	Lactate dehydrogenase [Enzymatic activity/volume] in Body fluid
Potassium	mmol/L	2821-7	Potassium [Molecules/volume] in Body fluid
Protein, Total	g/L	2881-1	Protein [Mass/volume] in Body fluid
Sodium	mmol/L	2950-4	Sodium [Molecules/volume] in Body fluid
Urate	mmol/L	25548-9	Urate [Molecules/volume] in Body fluid
Urea	mmol/L	25549-7	Urea [Molecules/volume] in Body fluid
Cortisol, SPOT	nmol/L	14675-3	Cortisol [Molecules/volume] in Serum or Plasma
Urine Volume (24hr)	L	3167-4	Volume of 24 hour Urine
Urine VMA	umol/L	15097-9	Vanillylmandelate [Molecules/volume] in Urine
Urine VMA, 24 hr	umol/24h	14947-6	Vanillylmandelate [Molecules/time] in 24 hour Urine
Urine Adrenaline	nmol/L	24521-7	Epinephrine [Molecules/volume] in Urine
Urine Adrenaline, 24hr	nmol/24H	14712-4	Epinephrine [Molecules/time] in 24 hour Urine
Urine Noradrenaline	nmol/L	14853-6	Norepinephrine [Molecules/volume] in Urine
Urine Noradrenaline, 24hr	nmol/24H	14854-4	Norepinephrine [Molecules/time] in 24 hour Urine
Urine Dopamine	nmol/L	15058-1	Dopamine [Molecules/volume] in Urine
Urine Dopamine, 24hr	nmol/24H	15059-9	Dopamine [Molecules/time] in 24 hour Urine
Glucose, fasting	mmol/L	14771-0	Glucose [Molecules/volume] in Serum or Plasma --post CFst
Glucose, 2 hour post load	mmol/L	14759-5	Glucose [Molecules/volume] in Serum or Plasma --2 hours post dose glucose
Carbamazepine	umol/L	14639-9	Carbamazepine [Molecules/volume] in Serum or Plasma
Digoxin	umol/L	14698-5	Digoxin [Molecules/volume] in Serum or Plasma
Valproic acid	umol/L	14946-8	Valproate [Molecules/volume] in Serum or Plasma
Phenobarbital	umol/L	14874-2	Phenobarbital [Molecules/volume] in Serum or Plasma
Phenytoin	umol/L	14877-5	Phenytoin [Molecules/volume] in Serum or Plasma
Theophylline	umol/L	14915-3	Theophylline [Molecules/volume] in Serum or Plasma
Time -1		29264-9	Collection time of Blood
Glucose - specimen 1	mmol/L	54392-6	Glucose [Molecules/volume] in Serum or Plasma --1st specimen post XXX challenge
Time - 2		49972-3	Collection time of Blood--2nd specimen
Glucose - specimen 2	mmol/L	54396-7	Glucose [Molecules/volume] in Serum or Plasma --2nd specimen post XXX challenge

International adoptions

Region	Laboratory Test
Canada: BC, Ontario-ELINCS	LOINC
USA: CDC, CAP	LOINC
UK-NHS	SNOMED CT
France- SFIL	LOINC
Brazil	LOINC
Taiwan-NHII	LOINC
Australia-NEHTA (RCPA)	LOINC (Reporting test)
China-EHR based Regional health information platform	LOINC
Singapore-HIE	LOINC (potential adoption)
Korea	LOINC
Hong Kong	LOINC
…	LOINC

Source: http://breeze.iu.edu/labloinc201006/

HL7 v2.x OBX Segment

A code identifies the datatype as a coded element

The code is from LOINC

The code is from SNOMED CT

OBX||CE|630-4^Urine Culture^LN||52499004^Pseudomonas aeruginosa^SCT|

A code identifies the data in OBX-3

Coded result for OBX-5

SNOMED CT
Introduction

INTERNATIONAL HEALTH TERMINOLOGY
STANDARDS DEVELOPMENT ORGANISATION

醫健通 ehealth

What is SNOMED CT

- SNOMED CT is a comprehensive clinical terminology, originally created by the College of American Pathologists (CAP), collaborated with NHS, and is now licensed by the International Health Terminology Standards Development Organisation (IHTSDO).

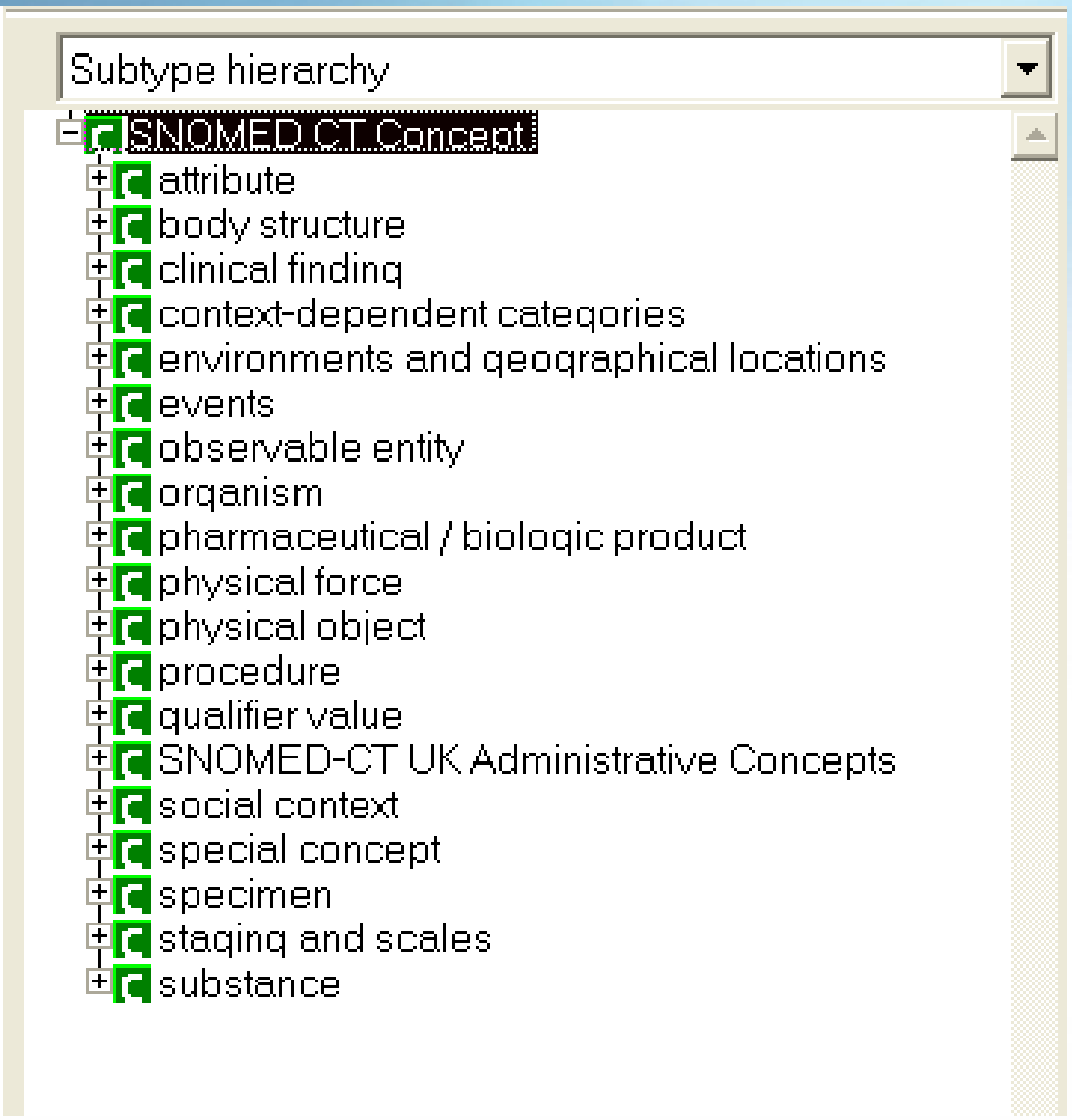
- The terminology is comprised of **concepts, terms and relationships** across different scopes of health care.

- "Concept" is a clinical meaning identified by an unique permanent numeric identifier (Concept ID).

- Each concept has one unique "Fully Specified Name " intended to provide an unambiguous way to name a concept.

- Each concept in SNOMED CT is logically defined through its "relationships" to other concepts.

