



The LOINC Journey in Italy, Methods and Experiences

Elena Cardillo PhD,
Maria Teresa Chiaravalloti, PhD

Institute of Informatics and Telematics
National Research Council



ISTITUTO
DI INFORMATICA
E TELEMATIC



Consiglio Nazionale delle Ricerche
Istituto di Informatica e Telematica
Sede di Cosenza

Outline

Introduction and LOINC Italia presentation

LOINC related activities in the Italian EHR context

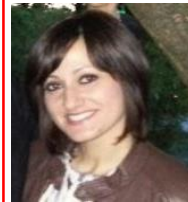
LOINC: concepts and uses

Mapping to LOINC: tips and experiences

Conclusions and Lessons learnt

Who we are

3 Technologists



3 Technicians



2 Researchers



1 Research fellow



What we do



Data modelling	Knowledge Management	Knowledge Representation	Document Management
Semantic Interoperability	Terminology Extraction	KOS development	Ontology building
Digital Preservation	Coding Support Services	Clinical data analysis	Indexing and Classification
Coding systems translation	Training	Technical support to Government actions	Telemedicine and televisit

Semantic Interoperability

Semantic interoperability is about ensuring that the meaning of the information exchanged is not lost in the process, that it is retained and understood by the people, applications and institutions involved.

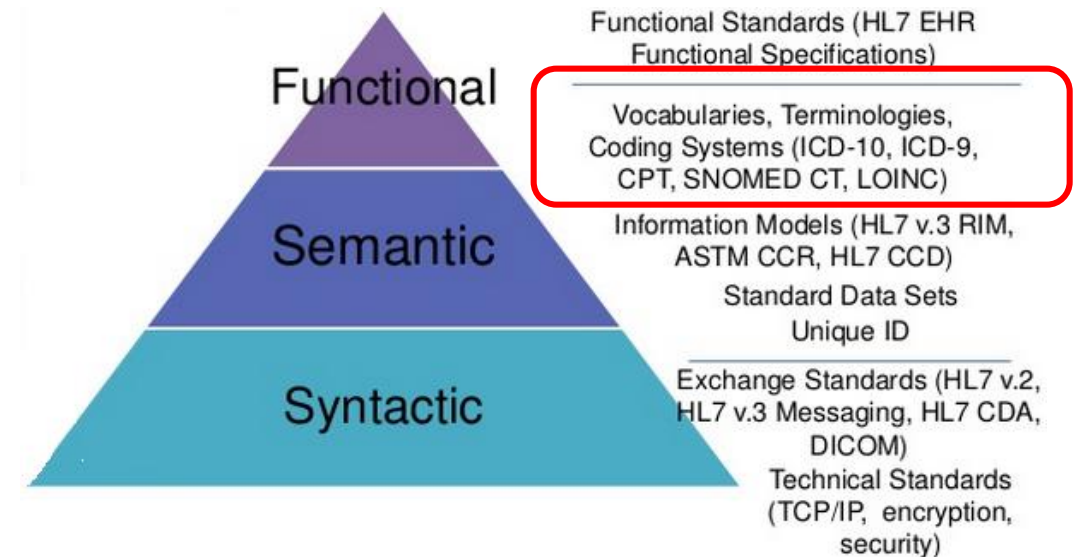
COMMISSION OF THE EUROPEAN COMMUNITIES, Brussels, 13.2.2006

COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT: Interoperability for Pan-European eGovernment Services



- Share Knowledge to improve patient care
- Use of standardized and certified solutions

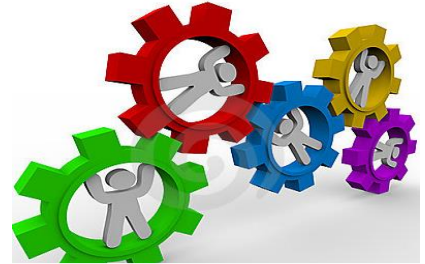
Standard create the opportunity for Interoperability



Nawanon Theera-Ampornpunt, "HL7 Standards", Mahidol University.

LOINC Italia

- Since 2010 we realize the LOINC Italian version
 - Biannual updates
 - Revisions and adjustments according to the Italian context of use
 - Italian translation of the LOINC online websearch and users' guide

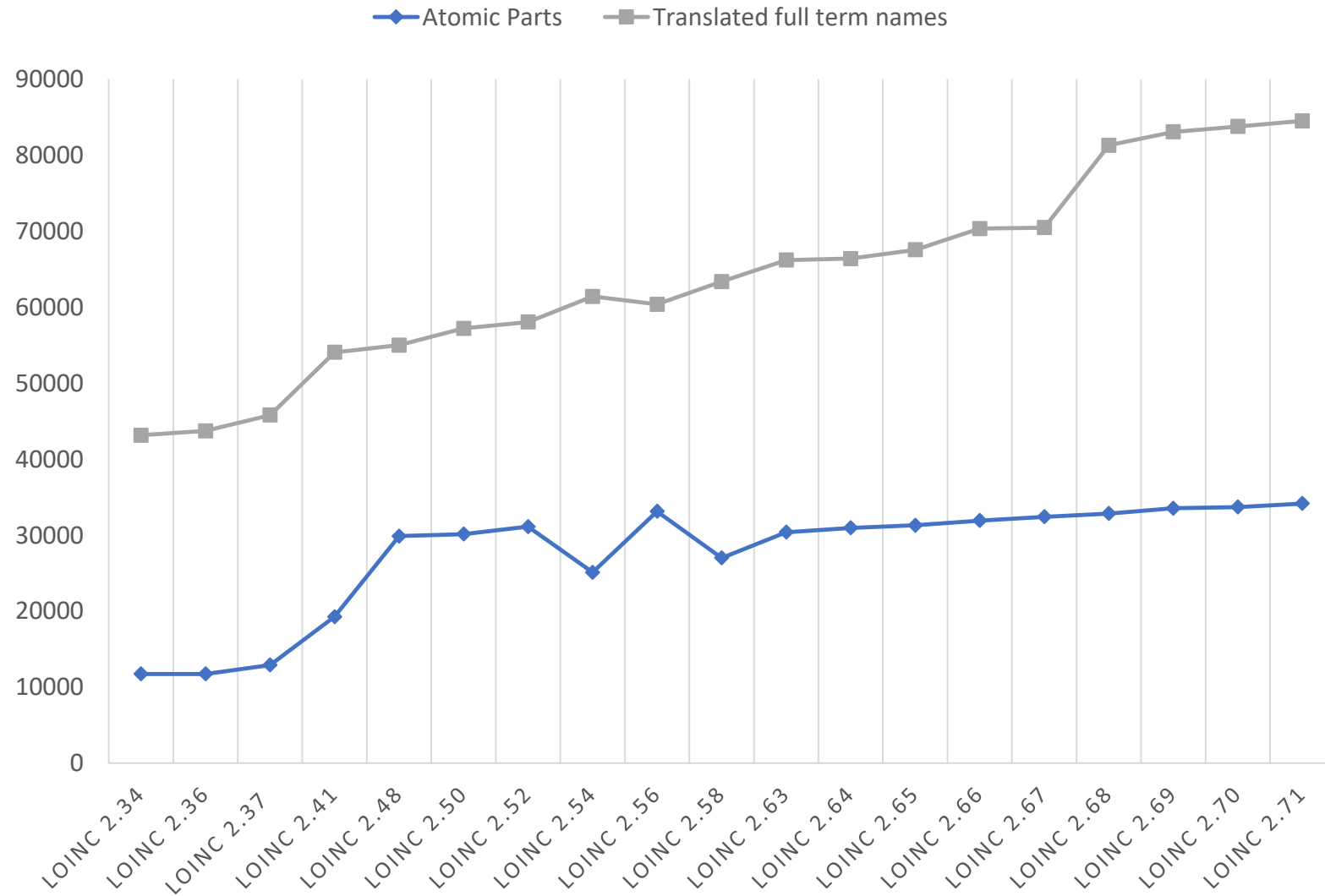


- 2014: Memorandum of understanding between Regenstrief Institute and IIT CNR

- Cooperation agreement with HL7 Italia (2015)



