

A lingua franca for clinical observations in electronic messages and attachments

Daniel J. Vreeman, PT, DPT, MSc

Assistant Research Professor, Indiana University School of Medicine Research Scientist, Regenstrief Institute, Inc





Regenstrief Institute
Medical Informatics

Questions l'Il Address

What is LOINC? (not on the list)

What is the set of attachment standards being recommended for adoption?

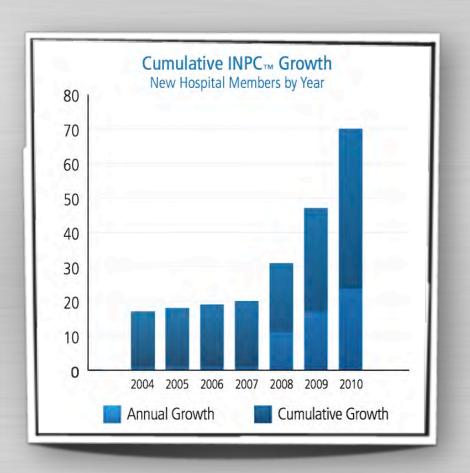
Are there any known limitations or gaps in the recommended standards? How will they be addressed?

Are the recommended standards applicable only to claim attachments or will they be applicable also to other types of attachments?

Regenstrief Informatics Pioneers

40 years of EMR work Indiana Network for Patient Care

Nation's most comprehensive and longest tenured HIE





Fundamental challenge:

Local systems have different ways of identifying the same concept. And, things that look alike aren't the same.

Lab A

Test Name: Lyme Disease Serology

Lab A

Test Name: Lyme Disease Serology

Lab B

Test Name: Lyme Disease Antibody

What you see in the test catalog

Lab A

Test Name: Lyme Disease Serology

Lab B

Test Name: Lyme Disease Antibody

What you see in the test catalog

Lab A

Test Name: Lyme Disease Serology

Lab B

Test Name: Lyme Disease Antibody

Measures: B. burgdorferi Ab IgM

Method: Immune blot

Scale: qualitative

e.g.: Positive

What you see in the test catalog

Lab A

Test Name: Lyme Disease Serology

Measures: B. burgdorferi Ab IgG

Method: ELISA

Scale: quantitative

e.g.: Titer 1:40

Lab B

Test Name: Lyme Disease Antibody

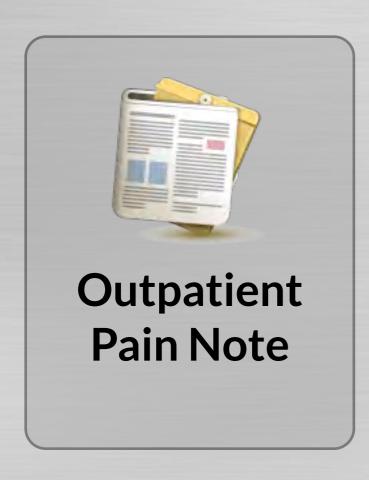
Measures: B. burgdorferi Ab IgM

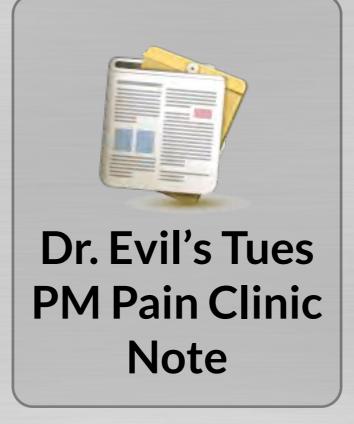
Method: Immune blot

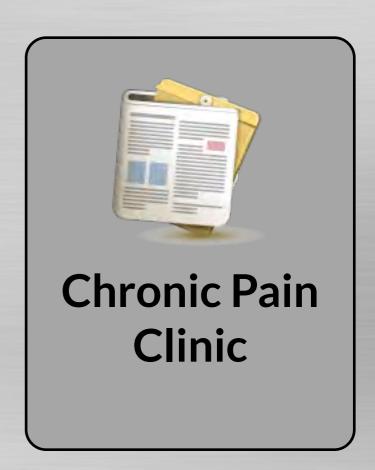
Scale: qualitative

e.g.: Positive

Same phenomenon in many domains...