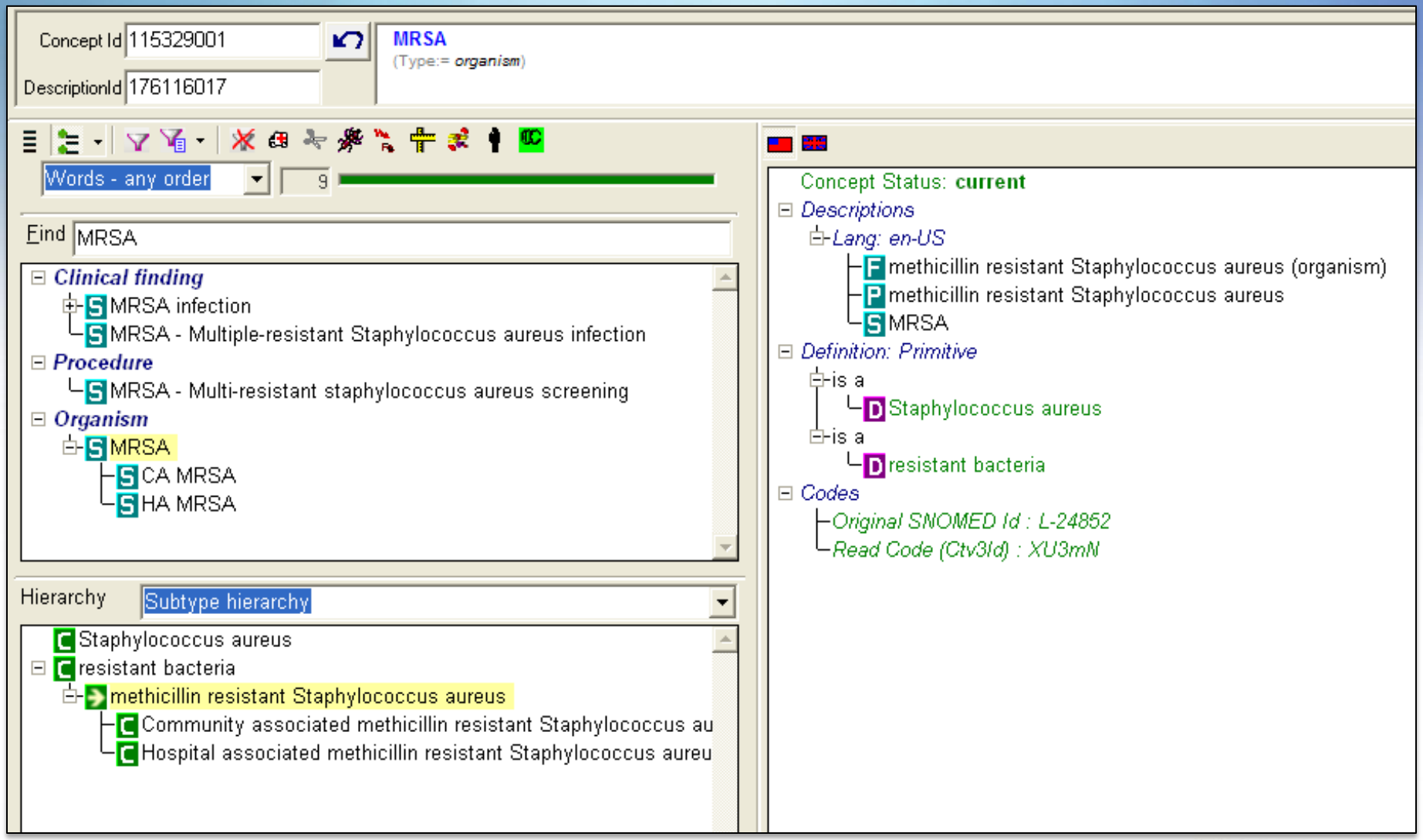
SNOMED CT



- Most widely adopted medical reference terminology
- Cover 19 domain area (hierarchies)
- Around 380,000 concepts
- Nearly 900,000 relationships

Screen dump of CliniClue Browser for SNOMED CT . http://www.cliniclue.com/software

Find “MRSA” via a SCT browser



Screen dump of CliniClue Browser for SNOMED CT . http://www.cliniclue.com/software

eHR Laboratory Results Reporting Model

- Laboratory results in PDF or free text
  - Level 1 Compliance

- Laboratory results in structured format
  - Local codes -> Level 2 Compliance
  - International codes (recognized terminologies -> Level 3 Compliance)

General Laboratory report

C

醫院管理局
Hospital Authority
東涌醫院
Tung Chung Hospital
病理化驗部
Department of Pathology

生化病理報告 Chemical Pathology Report

Case No.: SUR 07012345 (MRN: 223345)
Name: CHAN,TAI MAN
陳大文
HKID: A123456(3)
Sex: M Age: 19Y DOB: 01/07/1987
Hosp/Spec/Ward/Bed: TCH/SUR/A5/02
Doctor Request: Dr. Chan Wing
Dr. Ref.:

eHR Content - Header

Lab No.: 07C0377791 **Final Report**
Clinical Details: GIB

Collect Date : 13/03/07
Collect Time : 18:40
Arrive Date : 13/03/07
Arrive Time : 18:40
Request No. : C0377791
Urgency : --

		Reference Range	Units
Sodium	139	136 - 148	mmol/L
Potassium	3.0 L	3.4 - 4.7	mmol/L
Chloride	100	96 - 111	mmol/L
Urea	5.1	1.8 - 6.4	mmol/L
OCreatinine	68	53 - 80	umol/L
Total Protein	68	60 - 80	g/L
Albumin	37 L	38 - 54	g/L
Globulin	31		g/L
Bilirubin, total	11	< 19	umol/L
ALP	60	< 300	U/L
ALT	13	< 39	U/L
Calcium	2.27	2.20 - 2.70	mmol/L
Phosphate	1.39	1.1 - 2.0	mmol/L

Authorized by: LIS Team Member

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

*This is a final report. Please retain in patient record permanently.

This Laboratory is accredited by the College of American Pathologists
CAP Accreditation Number 71755-25
Report on: 13/03/2007 18:43 Printed on 13/03/2007 18:44
Report Destination: KWH/SUR/PL Cum Page No.: 1 Page No.: 1/1

Free text or PDF

醫院管理局
Hospital Authority
東涌醫院
Tung Chung Hospital
病理化驗部
Department of Pathology

生化病理報告 Chemical Pathology Report

Case No.: SUR 07012345 (MRN: 223345)
Name: CHAN,TAI MAN
陳大文
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Sex: M Age: 19Y DOB: 01/07/1987
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			Reference Range	Units
Sodium	139		136 - 148	mmol/L
Potassium	3.0	L	3.4 - 4.7	mmol/L
Chloride	100		96 - 111	mmol/L
Urea	5.1		1.8 - 6.4	mmol/L
OCreatinine	68		53 - 80	umol/L
Total Protein	68		60 - 80	g/L
Albumin	37	L	38 - 54	g/L
Globulin	31			g/L
Bilirubin, total	11		< 19	umol/L
ALP	60		< 300	U/L
ALT	13			
Calcium	2.27			
Phosphate	1.39			

Authorized by: LIS Team Member
***** End of report *****
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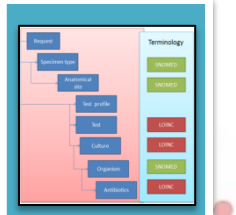
CAP Accreditation Number 71755-25
Report on: 13/03/2007 18:43 Printed on 13/03/2007 18:44
Report Destination: KWH/SUR/PL Cum Page No.: 1 Page No.: 1/1