Italian Parts translation growth



LOINC Italia activities



- Support for LOINC implementation
 - Education, training and mapping validation

A screenshot of the LOINC Italia Support Center website. The page features a navigation bar with links for 'Pagina iniziale', 'Nuovo ticket', 'Stato del ticket', 'Documenti', 'FAQ', and 'Admin'. The main content area includes a welcome message, a description of the ticket system, and two main sections: 'Fai una nuova richiesta (nuovo ticket)' and 'Controlla lo stato di un ticket'. The 'Fai una nuova richiesta' section includes a form with an 'Apri un nuovo ticket' button. The 'Controlla lo stato' section includes a form with 'E-mail' and 'Ticket n.' fields and a 'Controlla stato' button.

- Online helpdesk www.loincitalia.it
 - Over 40 opened tickets
 - Over 50 helping requests via email
 - 18 new codes requests to the Regenstrief, 16 accepted

Coding Systems in the Italian e-health context

- Prime Minister Decree N. 178/2015 on the Italian Federated EHR
 - Addresses medical terminologies / standards use in two specific clinical documents: Patient Summary and Laboratory reports

ICD-9-CM

(International Classification of Diseases, Clinical Modification)

for diagnoses coding in the Problem list and for interventions coding in the Patient Summary

LOINC

(Logical Observation Identifiers Names and Codes)

for laboratory tests and observations coding in the Laboratory report

ATC

(Anatomical Therapeutic Chemical Classification)

for medications'active ingredient coding

AIC

(Autorizzazione all'Immissione in Commercio)

for medications'commercial name coding

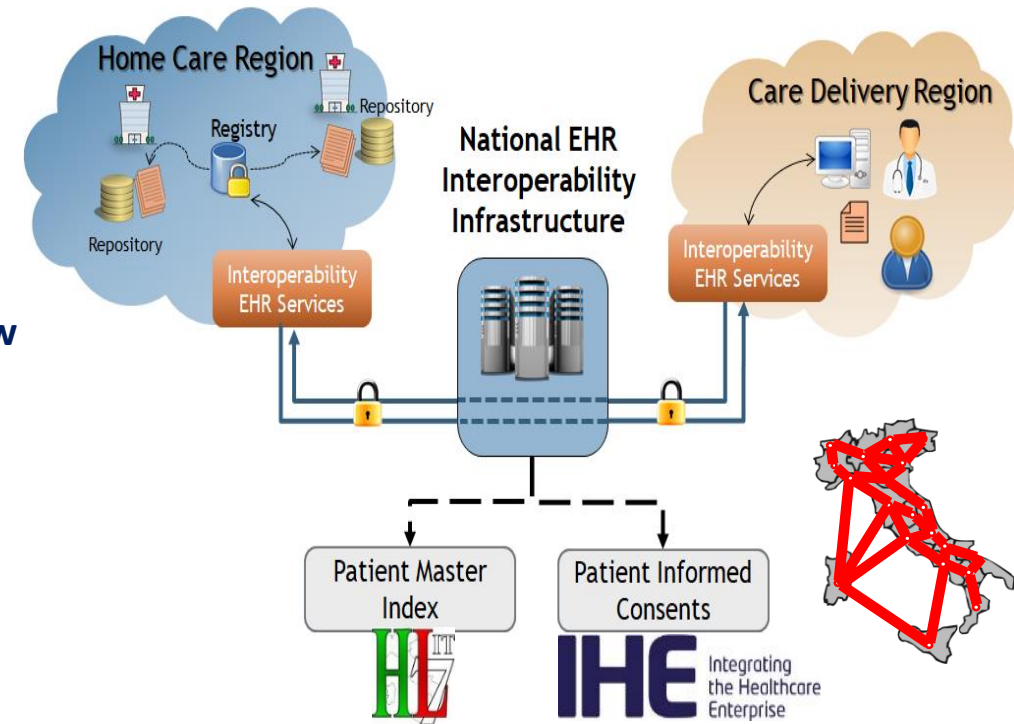
LOINC Italian and the National EHR Project

Project Objective:

To Design and validate the national federated ICT infrastructure to guarantee national and international interoperability of the local electronic health record systems

LOINC Italia activities:

- Implementation of LOINC as national standard for laboratory observations and document types encoding, enhancing its use in the HL7 CDA 2 IG
- Support to the Ministry of Health, AgID and HL7 Italy for the request of new LOINC codes for clinical documents
- Definition of a standardized Document type coding system mapped to LOINC
- Definition of terminology services and coding support tools to facilitate coding systems management and coding practice



For details: <http://www.fascicolosanitario.gov.it>

Terminology Service (STI) in the Italian EHR framework

STI has the aim to facilitate the use, management, and integration of clinical standards within the Italian EHR and represent it in a semantically consistent format

Features

- Based on HL7 Common Terminology Services Release 2 (CTS2)
- Devoted to: **Healthcare operators**, **GPs**, **laboratorians**, **Applications/services** and **regional referents**
- Provides a common platform for terminology updates
- Can include local catalogues and allows for their mapping to Standards
- Allows the possibility to include bilingual resources
- It's an open source sw promoted by stakeholders for experimental reuse by Public Administration in Italy