A vocabulary standard would serve as the Rosetta Stone.



Image © Hans Hillewaert / <u>CC-BY-SA-3.0</u>

_ogical Observation dentifiers ames and Codes

A universal code system that facilitates exchange, pooling, and processing of results

Worldwide distribution at no cost.

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Worldwide distribution at no cost.

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Just don't use it to make another standard!
Copyrighted, but open license.

Laboratory LOINC

Microbiology Tests

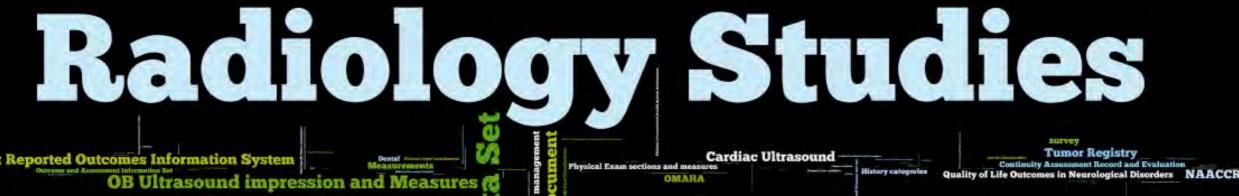
Chemistry non challenge tests

Allergy Testing

Challenge chemistry tests

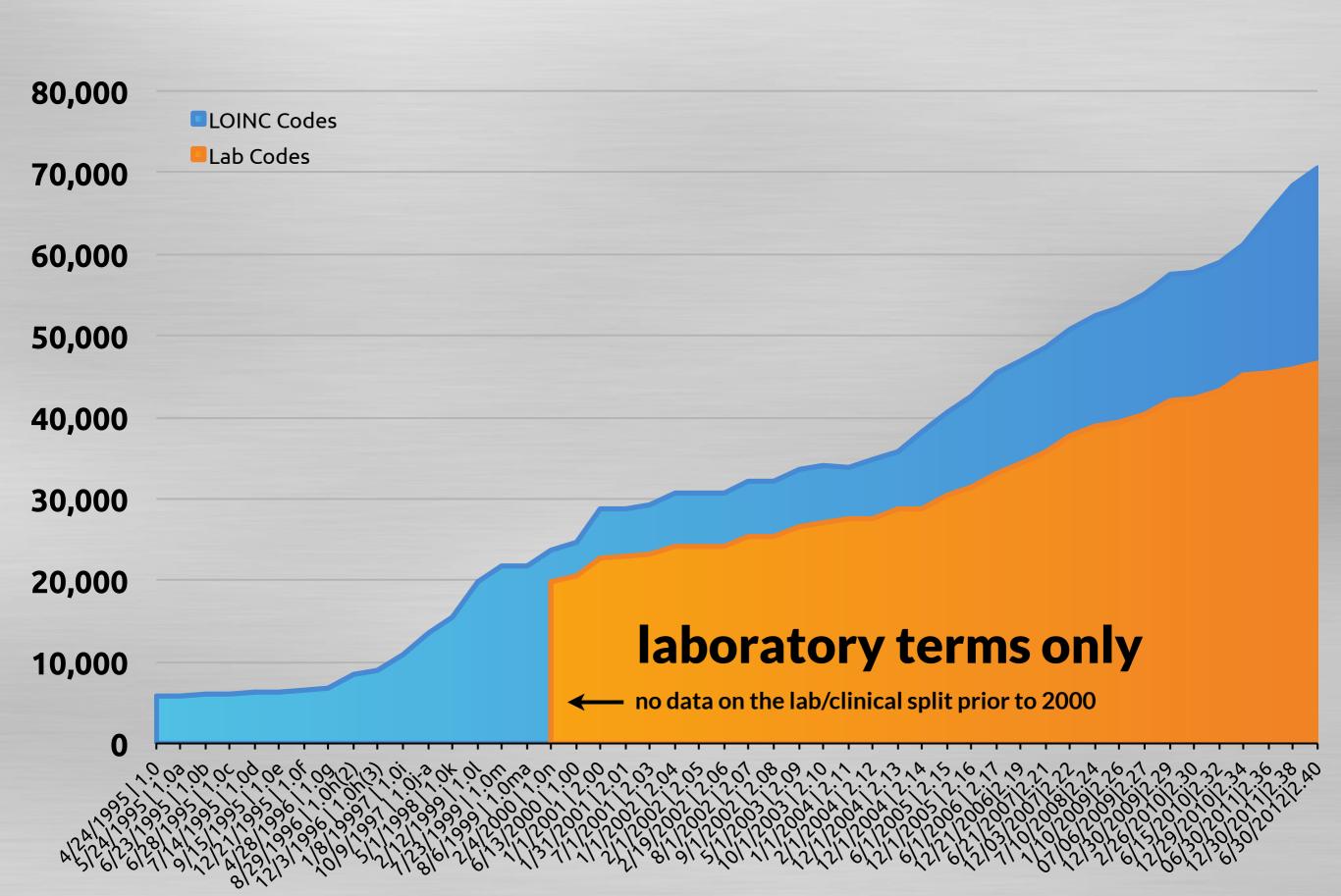
Drug toxicology tests

Clinical LOINC



PhenX