General Laboratory report

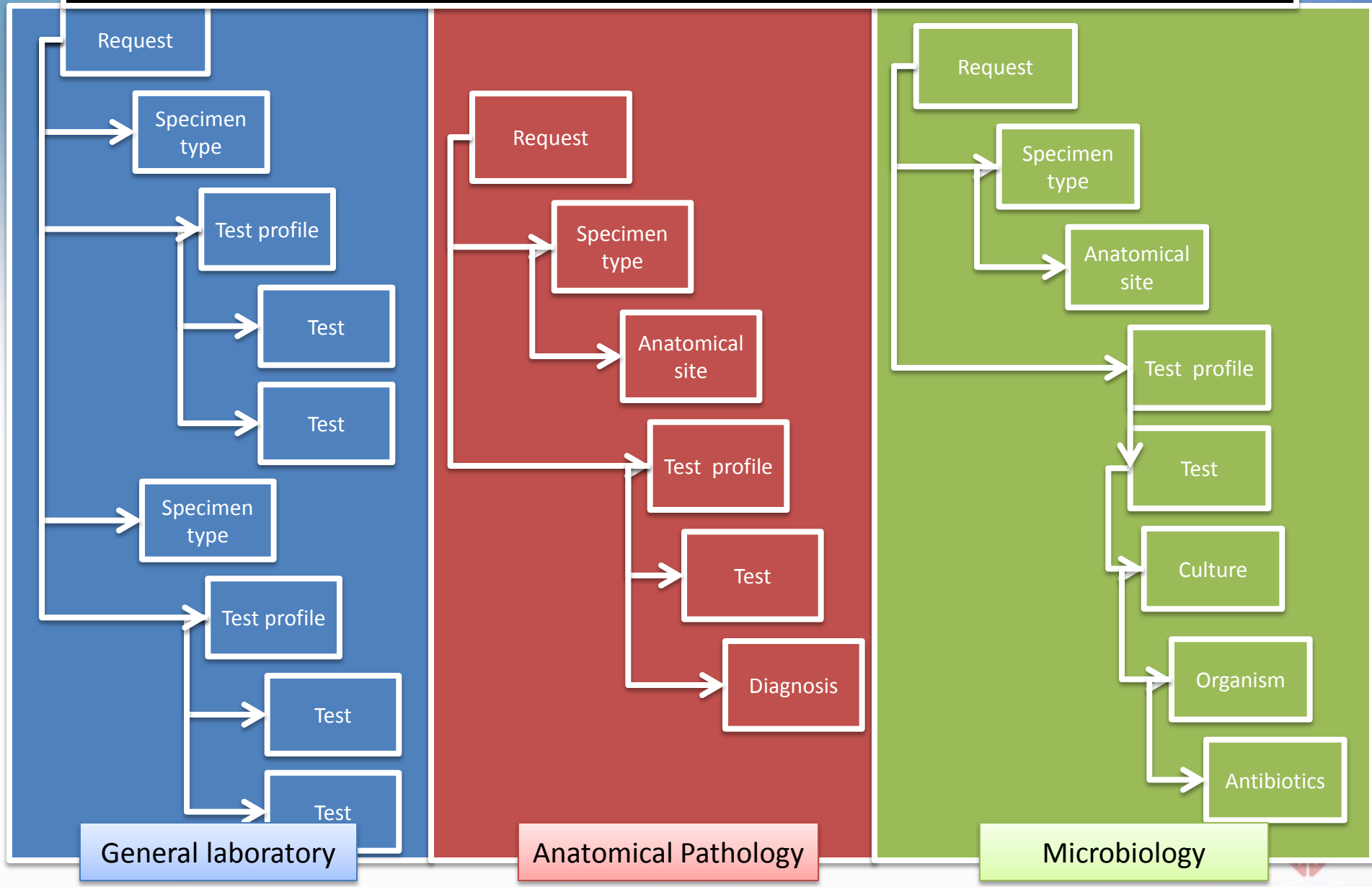
Structured data

Test name +
Local codes (Level 2)
International codes (Level 3)

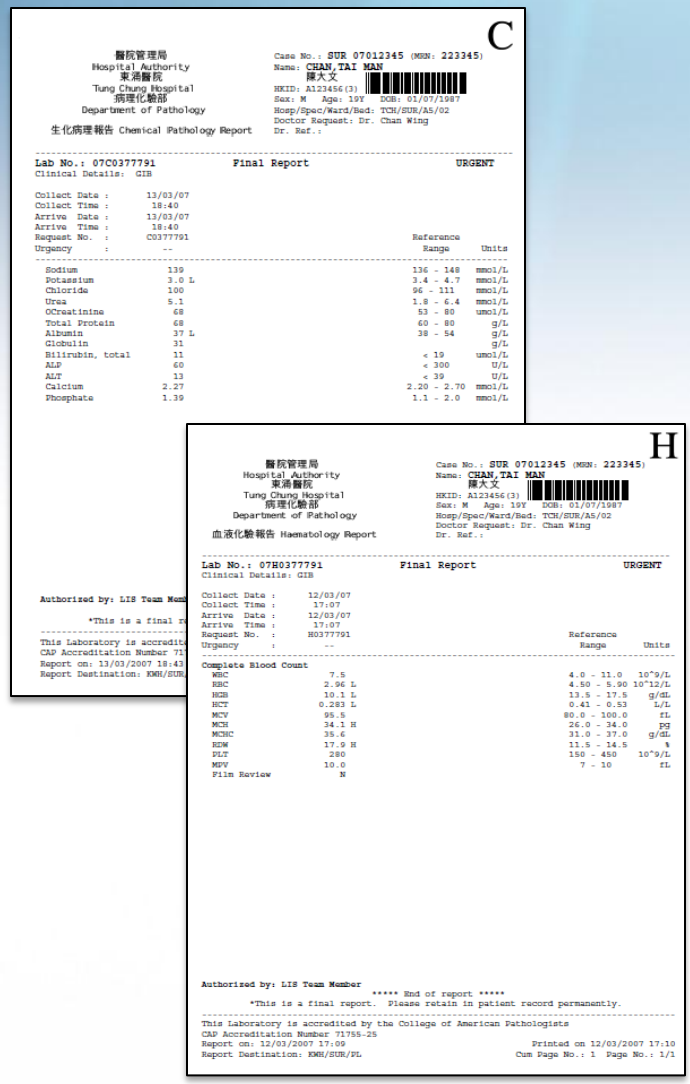


Structured report with Terminology reference

Laboratory Report Structure Model



Structured report model - Clinical Pathology


C

醫院管理局
Hospital Authority
東涌醫院
Tung Chung Hospital
病理化驗部
Department of Pathology
生化病理報告 Chemical Pathology Report

Case No.: SUR 07012345 (MRN: 223345)
Name: CHAN,TAI MAN 陳大文
HKID: A123456(3)
Sex: M Age: 19Y DOB: 01/07/1987
Hosp/Spec/Ward/Bed: TCH/SUR/A5/02
Doctor Request: Dr. Chan Wing
Dr. Ref.:

Lab No.: 07C0377791 Final Report URGENT
Clinical Details: GIB

		Reference Range	Units
Collect Date	13/03/07		
Collect Time	18:40		
Arrive Date	13/03/07		
Arrive Time	18:40		
Request No.	C0377791		
Urgency	--		
Sodium	139	136 - 148	mmol/L
Potassium	3.0 L	3.4 - 4.7	mmol/L
Chloride	100	96 - 111	mmol/L
Urea	5.1	1.8 - 6.4	mmol/L
Creatinine	68	53 - 80	umol/L
Total Protein	68	60 - 80	g/L
Albumin	37 L	38 - 54	g/L
Globulin	31		g/L
Bilirubin, total	11	< 19	umol/L
ALP	60	< 300	U/L
ALT	13	< 39	U/L
Calcium	2.27	2.20 - 2.70	mmol/L
Phosphate	1.39	1.1 - 2.0	mmol/L

Authorized by: LIS Team Mem
*This is a final r
This Laboratory is accredit
CAP Accreditation Number 71
Report on: 13/03/2007 18:43
Report Destination: KWH/SUR

H

醫院管理局
Hospital Authority
東涌醫院
Tung Chung Hospital
病理化驗部
Department of Pathology
血液化驗報告 Haematology Report

Case No.: SUR 07012345 (MRN: 223345)
Name: CHAN,TAI MAN 陳大文
HKID: A123456(3)
Sex: M Age: 19Y DOB: 01/07/1987
Hosp/Spec/Ward/Bed: TCH/SUR/A5/02
Doctor Request: Dr. Chan Wing
Dr. Ref.:

Lab No.: 07H0377791 Final Report URGENT
Clinical Details: GIB

		Reference Range	Units
Collect Date	12/03/07		
Collect Time	17:07		
Arrive Date	12/03/07		
Arrive Time	17:07		
Request No.	H0377791		
Urgency	--		
Complete Blood Count			
WBC	7.5	4.0 - 11.0	10^9/L
RBC	2.96 L	4.50 - 5.90	10^12/L
HGB	10.1 L	13.5 - 17.5	g/dL
HCT	0.283 L	0.41 - 0.53	L/L
MCV	95.5	80.0 - 100.0	fL
MCH	34.1 H	26.0 - 34.0	pg
MCHC	35.6	31.0 - 37.0	g/dL
RDW	17.9 H	11.5 - 14.5	%
PLT	280	150 - 450	10^9/L
MPV	10.0	7 - 10	fL
Film Review	N		