Terminology Service (STI) in the Italian EHR framework

Resource Navigation

Search

Cross Mapping

Export

Select the code system

LOINC

Language

ITA ENG

Text or code to search

glucose

Version

2.58

System

Bld

Time

All

Status

ACTIVE

Property

MCnc

Scale

Qn

Class

All






Method

All

Reset

Search

Search results: 6

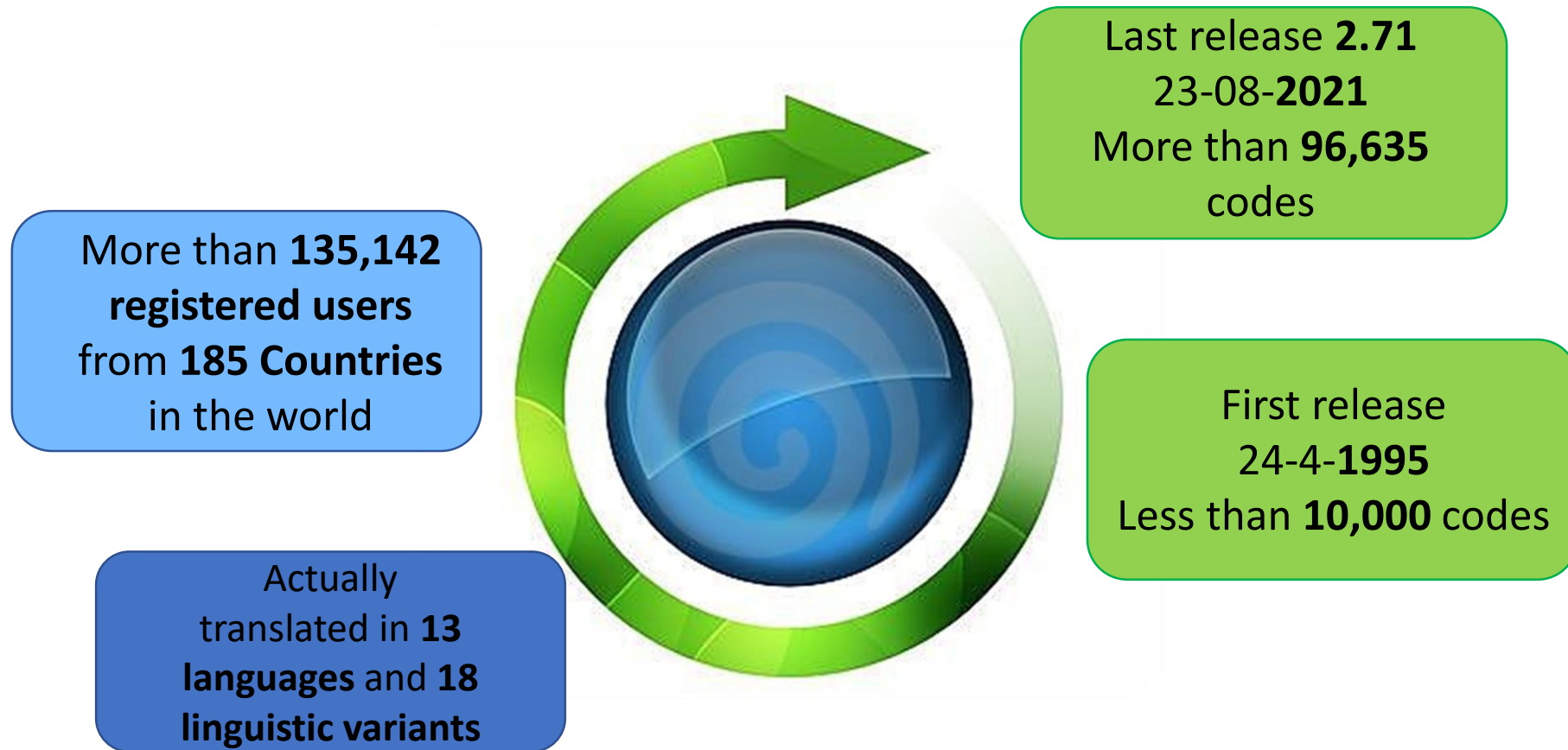
Code	Component	Property	Time	System	Scale	Method	Class	Version	Status	
2339-0	Glucose	MCnc	Pt	Bld	Qn		CHEM	2.58	ACTIVE	
2340-8	Glucose	MCnc	Pt	Bld	Qn	Test strip.automated	CHEM	2.58	ACTIVE	
2341-6	Glucose	MCnc	Pt	Bld	Qn	Test strip manual	CHEM	2.58	ACTIVE	
49134-0	Glucose^2H post dose glucose	MCnc	Pt	Bld	Qn		CHAL	2.58	ACTIVE	
27353-2	Estimated average glucose	MCnc	Pt	Bld	Qn	Estimated from glycated hemoglobin	CHEM	2.58	ACTIVE	

Logical
Observation
Identifiers
Names and
Codes



The Lingua Franca of clinical and laboratory observations exchange

LOINC codes over time and space



Why using LOINC?

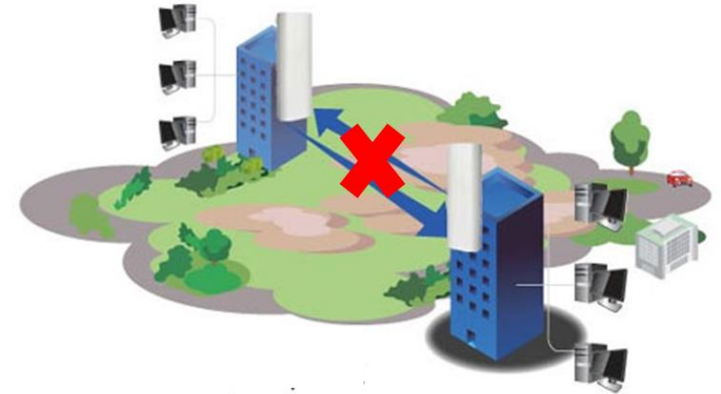
If the same thing is named differently?