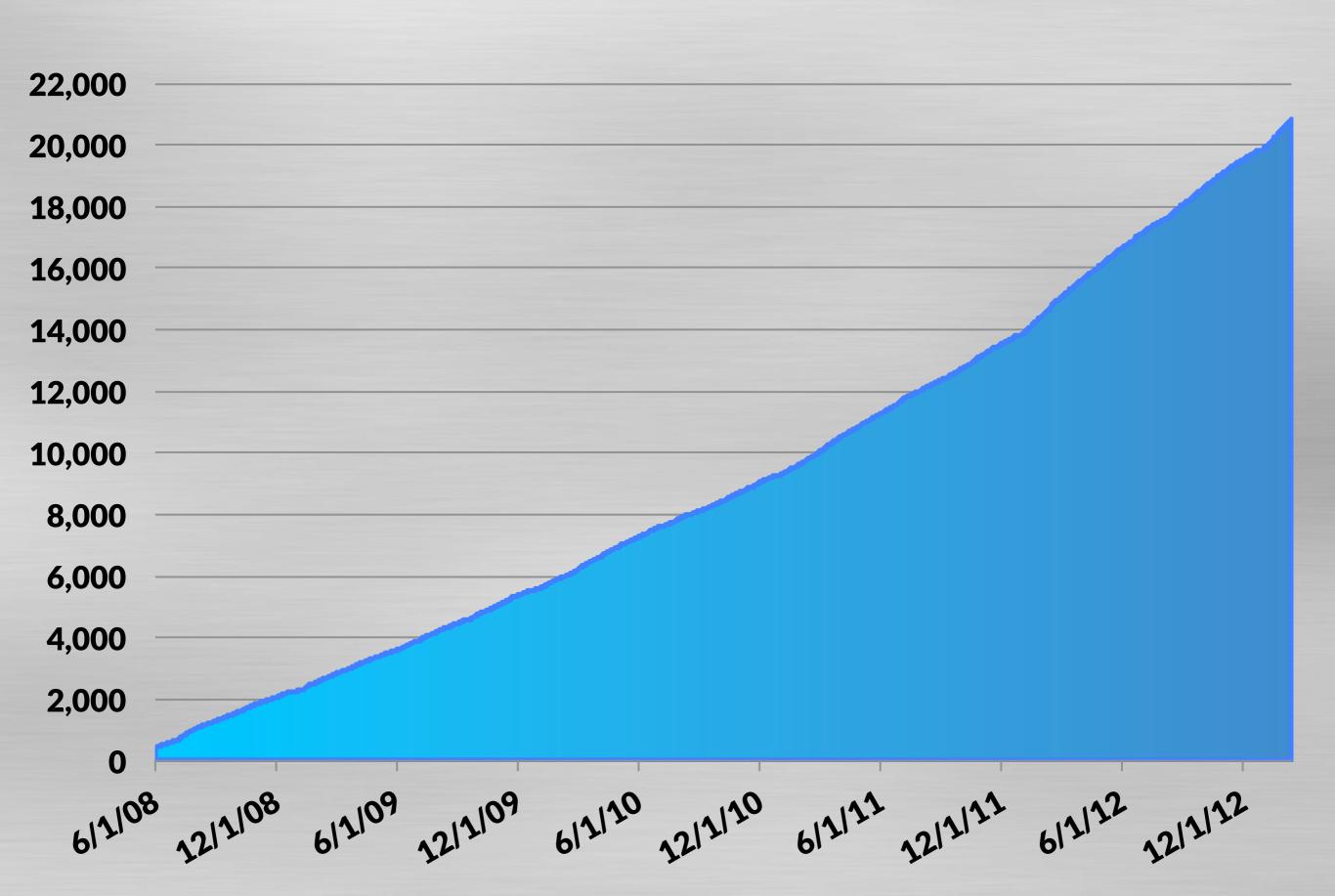
LOINC Codes Over Time by Release



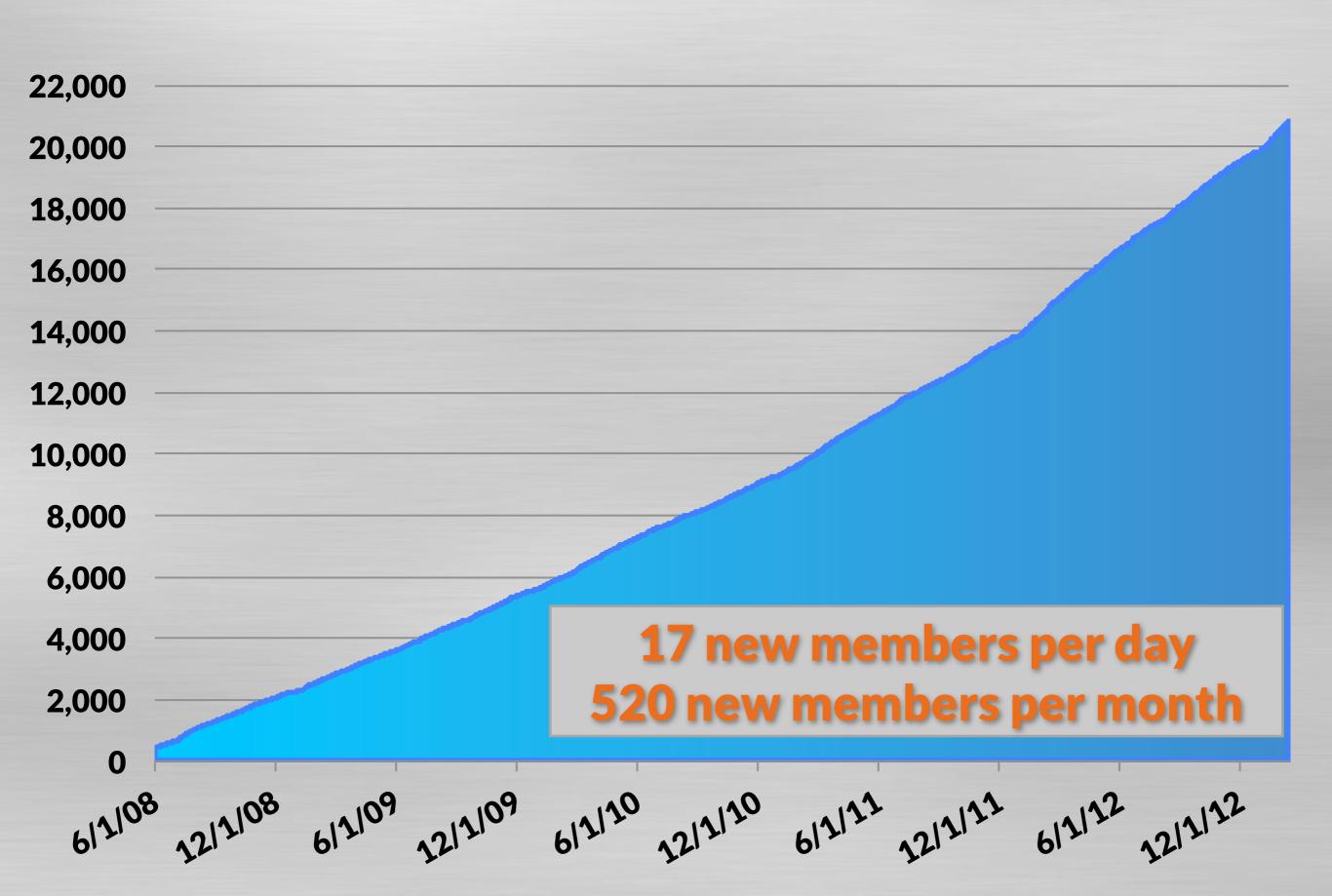
21,000+ users in 150 countries



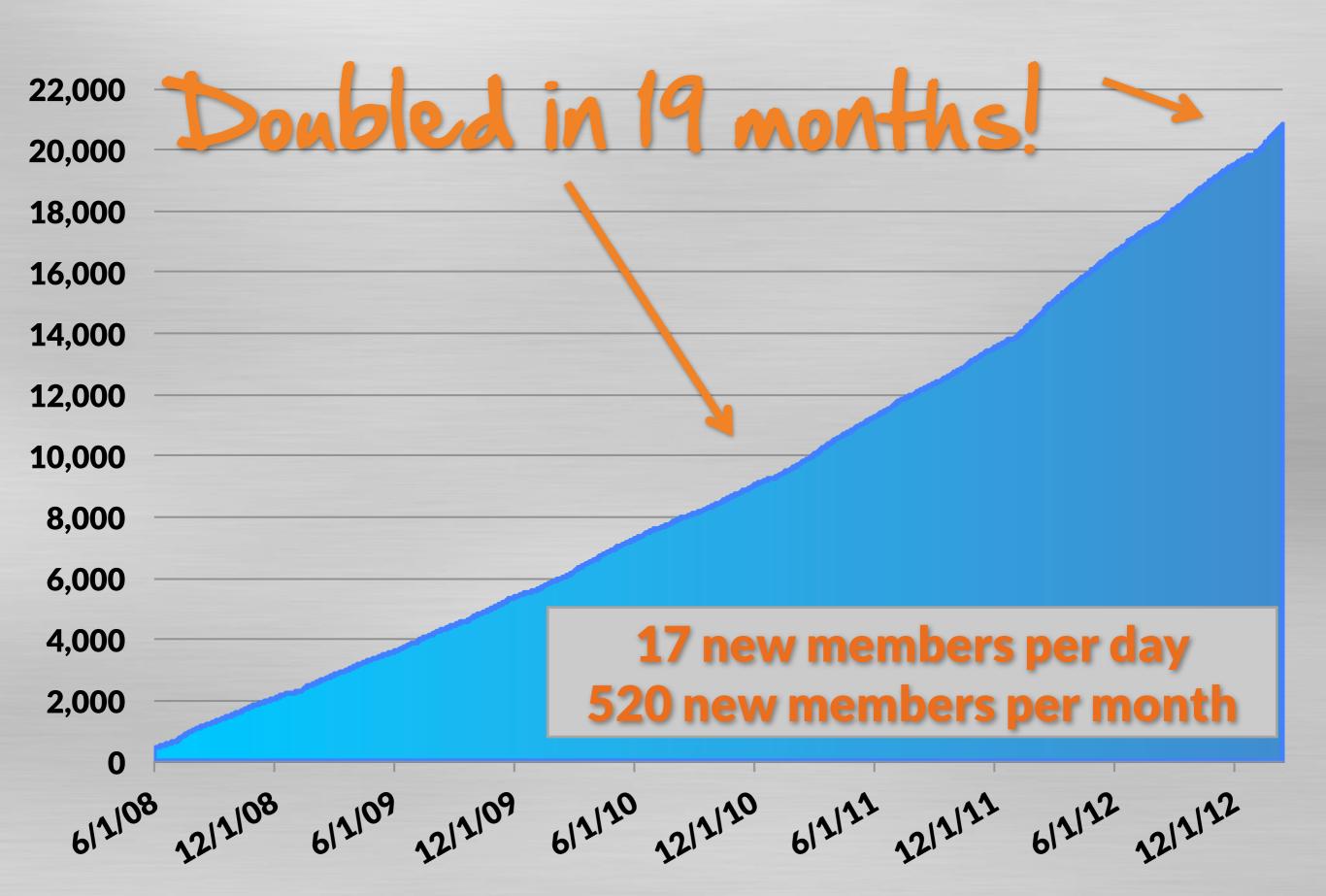
loinc.org members



loinc.org members



loinc.org members



HL7 and Regenstrief Institute Sign Statement of Understanding

November 14, 2011

INDIANAPOLIS -- Health Level Seven® (HL7®) International, the global authority on standards for interoperability of health information technology with members in 55 countries, and the Regenstrief Institute, Inc., an internationally respected healthcare and informatics research organization, today announced an agreement to create a complementary process to develop and extend comprehensive standards in the healthcare industry.