Authorized by: LIS Team Member
***** End of report *****
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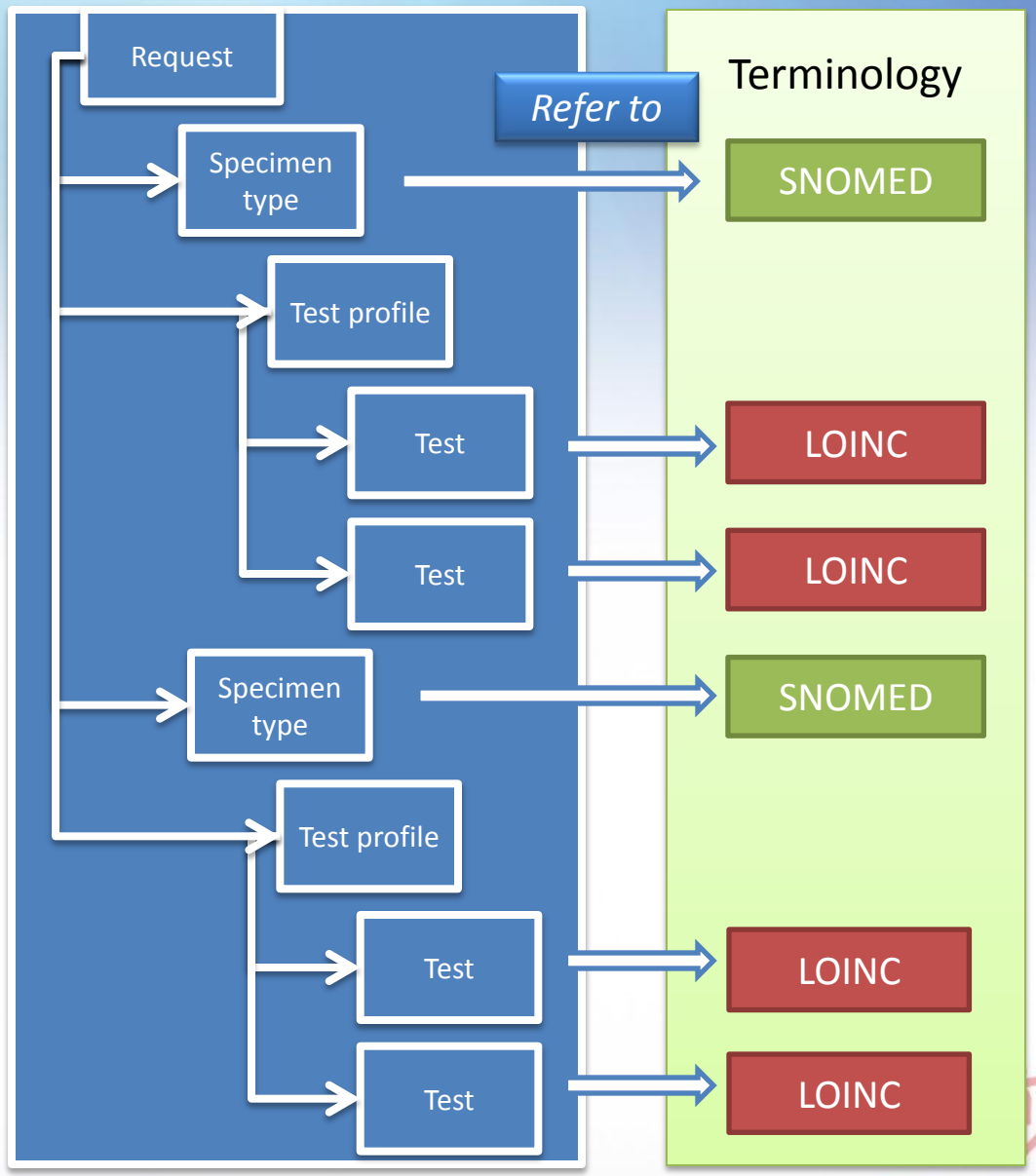
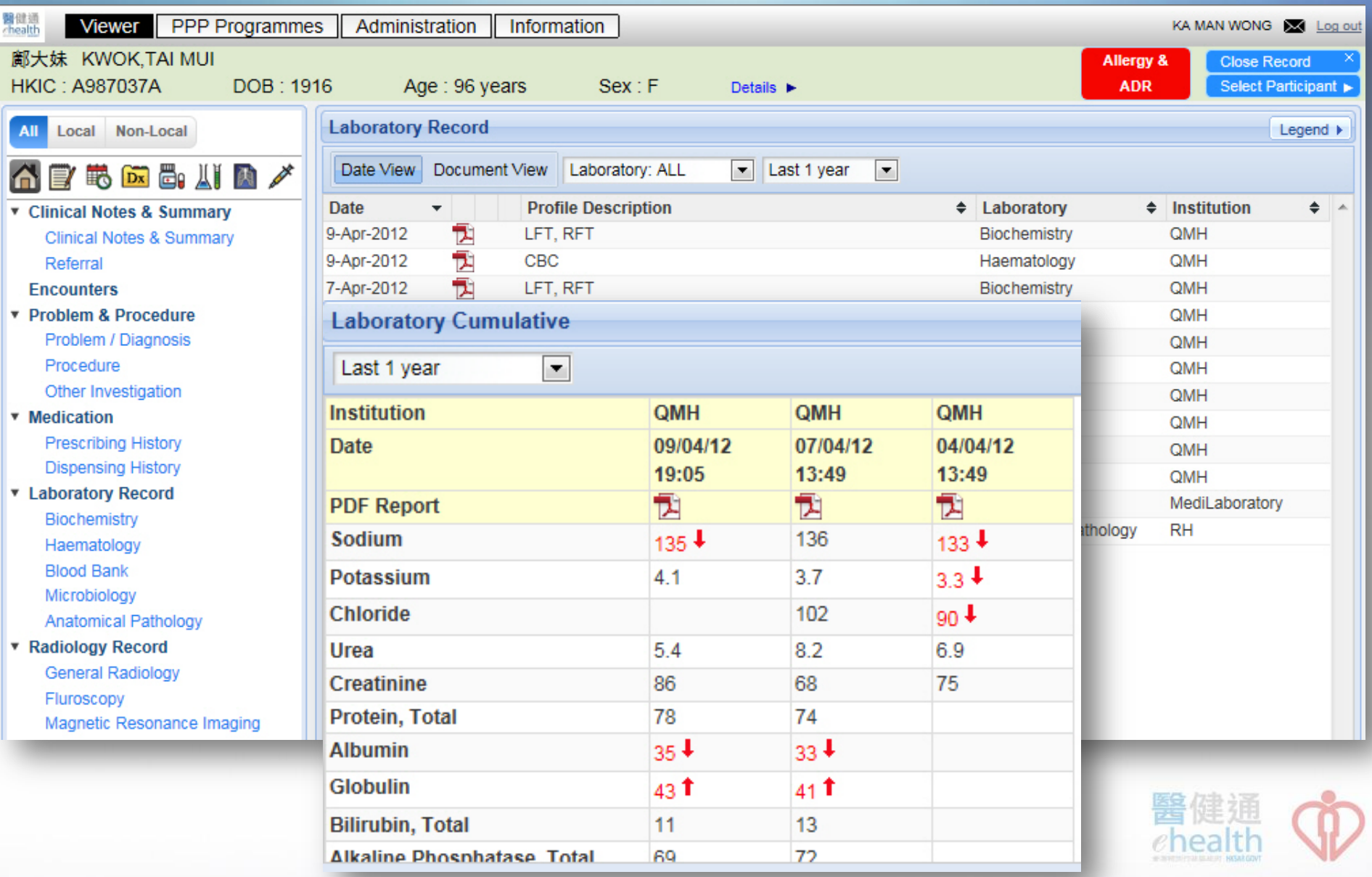
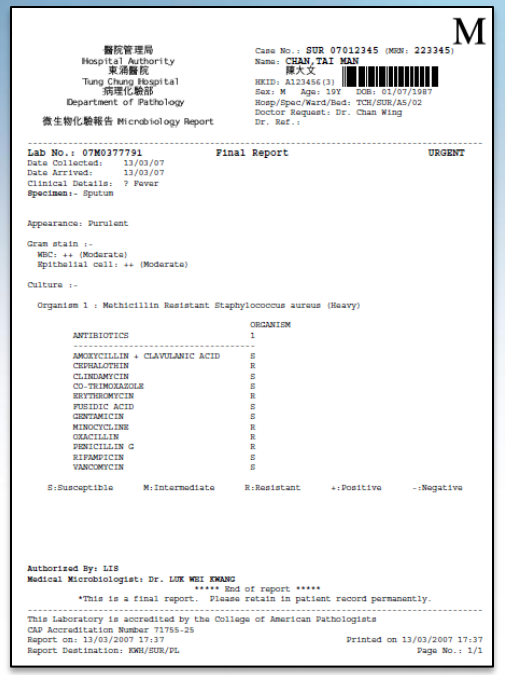
Report on: 12/03/2007 17:09
Printed on 12/03/2007 17:10
Cum Page No.: 1 Page No.: 1/1
Report Destination: KWH/SUR/PL



Cumulative Laboratory Result



Structured report model - Microbiology



醫院管理局
Hospital Authority
東涌醫院
Tung Chung Hospital
病理化驗部
Department of Pathology
微生物化驗報告 Microbiology Report

Case No.: SUR 07012345 (MRN: 223345)
Name: CHAN,TAI MAN
陳大文
HKID: A123456(3)
Sex: M Age: 19Y DOB: 01/07/1987
Hosp/Spec/Ward/Bed: TCH/SUR/A5/02
Doctor Request: Dr. Chan Wing
Dr. Ref.:

Lab No.: 07M0377791 Final Report URGENT
Date Collected: 13/03/07
Date Arrived: 13/03/07
Clinical Details: ? Fever
Specimen:- Sputum

Appearance: Purulent

Gram stain :-
WBC: ++ (Moderate)
Epithelial cell: ++ (Moderate)

Culture :-

Organism 1 : Methicillin Resistant Staphylococcus aureus (Heavy)