Domain experts communication



Human-machine communication



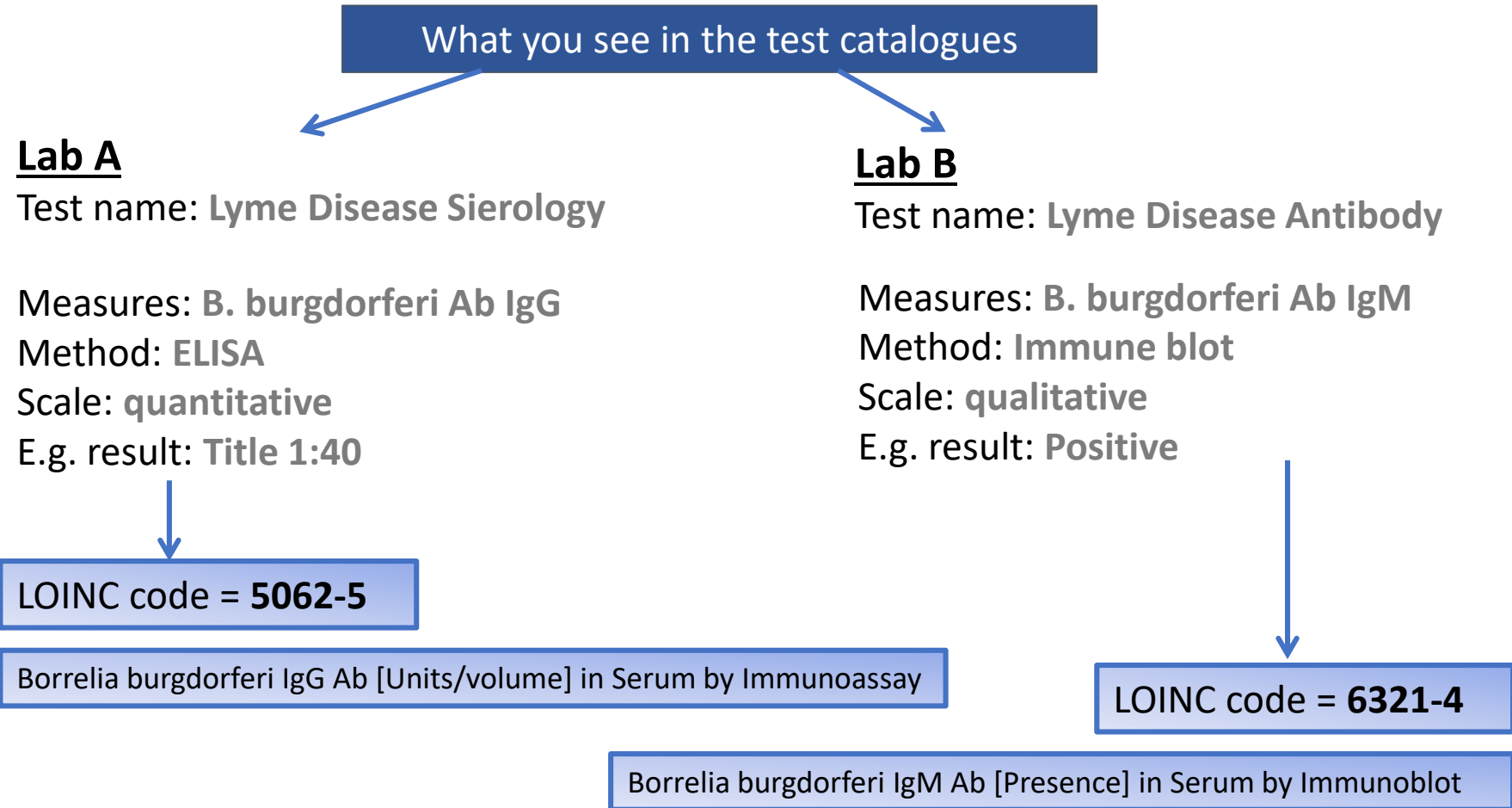
Machine-machine communication

Benefits in using LOINC

- High level of details in the identification of a clinical text
- Understandable and reusable results
- Aids data interoperability
- Improves analysis and reporting
- Useful for Clinical Decision Support and for a good administrative planning of the healthcare facility/laboratory
- Links clinical and billing data
- It is free



Sparkling or Soda?



What is coded by LOINC

If an observation is a question and the observation value is an answer ...

...**LOINC** provides codes for **questions**

In most cases the answer is a numeric value and there is no need to have a code to represent it

In other cases, the answer can be a coded value, deriving from **other vocabularies** (e.g., ICD, SNOMED, etc.), that provides codes for **answers**

I.e., *Blood culture*: will have a LOINC code to identify the test, but observable organisms could be potentially coded using other terminologies (e.g., SNOMED CT)

What is NOT coded by LOINC

- The tool used to carry out the test;
- Sample specific details;
- Priority;
- Where the test was performed;
- Who performed the test;
- Test Interpretation;
- Anything that is not critical to identifying the measurement.



LOINC main sections

1. Laboratory LOINC

Measurements and observations on a sample

What is my patient hemoglobin level?

718-7:Hemoglobin:MCnc:Pt:Bld:Qn

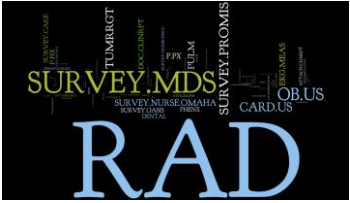


2. Clinical LOINC

Measurements and observations on a patient

How fast does my patient usually walk?

41959-8:Walking speed:Vel:1W^mean:^Patient:Qn:Calculated



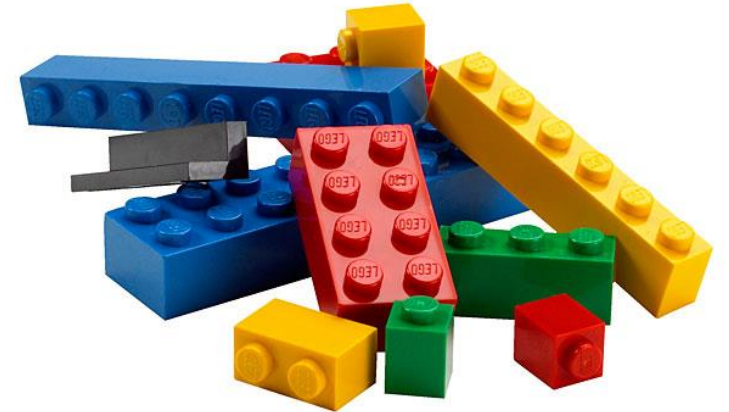
LOINC Names and Term Anatomy

Fully-specified: Contain all the information needed to uniquely identify a test

LOINC code: Unique ID assigned progressively

1. Component
2. Property
3. Time
4. System
5. Scale
6. Method

6 LOINC main axes



Axis 1: Component

<Analyte/component> <Property>:<time>:<system>:<scale>:<method>

**The Substance or measured, evaluated, or
observed entity
(e.g., Glucose, Hemoglobin, etc.)**

5792-7:Glucose:MCnc:Pt:Urine:Qn:Test strip

Axis 2: Property

<Analyte/component>:<**Property**>:<time>:<system>:<scale>:<method>

Characteristic or attribute of the analyte
(e.g., substance concentration,
mass, volume)

5792-7:Glucose:MCnc:Pt:Urine:Qn:Test strip

Axis 2: Property

It is not always specified in the names in the local test catalog, it is implied!

What is being measured?

- A mass?
- A concentration?
- A substance?
- A catalytic activity?
- A count?



2. Property (kind of quantity)

There is no one-to-one relationship between the LOINC code and unit of measure, but the Property axis gives an indication of which units of measure are admissible by a particular code.

Property generically indicates the relationship that the unit of measure expresses in a specific way

Some examples:

MCnc (Mass concentration), e.g., **mg/dL** = mass/volume;

MCnt (Mass contents) e.g., **mg/g**= mass/mass;

SCnc (Substance concentration) e.g., **umol/L**= moles/volume;



Axis 3: Time

<Analyte/component>:<Property> **<time >**:<system>:<scale>:<method>

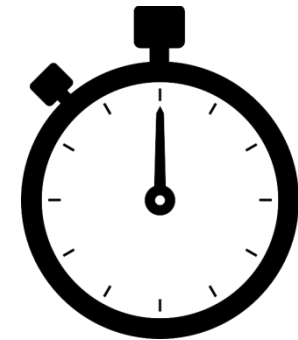
One can either measure a **Property** at a moment (**point**) in time or measure it over a time interval and integrate, in the mathematical sense, over time

5792-7:Glucose:MCnc:Pt:Urine:Qn:Test strip

Axis 3: Time

Example Duration Categories

- **Pt**: To identify measures at a point in time. This is a synonym for “spot” or “random” as applied to urine measurements.
- **12h**: measurement over an interval of 12 hours;
- **XXX**: Not specified; time will be reported in another part of the electronic message.



Axis 4: System

<Analyte/component>:<Property>:<time aspect> **<system>** :<scale>:<method>

The system (context) or sample
on which the observation is
carried out
(e.g., urine, serum, etc.)