"This agreement further solidifies and extends the wonderful relationship HL7 has enjoyed with Regenstrief for many years," said Bob Dolin, chair of HL7 Board of Directors. "HL7 is committed to working with Regenstrief and other standards bodies to advance the delivery of safe and effective patient care."

Logical Observation Identifiers Names and Codes (LOINC®) is a universal code system developed by the Regenstrief Institute for identifying laboratory and clinical observations. When used in conjunction with the data exchange standards developed by HL7, LOINC's universal observation identifiers make it possible to combine test results, measurements, and other observations from many independent sources. Together, they facilitate exchange and pooling of health data for clinical care, research, outcomes management, and other purposes.

"Regenstrief has been a long-standing contributor to the standards developed by HL7, and likewise, LOINC has been enhanced by its adoption in HL7's standards," said Daniel Vreeman, DPT, M.Sc., associate director of terminology services at the Regenstrief Institute. "With this agreement, we look forward to an even closer collaboration with HL7 that improves the semantic interoperability of health data exchange worldwide."

LOINC began in the mid 1990's when Regenstrief investigators, using their decades of experience with electronic medical records, began the Indiana Network for Patient Care, the nation's first citywide health information exchange. The researcher clinicians found they could receive data from various INPC member institutions but that the clinical content was difficult to interpret because each used a different code for the same test or observation so it was like receiving messages in French, Spanish and Italian when all they could understand was English.

LOINC was born from the desire to develop a lingua franca. From the beginning it has been a free and open system, encouraging additions, comments and feedback. Two new versions of LOINC are issued annually, with more than 2,000 new terms for tests or clinical observations per release. These new additions are based on requests from end users.

Tagged with: electronic medical records, medical informatics, Regenstrief



Media Contacts

Cindy Fox Aisen (317) 274-7722 caisen@iupui.edu

Sherold Barr HL7 503-595-5546 sherold@sheroldbarr.com HL7 and Regenstrief Institute Sign Statement of Understanding

This agreement further solidifies the wonderful relationship HL7 has enjoyed with Regenstrief for many years.

- Bob Dolin, MD

Chair of HL7 Board of Directors

Adopted as National Standard

Australia

Brazil

Canada

Cyprus

Estonia

France

Germany

Mexico

Mongolia

The Netherlands

Rwanda

Thailand

Turkey

United States

US Adoption A few key highlights



Some Key US Adoptions

All the "big" labs

All health-related federal agencies

Lots of care organizations

HIE's

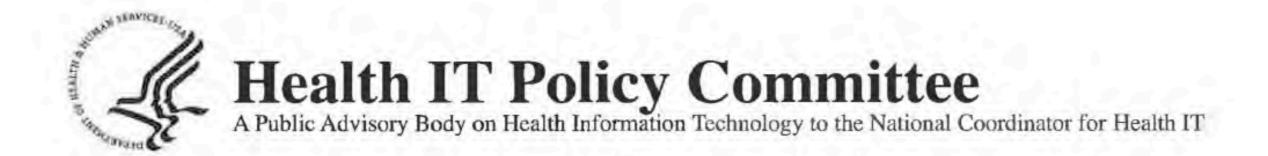
Insurance companies

EHR vendors

Instrument manufacturers (nascent)

CMS EHR Incentive Program

a.k.a. "Meaningful Use"



September 9, 2011

Farzad Mostashari, MD, ScM National Coordinator for Health Information Technology Department of Health and Human Services 200 Independence Avenue, SW Washington, DC 20201

Dear Dr. Mostashari:

The HIT Standards Committee's (HITSC) Clinical Quality Measures Workgroup (CQMWG) and Vocabulary Task Force (VTF) jointly developed recommendations on the assignment of code sets to clinical concepts [data elements] for use in quality measures.