ANTIBIOTICS	ORGANISM 1
AMOXYCILLIN + CLAVULANIC ACID	S
CEPHALOTHIN	R
CLINDAMYCIN	S
CO-TRIMOXAZOLE	S
ERYTHROMYCIN	R
FUSIDIC ACID	S
GENTAMICIN	S
MINOCYCLINE	R
OXACILLIN	R
PENICILLIN G	R
RIFAMPICIN	S
VANCOMYCIN	S

S:Susceptible M:Intermediate R:Resistant +:Positive -:Negative

Authorized By: LIS
Medical Microbiologist: Dr. LUK WAI KWANG
***** End of report *****
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Report on: 13/03/2007 17:37 Printed on 13/03/2007 17:37
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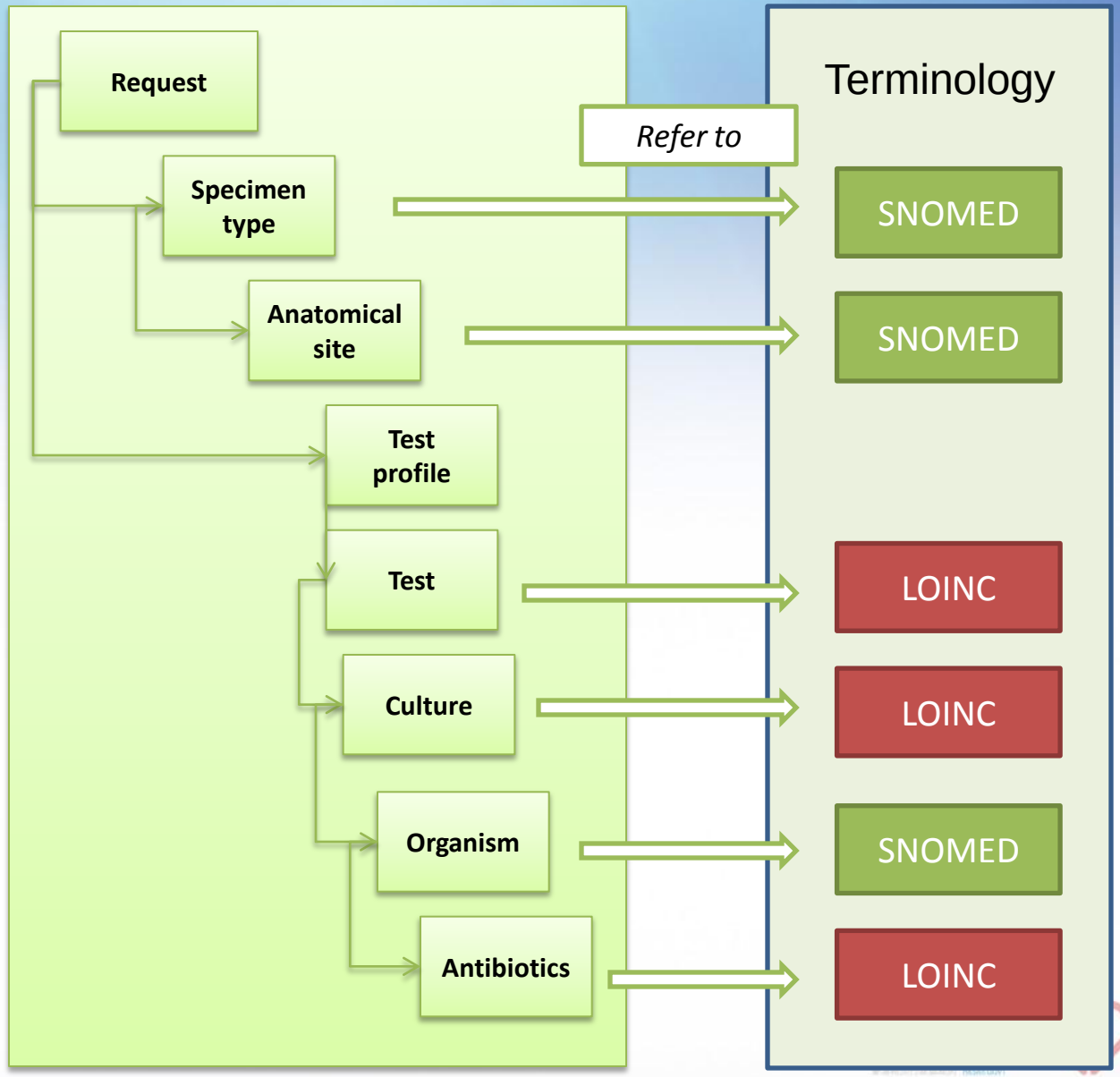
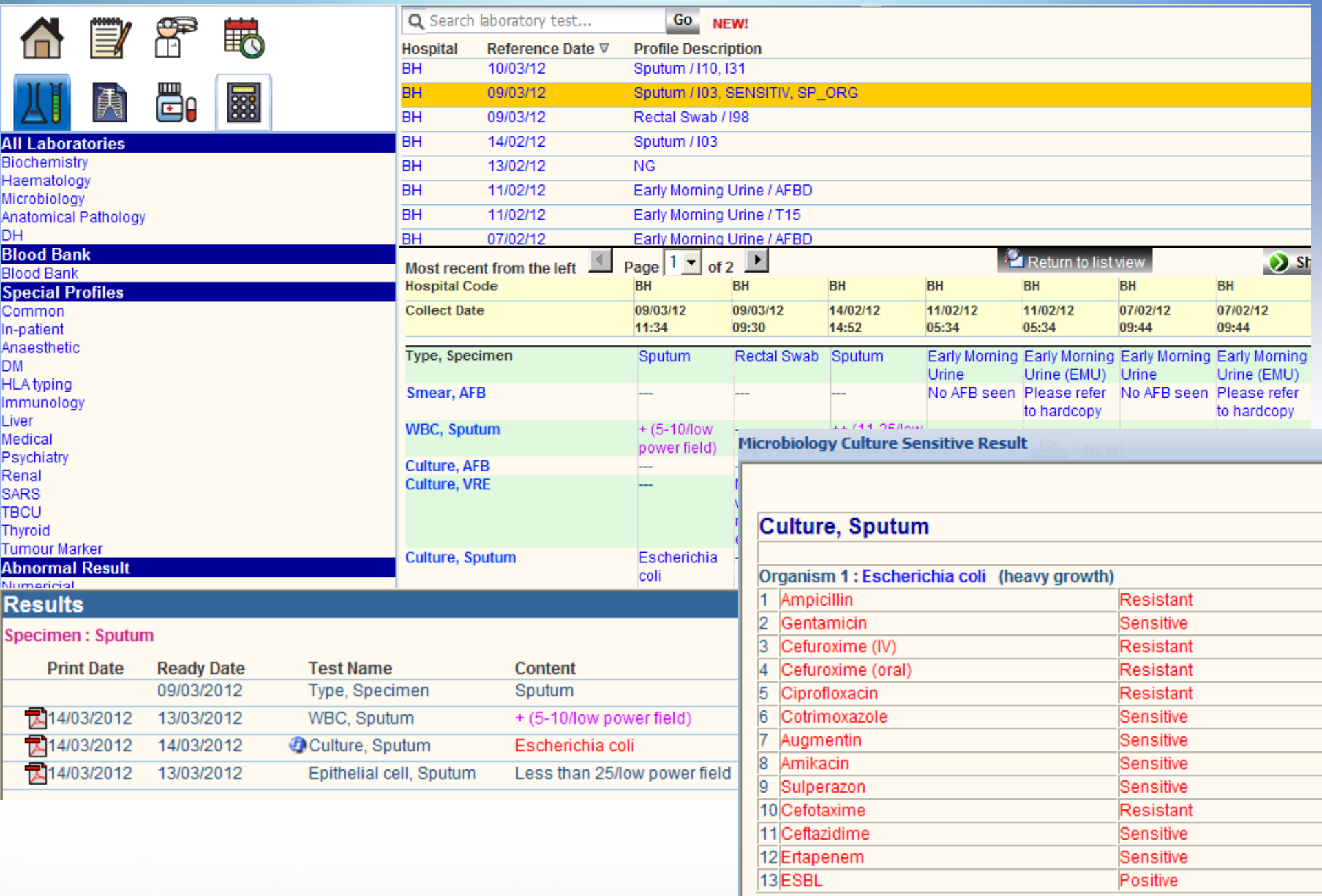