5792-7:Glucose:MCnc:Pt:Urine:Qn:Test strip

4. System

Example Laboratory System/sample Types

- Ser: Serum
- Ser/Plas: Serum/Plasma
- Bld: Whole blood
- BldA: Blood arterial
- PPP: Platelet poor plasma
- Urine: Urine
- Body fld: Body fluid, unspecified
- Tiss: Tissiu unspecified
- XXX: To identify a material that is unknown or not specified)



Axis 5: Scale

<Analyte/component>:<Property>:<time>:<system>:<scale>:<method>

the Scale of the measure,
indicates the type of result
(e.g., qualitative, quantitative)

5792-7:Glucose:MCnc:Pt:Urine:Qn:Test strip

5. Type of Scale

- **Qn (Quantitative)**: The result of the test is a numeric value that relates to a continuous numeric scale (an integer, a ratio, a real number, or a range). E.g.: 7, -7, <10, 1-10, 1:256, etc.
- **Ord (Ordinal)**: Ordered categorical responses. E.g.: 1+, 2+, 3+; positive, negative; reactive, indeterminate, nonreactive.
- **Nom (Nominal)**: Nominal or categorical responses that do not have a natural ordering. E.g.: names of bacteria, reported as answers, categories of appearance that do not have a natural ordering, such as, yellow, clear, bloody, etc.
- **Doc (Document)**: A document that could be in many formats (e.g., clinical document)
- **Nar (Narrative)**: Text narrative



Axis 6: Method

<Analyte/component>:<Property>:<time>:<system>:<scale>:<method>

The Method by which the test was performed (e.g.,radioimmunoassay - RIA)

5792-7:Glucose:MCnc:Pt:Urine:Qn:Test strip

Axis 6: Method

- It is the only optional axis
- It is specified only when the same test, carried out with different methods, returns results with different clinical significance
- Generic level of detail:
 - HA - Agglutination: includes direct or indirect;
 - EIA: includes variants such as ELISA.



Recap on the LOINC term structure

Unique and progressive ID with a final check digit

Analyte attribute, related to the unit of measure

Type of sample sample on which the observation is carried out

Test Method

<Code>:<Component>:<Property>:<Time>:<System>:<Scale>:<Method>

Measured, evaluated or observed Substance or entity

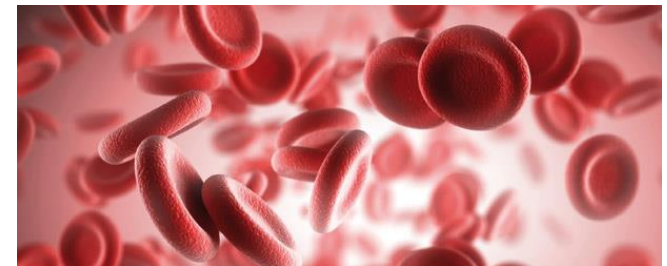
Time interval in which the observation or measurement is carried out

Measurement Scale

5792-7:Glucose:MCnc:Pt:Urine:Qn:Test strip

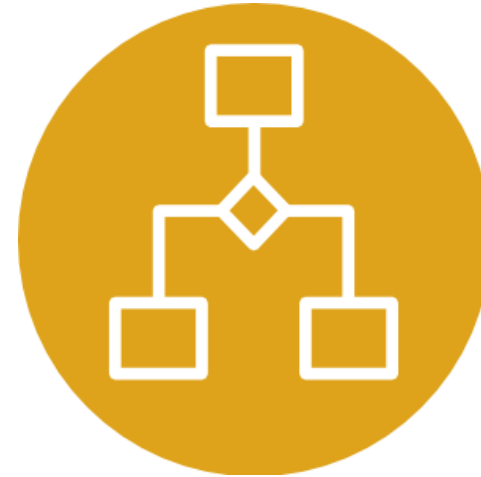
Other LOINC elements: Panels

- Collections of terms to represent specific sets of information
- Use common names (e.g., Short blood count), which correspond to what arrives as request to the lab
- Detailed names for the individual test that make up the battery (e.g., leukocytes, hemoglobin, etc.), which can be visualized in the laboratory report
- Be careful to the mapping!
- There can be innested panels



Mapping to LOINC

To share data from
different sources ...



... every local term must be
mapped to a universally
recognized term

Mapping to LOINC

What is

Process that establishes unique correspondences between concepts having the same meaning but belonging to different resources

Between coding systems

- Association of concepts or terms from one coding system (*source*) to concepts or terms in another coding system (*target*) to define their equivalence according to a documented logic and a given purpose
- The mappings represent the agreement reached between domain experts expressed in the form of correspondence tables

Why mapping?

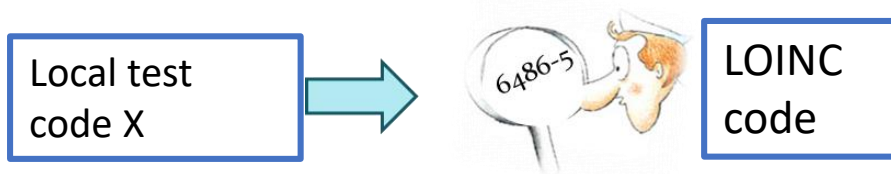
- To ensure an unambiguous and effective exchange of information
- To maintain data value when migrating to new database and schema formats
- To aggregate data from different sources for research purposes, quality improvement, epidemiological surveillance, etc.
- To avoid multiple entry of the same data, thus reducing costs and the possibility of errors



Mapping to LOINC

The need

Establish unique correspondences
between local codes and LOINC codes



Who should do it



How

welcome to
RELMA®
the Regenstrief LOINC Mapping Assistant

Mapping to LOINC

From source or starting code system, from which the mapping must be carried out ...


... **to** target or destination code system, towards which the starting terminology is to be mapped

Mappings to LOINC are always of type 1 : 1



Local coding system  LOINC

Basic criteria

- Correct interpretation of the concepts of terminology or descriptions of the starting classification so as to ensure equivalence between different systems
- Equivalence must be based on the meaning to be conveyed and not on its graphic form
 - Two terms that have the same spelling do not necessarily designate the same meaning 

Basic criteria

- It is not just a computer issue
- It is necessary to understand the structure of the terminology
- You need to know how the exams are actually performed
- Clinical knowledge is needed

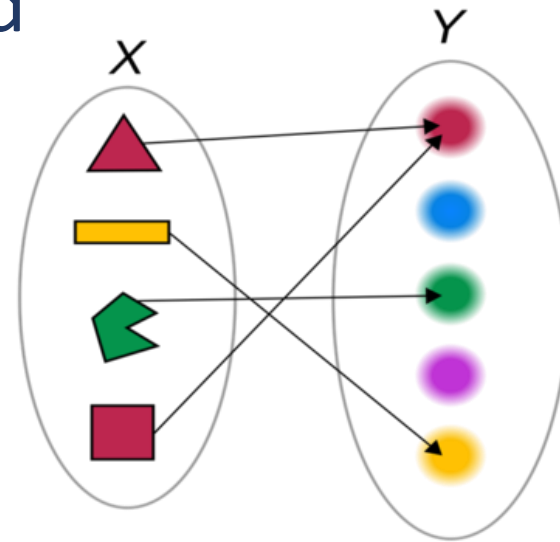


To keep in mind

- Lab A and Lab B can carry out tests that are identical in appearance (based only on the name), but different in substance (unit of measure, method, etc.)
- For this reason pay attention if you want to put the catalogs of n laboratories in common and create mappings that are valid for all
- The expertise of those who specifically know the exam is required because they perform it, know the machines, know the sample, know the type of result

To keep in mind

Mapping is a process that takes once in a consistent way and then requires only a few periodic updates ...