The CQMWG and VTF held a series of joint meetings to develop the set of recommendations. This letter transmits the recommendations to the Department of Health and Human Services (HHS) on the assignment of code sets to clinical concepts for use in quality measures. On August 17, 2011, the CQMWG and VTF reported on and discussed their findings with the HITSC, which were subsequently approved as outlined below.

Stage 2 starting 2014



DEPARTMENT OF HEALTH AND HUMAN SERVICES

Office of the Secretary

45 CFR Part 170

RIN 0991-AB82

Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology

AGENCY: Office of the National Coordinator for Health Information Technology (ONC), Department of Health and Human Services.

ACTION: Final rule.

SUMMARY: With this final rule, the Secretary of Health and Human Services adopts certification criteria that establish the technical capabilities and specify the related standards and implementation specifications that Certified Electronic Health Record (EHR) Technology will need to include to, at a minimum, support the achievement of meaningful use by eligible professionals, eligible hospitals,

CQM Clinical Quality Measure

CY Calendar Year

EH Eligible Hospital

EHR Electronic Health Record

EP Eligible Professional

FY Fiscal Year

HHS Department of Health and Human Services

HIPAA Health Insurance Portability and Accountability Act of 1996

HIT Health Information Technology

HITECH Health Information Technology for Economic and Clinical Health

HITPC HIT Policy Committee

HITSC HIT Standards Committee

HL7 Health Level Seven

ICD-9-CM International Classification of Diseases, 9th Revision, Clinical Modification

ICD-10 International Classification of Diseases, 10th Revision

ICD-10-CM International Classification of Diseases, 10th Revision, Clinical Modification

ICD-10-PCS International Classification of Diseases, 10th Revision, Procedure Coding System

IHE Integrating the Healthcare Enterprise®
LOINC® Logical Observation Identifiers
Names and Codes

MU Meaningful Use

ONC Office of the National Coordinator of Health Information Technology

NCPDP National Council for Prescription Drug Programs

NIST National Institute of Standards and

a. Ambulatory and Inpatient Setting

b. Ambulatory Setting

c. Inpatient Setting

10. Revised Certification Criteria

a. Ambulatory and Inpatient Setting

b. Ambulatory Setting

c. Inpatient Setting

11. Unchanged Certification Criteria

 Refinements to Unchanged Certification Criteria

Unchanged Certification Criteria
 Without Refinements

12. Gap Certification

13. "Disability" Status

B. Redefining Certified EHR Technology and Related Terms

1. Certified EHR Technology (CEHRT)
Definition

2. Base EHR Definition

3. Complete EHR Definition

4. Certifications Issued for Complete EHRs and EHR Modules

Adaptations of Certified Complete EHRs or Certified EHR Modules

IV. Provisions of the Final Rule Affecting the Permanent Certification Program for HIT ("ONC HIT Certification Program")

A. Program Name Change

B. "Minimum Standards" Code Sets

C. Revisions to EHR Module Certification Requirements

1. Privacy and Security Certification

2. Certification to Certain New Certification Criteria

D. ONC-ACB Reporting Requirements

E. Continuation and Representation of



LOINC adopted for:

- 1. View, download, transmit data to third party
- 2. Cancer case reporting to state registry
- 3. Send/receive electronic lab results in ambulatory settings
- 4. Provide a care summary at care transition
- 5. Provide clinical summaries for patients
- 6. Submit reportable lab results to public health

Cartified Ctatus



CDAR2_IG_IHE_CONSOL_DSTU_R1.1_2012JUL



HL7 Implementation Guide for CDA® Release 2: IHE Health Story Consolidation, DSTU Release 1.1 (US Realm)

> Draft Standard for Trial Use July 2012

Publication of this draft standard for trial use and comment has been approved by Health Level Seven International (HLT). This draft standard is not an accredited American National Standard. The comment period for use of this draft standard shall end 24 months from the date of publication. Suggestions for revision should be submitted at http://www.hl7.org/dstucomments/index.cfm.