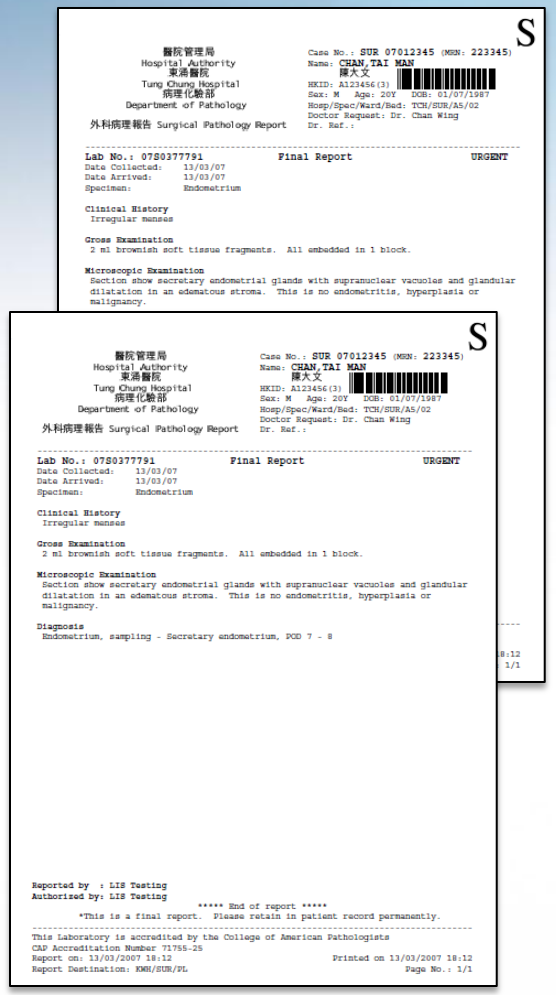
Microbiology Report Content

- Compliance level 1, 2 and 3
  - Level 1 – report PDF
  - Level 2 – structured data
  - Level 3 – structured data with Reference Terminology
    - Specimen type – SNOMED CT
    - Test – LOINC
    - Organism – SNOMED CT
    - Susceptibility test - LOINC

HA-ePR Laboratory Result Enquiry



Structured report model - Anatomical Pathology



醫院管理局
Hospital Authority
東涌醫院
Tung Chung Hospital
病理化驗部
Department of Pathology
外科病理報告 Surgical Pathology Report

Case No.: SUR 07012345 (MRN: 223345)
Name: CHAN,TAI MAN 陳大文
HKID: A123456(3)
Sex: M Age: 20Y DOB: 01/07/1987
Hosp/Spec/Ward/Bed: TCH/SUR/A5/02
Doctor Request: Dr. Chan Wing
Dr. Ref.:

Lab No.: 07S0377791 Final Report URGENT
Date Collected: 13/03/07
Date Arrived: 13/03/07
Specimen: Endometrium

Clinical History
Irregular menses

Gross Examination
2 ml brownish soft tissue fragments. All embedded in 1 block.

Microscopic Examination
Section show secretary endometrial glands with supranuclear vacuoles and glandular dilatation in an edematous stroma. This is no endometritis, hyperplasia or malignancy.

Diagnosis
Endometrium, sampling - Secretary endometrium, PDD 7 - 8

Reported by : LIS Testing
Authorised by: LIS Testing
***** End of report *****
*This is a final report. Please retain in patient record permanently.

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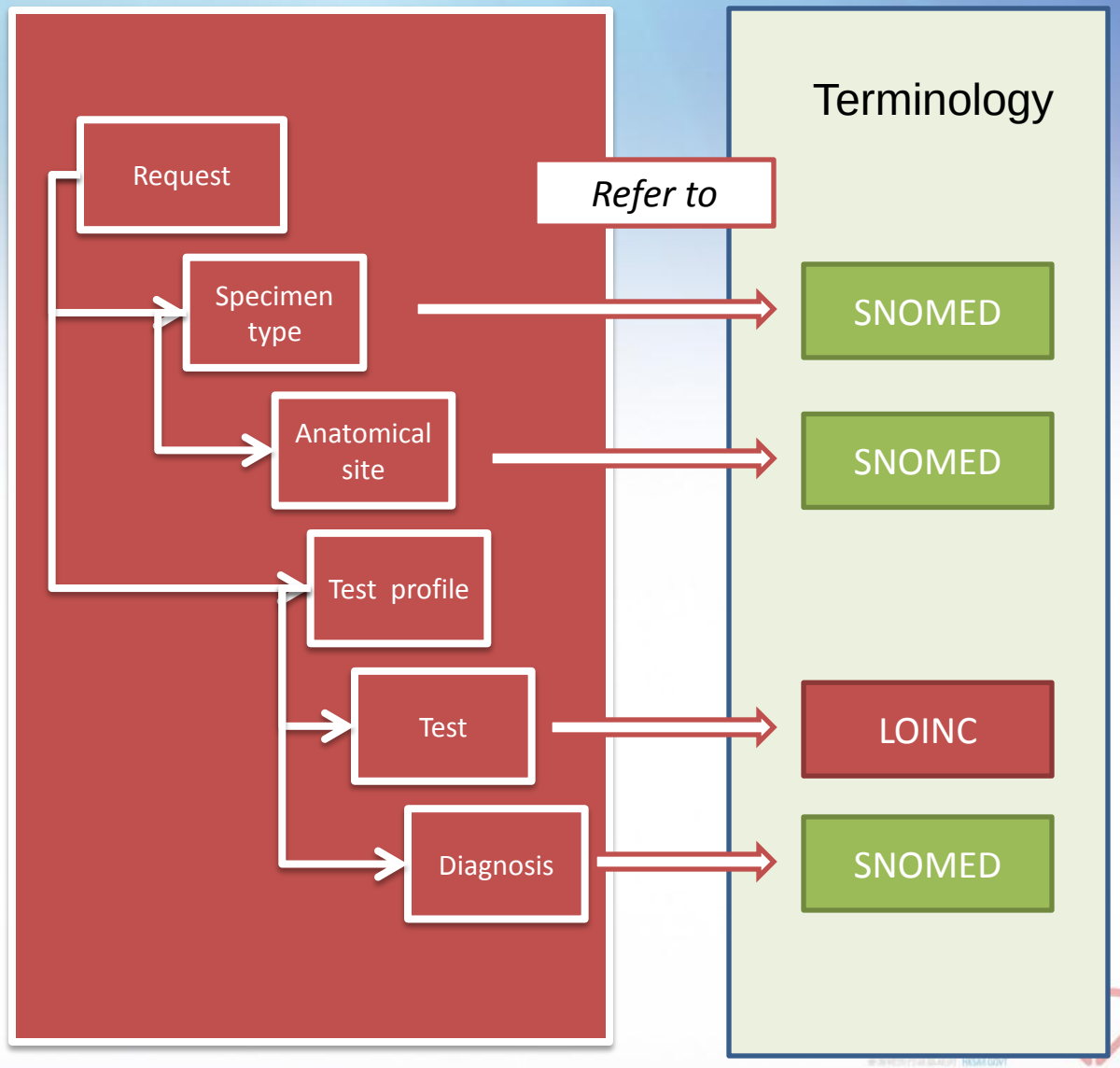
Report Destination: KWH/SUR/PL Page No.: 1/1



MICROSCOPIC EXAMINATION:

(A)

- Histological type: Adenocarcinoma (with extensive ulceration)
- Differentiation: Moderate
- Local invasion: pT3c - 5-15 mm beyond border of muscularis propria (block A7)
- Invasive pattern: Infiltrative
- Associated lymphocytic reaction: Patchy
- Peritumoural lymphovascular permeation: Absent
- Perineural invasion: Absent
- Extramural venous invasion: Absent
- Adjacent non-neoplastic colon: Unremarkable
- Serosal (peritonealised) surface: Clear (5 mm from tumour front)
- Proximal 'cut end' resection margin: Clear
- Distal 'cut end' resection margin: Clear
- Apical lymph node(s)
  - Number of lymph node(s) examined: 1
  - Number of lymph node(s) involved: 0
- All lymph node(s) (apical, intermediate and peritoneal)
  - Total number of lymph node(s) examined: 15
  - Total number of lymph node(s) involved: 0
- Dukes' stage: B (tumour beyond muscularis propria, nodes negative)

(B) Sections show full thickness large intestinal tissue, in which there is no evidence of dysplasia or malignancy.