To keep in mind

... LOINC codes remain mostly transparent to users, who do not have to change their work habits, because LOINC codes complement local ones and bind to them thanks to mapping operations



Mapping tips and experiences



How to map

1. Always consider the possibility of searching through synonyms or alternative names of the analyte
2. Always try to map to the LOINC code which represents all known information on the exam
3. Pay attention to the method: always specify it whenever possible



How to map

4. Don't fall back too easily to codes that contain generic XXX characters, but leave them as a last choice
5. If you are sending tests to an external lab, ask them for the proper LOINC codes to identify exactly which test they perform
6. Always map to method codes if available, otherwise granularity of clinical information is lost

LOINC Mapping tactics

- Limit effort to one lab section at a time and focus expertise
- Chemistry and hematology will be easiest
- For manufactured assays, use package insert as source information
- Sample results give clue to Property and Scale
- Consider prioritizing by frequency of use
- You may have a test that need to be added to LOINC



Mapping – Property axis

- Indicates the type of measurement carried out in relation to the substance or nature of the observation
 - *It is specified in the second part of the name*
- It is the axis to pay more attention to during mapping, because:
 - *Less immediate;*
 - *To be derived from the information in the local exam catalog;*
 - *More time is needed to familiarize yourself with the acronyms of the axis.*



Mapping – Method axis

- Method according to which the test is carried out
 - it is indicated only if it serves to distinguish between tests that measure the same analyte with methods that have different clinical relevance
- Eg. The DNA / RNA probes:
 - Probe (without amplification)
 - Probe.amp.tar (Probe and amplification of target nucleic acids)
 - PCR or Polymerase Chain Reaction
 - TMA or Transcription Mediated Amplification
 - CSF or Ligase Chain Reaction
 - Probe.amp.sig (Probe and signal amplification of nucleic acids)
 - HPA or Dosage with hybridization protection (applies to RNA)
 - branched chain bDNA



Mapping – Panels

- To establish equivalence (e.g. for mapping), a user panel must contain all of the required elements of a LOINC panel (see the Users' guide for few exceptions). This is not valid for optional elements.
- The predefined panels in the LOINC system do not always correspond to the series of exams as they are carried out in Italy
- It is therefore not always possible to find a LOINC code identifying the entire panel
- It is therefore necessary to carry out mapping at the level of the individual exams that make up the battery



Vendors instruments and kits

- Medical information system vendors want to install their systems with a usable starter set of standard codes for common orders. They also want standard codes to ease the cross communications among merging hospitals
- The LOINC/IEEE Medical Device Code Mapping Table: the main file contains linkages between LOINC terms and content from IEEE 11073-10101 ISO standard

May I reuse mappings of the others?

Reference laboratories

- Check your reference lab if you send your test to be examined outside
- In the United States, many large reference laboratories publish the LOINC mappings for each test in their online catalog
- it is always a good idea to double-check mappings published by other organizations **BUT** not all laboratories perform the same test or report results in the same way, so review the details provided by the reference laboratory to be sure the test is the same as yours

In vitro diagnostics (IVD) vendors

- Many IVD vendors have mapped their orders and test results to LOINC terms
- Some vendors publish these mappings publicly, but more often the specific maps for a particular device are available to customers who purchase that device.
- Double-check with your IVD representative if any LOINC mappings are available, but keep in mind that the list provided will likely cover all approved uses of the test kit, not just the ones implemented in your laboratory

May I reuse mappings of the others?

National Health Systems

- The ideal situation would be having databases with constrained subsets of LOINC terms that are applicable within the context of that country, and lists of observations and their associated LOINC terms.
- Several countries also publish mappings from their national billing codes to LOINC

Suggestions for preparing catalogs

- If we consult the local exam catalog, we will probably find that:
 - Many tests are no longer carried out
 - There is a lack of detailed information such as units of measure, types of results

Panels must be disaggregated, specifying in detail each exam that is part of the group, even if this should eventually involve repetitions. What will be mapped is, in fact, the single test and not the battery of exams as a whole.

**Will this code
be right?**



**No result! And
now?**



The wisdom of the crowd

Interoperable Data Exchange with LOINC - Learning from the Crowd

Tap into the wisdom of the LOINC crowd.

Over the past few months we've build a community mapping repository that stores mappings of local test codes to LOINC codes We added some exciting new features to RELMA that tap into that community wisdom.

RELMA now shows counts of how many others have mapped to a particular LOINC code and the names of those local tests/variables.



crowd photo via jamescridland

Plus, RELMA now makes it easy to add your mappings into the shared repository so others can benefit from what you've done.

We think these will be really helpful, particularly to novice LOINC mappers.

All you have to do to see these mappings is login to RELMA with your loinc.org credentials and they'll magically appear in your search results. Look for the ComMaps and ComInst columns!

of codes and institutions mapped to this LOINC

Click here to see the local codes!

Row	LOINC	Component	Property	Timing	System	Scale	Method	RUOUI	ComInst	ComMaps	Rank	ComInst	ComMaps
9	13458-5	CholesterolIn.VLDL	MCnc	Pr	Ser/Plas	Qn	Calculated	mg/dL	23	2	68	191	191
23	43290-1	CholesterolNon.HDL	MCnc	Pr	Ser/Plas	Qn		mg/dL	23	2	289	191	191
38	51220-2	Lipoprotein(a)beta(Lipoprotein(a))	MRP	Pr	Ser/Plas	Qn	%		2	2			
34	56777-4	Lipoprotein(a)beta(Lipoprotein(a))	MRbp	Pr	Ser/Plas	Qn			2	2			
8	2091-7	CholesterolIn.VLDL	MCnc	Pr	Ser/Plas	Qn		mg/dL	2	2	219	191	191
35	43720-5	Lipoprotein(a)beta(a)beta(cholesterol)	SCnc	Pr	Ser/Plas	Qn	mmol/L		2	2			
42	3040-8	TriglycerideIn.VLDL	MCnc	Pr	Ser/Plas	Qn		mg/dL	1	1			
41	3040-2	TriglycerideIn.VLDL	MCnc	Pr	Ser/Plas	Qn		mg/dL	1	1			
16	46866-6	CholesterolIn.VLDL.3	MCnc	Pr	Ser/Plas	Qn		mg/dL	1	1	765	191	191
12	66120-4	CholesterolIn.VLDL	SCnc	Pr	Ser/Plas	Qn	Calculated	mmol/L	1	1			
21	64490-8	CholesterolIn.VLDL.Lab	MCnc	Pr	Ser/Plas	Qn		mg/dL	1	1			
31	17947-5	Lipoprotein(a)beta	ACnc	Pr	Ser/Plas	Ord		mg/dL	1	1			
2	2087-5	CholesterolIn.EL	MCnc	Pr	Ser/Plas	Qn		mg/dL	1	1	763	191	191
6	50194-0	CholesterolIn.EL+CholesterolIn.VLDL.3	MCnc	Pr	Ser/Plas	Qn		mg/dL	1	1	794	191	191
32	42254-8	Lipoprotein(a)beta	EstLam	Pr	Ser/Plas	Qn		mm	1	1			
15	50182-4	CholesterolIn.VLDL.L(2+3)	MCnc	Pr	Ser/Plas	Qn		mg/dL	1	1			
40	53224-0	TriglycerideIn.VLDL	SCnc	Pr	Ser/Plas	Qn		mmol/L	1	1			
13	46810-3	CholesterolIn.VLDL	MCnc	Pr	Ser/Plas	Qn		mg/dL	1	1			
24	20860-5	Lipoprotein(a)beta(Lipoprotein(a))	ACnc	Pr	Ser/Plas	Ord		mg/dL	1	1			
37	32424-4	Lipoprotein(a)beta(Lipoprotein(a))	MRP	Pr	Plr.Fld	Qn	%						
25	47220-2	CholesterolNon.HDL+CholesterolIn.VLDL	MRbp	Pr	Ser/Plas	Qn							
26	46720-5	Lipoprotein(a)beta+Triglyceride	MRbp	Pr	Ser/Plas	Qn							
5	56120-7	CholesterolIn.EL.2	SCnc	Pr	Ser/Plas	Qn		mmol/L					



Mapping of other users

Regenstrief LOINC Mapping Assistant (RELMA) - Map Local Terms for Villa del Sole 1

File Tools HIPAA Lab Auto Mapper View Help

Welcome mtchiaravallotti log out

Search Mapping View All Working Set Terms Hierarchy & Search Limits Part Search Answer List Search

glucosio Units Search ?

Use Standard Search No Common Limits

Grid Tree

Ro	Sc	LOINC	Component	Property	Timing	System	Scale	Method	Ex	Ex	Ra	SI	LForms	ComMaps	Cl
74	6,	53093-1	Glucosio^post XXX provocazione	SCnc	Pt	Siero/Plas...	Qn		m	m				139	CH
10	5,	2345-7	Glucosio	MCnc	Pt	Siero/Plas...	Qn		m	m				132	CH
10	5,	14749-6	Glucosio	SCnc	Pt	Siero/Plas...	Qn		m	m				79	CH
73	5,	1558-6	Glucosio^post digiuno	MCnc	Pt	Siero/Plas...	Qn		m	m				75	CH
10	5,	25428-4	Glucosio	ACnc	Pt	Urine	Ord	Test strip						74	UA
42	10	20436-2	Glucosio^2h post dose glucosio	MCnc	Pt	Siero/Plas...	Qn		m	m				58	CH
73	5,	14771-0	Glucosio^post digiuno	SCnc	Pt	Siero/Plas...	Qn		m	m				55	CH
65	5,	14744-7	Glucosio	SCnc	Pt	LCS	Qn		m	m				48	CH
11	5,	5792-7	Glucosio	MCnc	Pt	Urine	Qn	Test strip	m	m	73			43	UA
32	10	20438-8	Glucosio^1h post dose glucosio	MCnc	Pt	Siero/Plas...	Qn		m	m	92			43	CH
68	5,	14745-4	Glucosio	SCnc	Pt	Liquido...	Qn		m	m		78		40	CH
77	4,	2356-4	Glucosio-6-Fosfato deidrogenasi	ACnc	Pt	RBC	Ord							38	CH
52	10	20437-0	Glucosio^3h post dose glucosio	MCnc	Pt	Siero/Plas...	Qn		m	m	88			33	CH
86	5,	2339-0	Glucosio	MCnc	Pt	Sangue	Qn		m	m	13			29	CH
30	10	1504-0	Glucosio^1h post 50 g glucosio...	MCnc	Pt	Siero/Plas...	Qn		m	m	33			27	CH
77	4,	32546-4	Glucosio-6-Fosfato deidrogenasi	CCnt	Pt	RBC	Qn		U/	U/	15	15		26	CH
71	6,	1547-9	Glucosio^baseline	MCnc	Pt	Siero/Plas...	Qn		m	m				20	CH
67	5,	2344-0	Glucosio	MCnc	Pt	Liquido...	Qn		m	m	78			19	CH

Units Specimen Methodless No Common Limits Battery

888 records found: 1,33s

Ascending or descending order by clicking on the column header

Mapping of other users

Community Mapping Display for LOINC 53093-1

53093-1 Glucose [Moles/volume] in Serum or Plasma --post XXX challenge

NAME

Fully-Specified Name:	Component	Property	Time Aspe	System	Scale	Method
	Glucose^post XXX challenge	SCnc	Pt	Ser/Plas	Qn	

Mappings from the LOINC Community

Battery Code	Battery Name	Local Code	Local Test Name	Units	Language	Institution
		DGLU	Glucose (mmol/L)		English (US)	Hong Kong Hospital Authority
		DGLU	Glucose	mmol/L	English (US)	Hong Kong Hospital Authority
		DGLU	Glucose (DFT)	mmol/L	English (US)	Hong Kong Hospital Authority
		DGLU	Glucose (mmol/L)		English (US)	Hong Kong Hospital Authority
		DGLU	Glucose (OGTT)	mmol/L	English (US)	Hong Kong Hospital Authority
		DGLU	Glucose(mmol/L)		English (US)	Hong Kong Hospital Authority
		DGLU	Glucose, Plasma	mmol/L	English (US)	Hong Kong Hospital Authority
		DGLU1	Glucose (mmol/L)		English (US)	Hong Kong Hospital Authority
		DGLU2	Glucose (mmol/L)		English (US)	Hong Kong Hospital Authority
		DGLUP	Glucose (Glu. Profile)	mmol/L	English (US)	Hong Kong Hospital Authority
		DRG	Glucose (DFT)	mmol/L	English (US)	Hong Kong Hospital Authority
		DRG1	Glucose (DFT)	mmol/L	English (US)	Hong Kong Hospital Authority
		GTT0	Glucose Tolerance Test fasting	mmol/L	English (US)	Hong Kong Hospital Authority
		DRG	Glucose (DFT)	mmol/L	English (US)	Hong Kong Hospital Authority
		DRG1	Glucose (DFT)	mmol/L	English (US)	Hong Kong Hospital Authority
CAPD	Kinetic study for CAPD Patient	DFGLU	Glucose (mmol/L)		English (US)	Hong Kong Hospital Authority
CAPFT	Combined Anterior Pituitary	DGLU2	Glucose (mmol/L)		English (US)	Hong Kong Hospital Authority

Help desk online - www.loincitalia.it


The screenshot shows the LOINC Support Center website. At the top left is the logo for LOINC Italia, featuring a green circle with 'LIT' and the text 'LOINC Italia'. To its right is the text 'SUPPORT CENTER TICKET TRACKING'. On the top right, it says 'CNR - IIT UOS DI RENDE (CS)' and 'SISTEMA DI SUPPORTO A TICKET'. Below the header is a navigation bar with links: 'Pagina iniziale', 'Nuovo ticket', 'Stato del ticket', 'Documenti', 'FAQ', and 'Admin'. The main content area starts with a heading 'Benvenuto nel centro di supporto LOINC' followed by a paragraph explaining the ticket system. Below this are two main sections, each circled in red. The first section, 'Fai una nuova richiesta (nuovo ticket)', includes a description and a button 'Apri un nuovo ticket'. The second section, 'Controlla lo stato di un ticket', includes a description, two input fields for 'E-mail' and 'Ticket n.', and a button 'Controlla stato'. The footer contains the copyright notice 'Copyright © osTicket.com. All rights reserved'.