DIAGNOSIS:

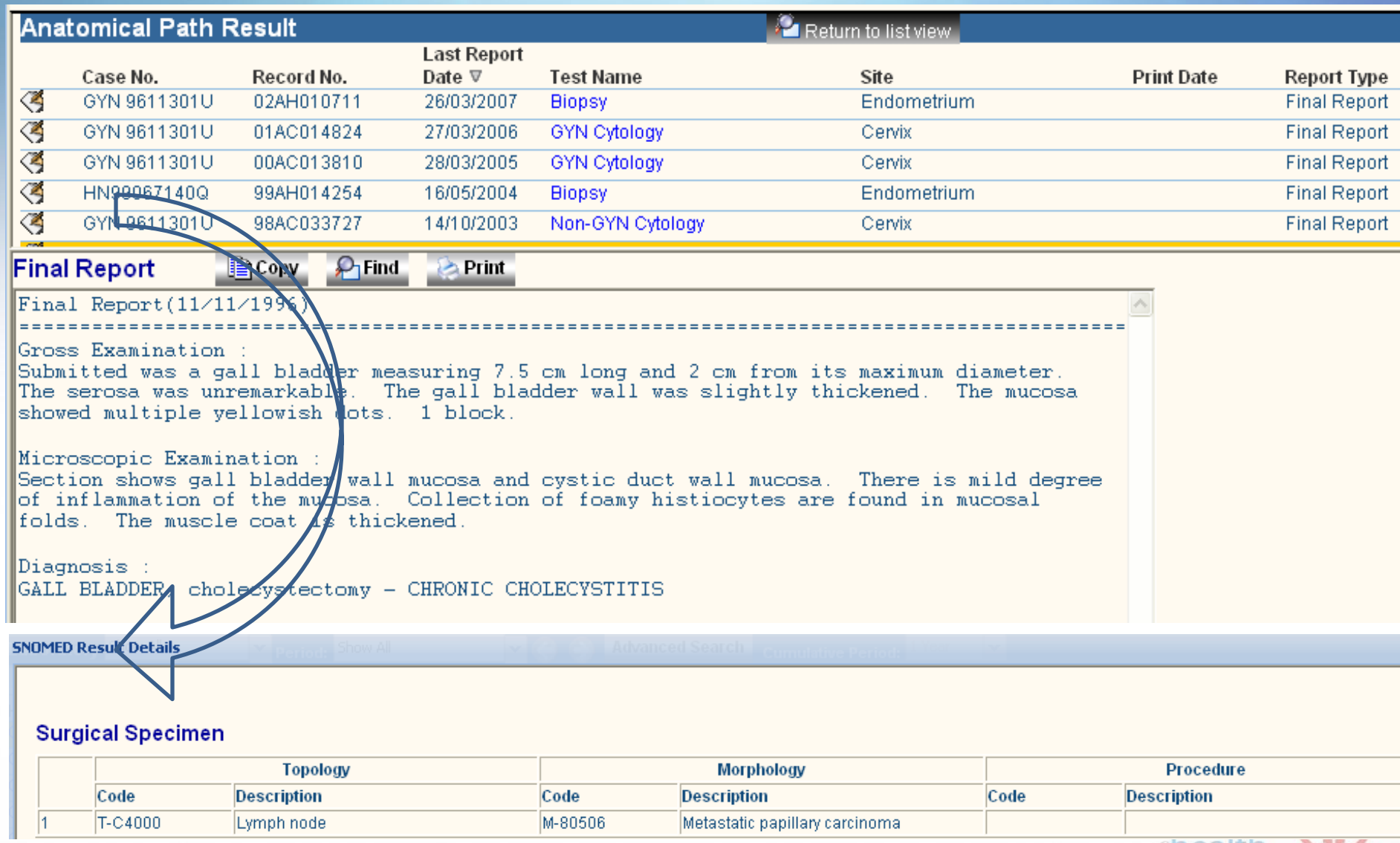
(A) Sigmoid COLON, anterior resection:
- Moderately differentiated ADENOCARCINOMA, pT3cN0 (TNM, AJCC 5th edition), Resection margins clear.

(B) COLON, distal resection margin, anterior resection - NO MALIGNANCY.

Pathology Report

sno_labno	sno_field	sno_seq	sno_tcode	sno_tclass	sno_tseq	sno_mcode	sno_mclass	sno_mseq
10BX002715	DIAG	1	T-59300	01	000	M-81403	01	000
10BX002715	DIAG	2	T-59300	01	000	M-09450	01	002

HA-ePR pathology result enquiry



Anatomical Path Result

Return to list view

Case No.	Record No.	Last Report Date	Test Name	Site	Print Date	Report Type
GYN 9611301U	02AH010711	26/03/2007	Biopsy	Endometrium		Final Report
GYN 9611301U	01AC014824	27/03/2006	GYN Cytology	Cervix		Final Report
GYN 9611301U	00AC013810	28/03/2005	GYN Cytology	Cervix		Final Report
HN[illegible]140Q	99AH014254	16/05/2004	Biopsy	Endometrium		Final Report
GYN 9611301U	98AC033727	14/10/2003	Non-GYN Cytology	Cervix		Final Report

Final Report

Copy Find Print

```
Final Report(11/11/1996)
================================================================================
Gross Examination :
Submitted was a gall bladder measuring 7.5 cm long and 2 cm from its maximum diameter.
The serosa was unremarkable.  The gall bladder wall was slightly thickened.  The mucosa
showed multiple yellowish dots.  1 block.

Microscopic Examination :
Section shows gall bladder wall mucosa and cystic duct wall mucosa.  There is mild degree
of inflammation of the mucosa.  Collection of foamy histiocytes are found in mucosal
folds.  The muscle coat is thickened.

Diagnosis :
GALL BLADDER, cholecystectomy - CHRONIC CHOLECYSTITIS
```

SNOMED Result Details

Surgical Specimen

	Topology		Morphology		Procedure	
	Code	Description	Code	Description	Code	Description
1	T-C4000	Lymph node	M-80506	Metastatic papillary carcinoma		

Anatomical Pathology Report Content

- Compliance level 1, 2 and 3
  - Level 1 – report PDF
  - Level 2 – structured data (SNOMED 3)
  - Level 3 – structured data (SNOMED CT)
- Structured pathological report data
  - Gross/Macroscopic Examination, Microscopic Examination and Diagnosis, and any other narrative text for pathology report
- Diagnosis field
  - For level 2, structured data are always in pair
    - Topography – Morphology/Procedure/Disorder
  - For level 3, structured data are coded in SNOMED CT

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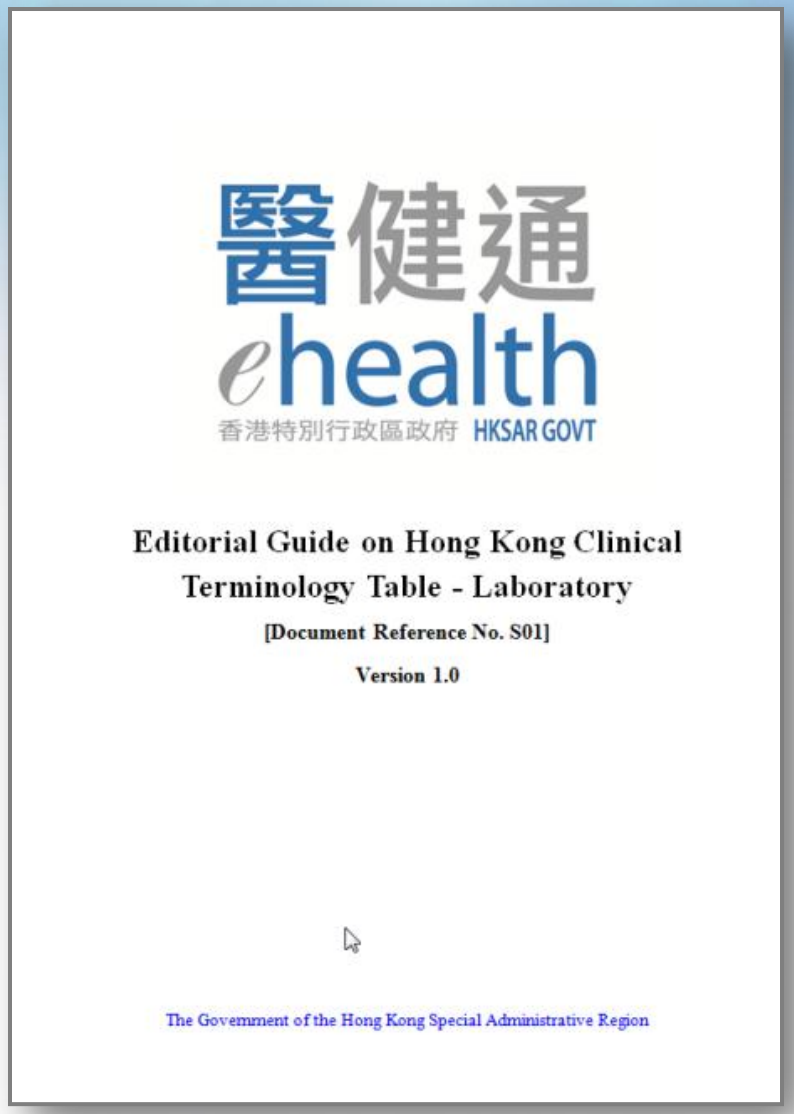
Encoded Diagnosis

- Currently the encoded data in HA are in SNOMED 3
- T and M codes are always in a pair, and it can be more than 1 pair
- Will capture local code and local description
- No validation check on those local codes as they are level 2 compliance

Editorial Guide for Laboratory



醫健通
ehealth
香港特別行政區政府 HKSAR GOVT

Editorial Guide on Hong Kong Clinical Terminology Table - Laboratory

[Document Reference No. S01]

Version 1.0

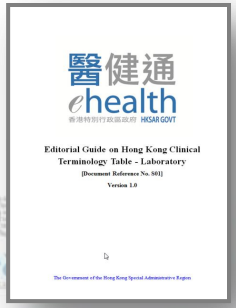
The Government of the Hong Kong Special Administrative Region

Editorial guidelines – Test Display name

General principles:

- Test naming should be Clear, Precise and Concise.
- Tests are named according to the test, condition or disease rather than particular methodology.