LOINC Italia **SUPPORT CENTER** TICKET TRACKING CNR - IIT UOS DI RENDE (CS)
SISTEMA DI SUPPORTO A TICKET


[Pagina iniziale](#) [Nuovo ticket](#) [Stato del ticket](#) [Documenti](#) [FAQ](#) [Admin](#)

Benvenuto nel centro di supporto LOINC

Per gestire tutte le richieste di supporto e rispondere nel più breve tempo possibile, utilizziamo un sistema a ticket. Ad ogni richiesta effettuata viene assegnato un ticket univoco con il quale ti sarà possibile seguirne online lo stato e visualizzare le risposte. Per approfondimenti, ti forniamo l'accesso agli archivi e allo storico delle domande passate delle precedenti richieste di supporto. Per poter ricevere il ticket e le risposte è necessario fornire un indirizzo e-mail valido.

 **Fai una nuova richiesta (nuovo ticket)**
Inserisci il maggior numero possibile di dettagli per permetterci di capire bene la richiesta e poterti rispondere nel modo più completo. Per aggiornare un ticket precedentemente aperto, utilizza il form sulla destra.

Apri un nuovo ticket

 **Controlla lo stato di un ticket**
Inserisci il tuo indirizzo email e il numero del ticket di cui vuoi conoscere lo stato. Avrai così accesso anche al tuo archivio storico.


E-mail:

Ticket n.:

Controlla stato

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Help desk online - www.loincitalia.it

**LOINC**[®]
Italia

SUPPORT CENTER
TICKET TRACKING

CNR - IIT UOS DI RENDE (CS)

SISTEMA DI SUPPORTO A TICKET

[Pagina iniziale](#) [Nuovo ticket](#) [Stato del ticket](#) [Documenti](#) [FAQ](#) [Admin](#)

Per aprire una nuova richiesta, compila il form. I campi con asterisco sono obbligatori.

Nome completo: *

Indirizzo E-mail: *

Telefono: **Interno:**

Categoria della richiesta: *

Argomento: *

Messaggio:

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After mapping...validation and maintenance

Validation

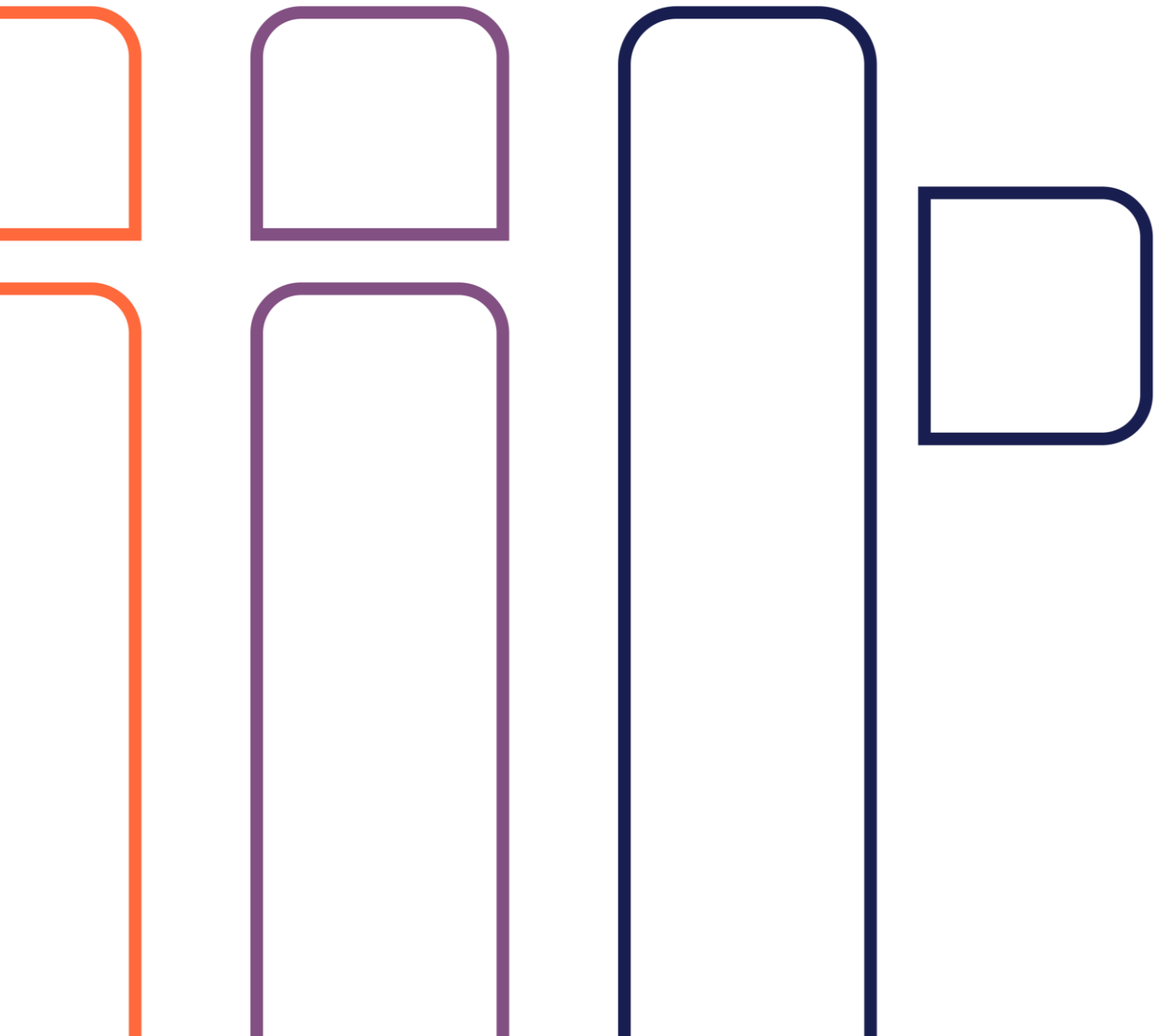
- It should be performed by a third part which is LOINC expert and with support of lab professionals for any need of information about mapped tests
- We adopted a classification system for each mapping:
 - Right
 - wrong with indication of the right LOINC
 - wrong with requests of more info
 - More info to be required to Regenstrief
 - Candidate to submission
- Continuous exchange with the mappers until the file is completely correctly mapped

Maintenance

- Both LOINC and local tests continue to evolve
- Replacement and addition in local catalogues
- Check new codes in LOINC each release (Feb and Aug) and the file «map to»

Lessons learnt

- Mapping is not a delegable duty
- If you work together, you go faster
- Starting from a detailed local catalogue can make the difference
- Starting from the branch you are more familiar with will get you in confidence with the LOINC naming conventions
- Divide the catalogue according expertise
- If you manage to map local catalogues among them, then it will be easier go together towards LOINC
- **BUT** you have to be sure two tests are completely equivalent...*remember sparkling or soda??* 🤔



Thank
you!



elena.cardillo@iit.cnr.it
maria.chiaravalloti@iit.cnr.it
www.loincitalia.it