Achieve “standard” test display names for eHR



LOINC Common Name

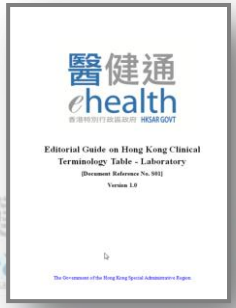
- Use LOINC Common Name as a base to construct our test display name for eHR
- Advantages- They are Distinct, Clear and Consistent
- For example:
  - Alpha-1-Fetoprotein [Moles/volume] in Serum or Plasma

Remove the Property

Replace “in” with “,”

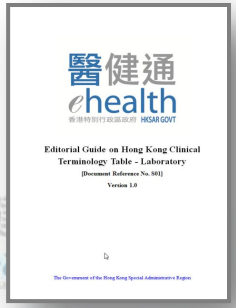
Alpha-1-Fetoprotein, Serum

A proposed test display name for eHR



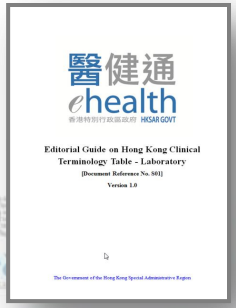
Test Display Name for eHR

- eHR IS Lab DG suggestions:
  - Map methodless LOINC code
  - Use LOINC Common Name as a base
    - May make reference to test display name in HA-ePR
    - Favor UK but US spelling also acceptable
  - Seek Lab DG members or (Editorial board) approval on the eHR test display name list

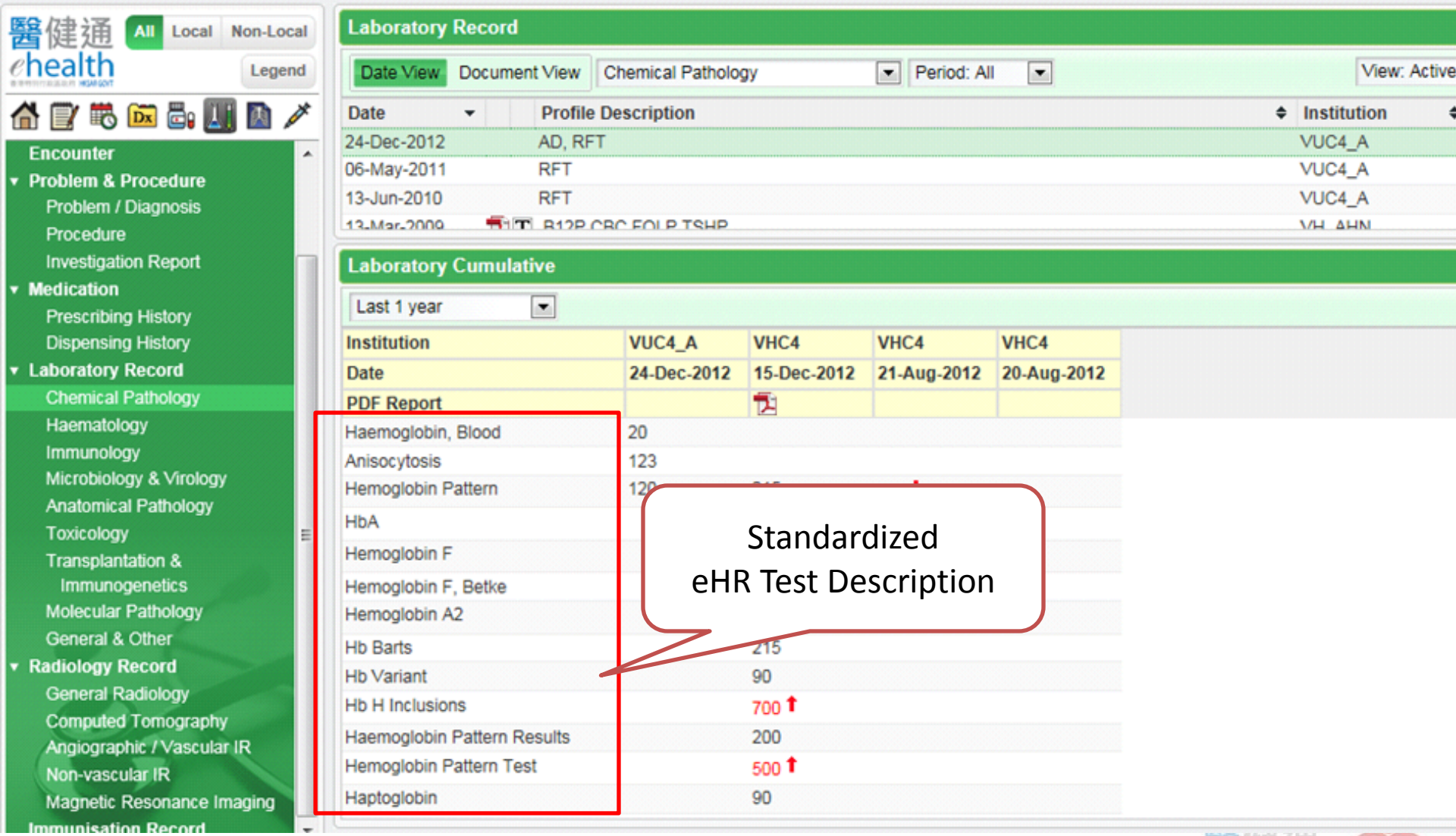


Editorial Guidelines – Test name

- The test name format and the order of the components are as follows:
  - <analyte>_[(<abbreviation>)],_[<system>],_[<qualifier>],_[<method>]
  - *Note:*
    - Component in square brackets is optional
    - An underscore indicates a space.
    - A comma is used in between components to separate them.
    - Capitalize first character of the every component after comma.
    - <system> can be optional if the specimen type information is indicated in another part of the record
  - e.g. Alpha-1-Fetoprotein, Serum
  - e.g. Follicle Stimulating Hormone, Serum
- …



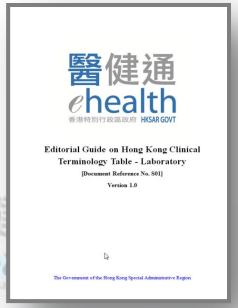
General Laboratory Result



Organism

With Lab DG members advice:

- The organism name format and the order of the components are listed as follows:
  - <genus>_<species>_[<life cycle>],_[<descriptor>]
  - *Note:*
    - Component in square brackets is optional
    - An underscore indicates a space.
    - A comma is place before descriptor
  - e.g. Escherichia coli

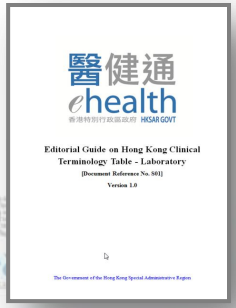


Specimen type (Microbiology)

With Lab DG members advice:

- ***Format of Specimen type***
  - <specimen>[,_<descriptor>]

  For multiple sites
  - *<1st specimen> [,_<1st descriptor]_+_*<2nd specimen> [,_<2nd descriptor>]_...
  - *Note:*
    - Components in square bracket is optional
    - An underscore indicates a space.
    - A comma is place before descriptor
    - A plus sign is used as connector between specimens obtained from multiple sites.
  - e.g. Dialysis fluid
  - e.g. Peritoneal dialysis fluid, post-dialysis
  - e.g. Vaginal + rectal swab



Laboratory data standardization

Type	Area	Terminology / Ref.	Status
Micro-organisms	HA and DH	SNOMED CT	~2700 concepts
Specimen type (Microbiology)	HA and DH	SNOMED CT	~460 concepts
Antibiotics sensitivity tests	HA and DH	LOINC	~2700*
Microbiology tests	HA and DH	LOINC	
Biochemistry tests (common)	HA and DH	LOINC	
Haematology tests (common)	HA and DH	LOINC	
Immunology tests (common)	HA and DH	LOINC	
Anatomical Pathology (T&M codes)	HA and DH	SNOMED CT	~5600*
Molecular/Esoteric tests	HA and DH	LOINC	In progress
Test description for eHR	eHR	LOINC & eHR DG (Lab)	Draft for DG (Lab) members comment
Editorial policy for laboratory terminology	eHR	LOINC & SNOMED CT & eHR DG (Lab)	Draft for DG (Lab) members comment

*Initial mapping completed. Refinements are required on complicated terms

LOINC Adoption Strategy

- Goals & Roles
- Discrete data elements for lab results
- Your LIS readiness for structured lab data
- LOINC training
- Mapping rules & validation
- Mapping target (80/20 rule)
- Implementation
- Maintenance

Questions

Thank You