Following this 24 month evaluation period, this draft standard, revised as necessary, will be submitted to a normative ballot in preparation for approval by ANSI as an American National Standard. Implementations of this draft standard shall be viable throughout the normative ballot process and for up to six months after publication of the relevant normative standard.

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AS_CDATEMPGD_R1_I1_2013JAN



HL7 Attachment Specification: Supplement to Consolidated CDA Templated Guide, Release 1

January 2013

HL7 Informative Ballot

Sponsored by: Attachments Work Group

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C-CDA



claims or other

In attachments, LOINC codes are used for 3 main purposes

To identify the specific kind of information being communicated in both a request and response.

Each LOINC code that is allowed as an attachment is flagged for use as "Structured" or "Unstructured" in the database.

To identify the specific kind of information being communicated in both a request and response.

e.g. discharge summary, radiology report, consent form, etc

Each LOINC code that is allowed as an attachment is flagged for use as "Structured" or "Unstructured" in the database.

To (optionally) specify variables that modify parameters used in fulfilling the request for information.

To (optionally) specify variables that modify parameters used in fulfilling the request for information.

e.g. codes that indicate a modification to the default time period

In attachment responses using HL7 (C-)CDA, LOINC codes identify the attachment (document) type, sections, and sometimes individual entries (tests or observations).

In attachment responses using HL7 (C-)CDA, LOINC codes identify the attachment (document) type, sections, and sometimes individual entries (tests or observations).

e.g. for a Continuity of Care Document

Document Type: 34133-9 (Summarization of episode note)

Section: 8716-3 (Vital signs)

Entry: 9279-1 (Respiratory Rate)



loinc.org/attachments



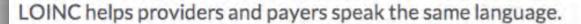
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All of loinc.org

login new user?

you are here; home -+ attachments

Using LOINC in HIPAA Attachments



The HIPAA Administrative Simplification provision mandates the adoption of standards for electronic claims attachments. A claims attachment includes the clinical and administrative information often necessary to adjudicate claims for ambulance, rehabilitation, or emergency room services. Regenstrief has worked closely with the HL7 Attachments Work Group to support the use of LOINC codes in the electronic exchanges of attachments between payers and providers.



Recent Forum Posts

Current Versions

LOINC 2.42 Released: 2012-12-28

RELMA 6.0 Released: 2012-12-28

General Discussion | Re: Using 'unspecified' system LOINCs

Download Now -

System Implementation | LOINC implementation for Genetic Cancer Labs

More posts...

The current proposed specifications for attachments use LOINC codes for three main purposes:

- 1. To identify the specific kind of information being communicated in both a request and response (e.g., a discharge summary or diagnostic imaging report).
- 2. To optionally specify certain modifier variables in fulfilling the request for information (e.g. variables that indicate a modification to the default time period).
- 3. In structured attachment responses using HL7 CDA, LOINC codes identify the attachment (document) type, sections, and sometimes the individual entries (tests or observations).

There are 3 main ways to identify LOINC codes that can be used as valid attachment types.

In the LOINC Table

The LOINC Table (available for download in several file formats) contains a field called HL7_ATTACHMENT_STRUCTURE. For attachments approved by the HL7 AWG, this field will be populated with a value of UNSTRUCTURED according to how that information can be sent.

Using RELMA

RELMA has a special form for browsing the attachment content. Just look for the HIPAA menu and you'll be on your way. If you want, you can read more about how to browse the attachment content with RELMA here.

In RELMA you can also find attachment content by searching on the HL7_ATTACHMENT_STRUCTURE field with RELMA's easy to use search syntax. For example, to search for all the LOINC terms with value in HL7_ATTACHMENT_STRUCTURE of "UNSTRUCTURED" containing the word "consent", you could enter this query in the search box:

consent HL7ATTACHMENTSTRUCTURE:unstructured

1

LOINC

LOINC Using RELMA and want to see how other users mapped to a particular LOINC? Join our study to unlock these features loinc.org/community/mapp... 11 hours ago - reply - retweet - Tavoribe

Join the conversation

Using search.loinc.org

The search syntax of the online LOINC search application is the same as that of RELMA. This powerful search syntax can search on keywords anywhere in the LOINC records or with a particular

search.loinc.org

online look-up tool for LOINC

search.loinc.org

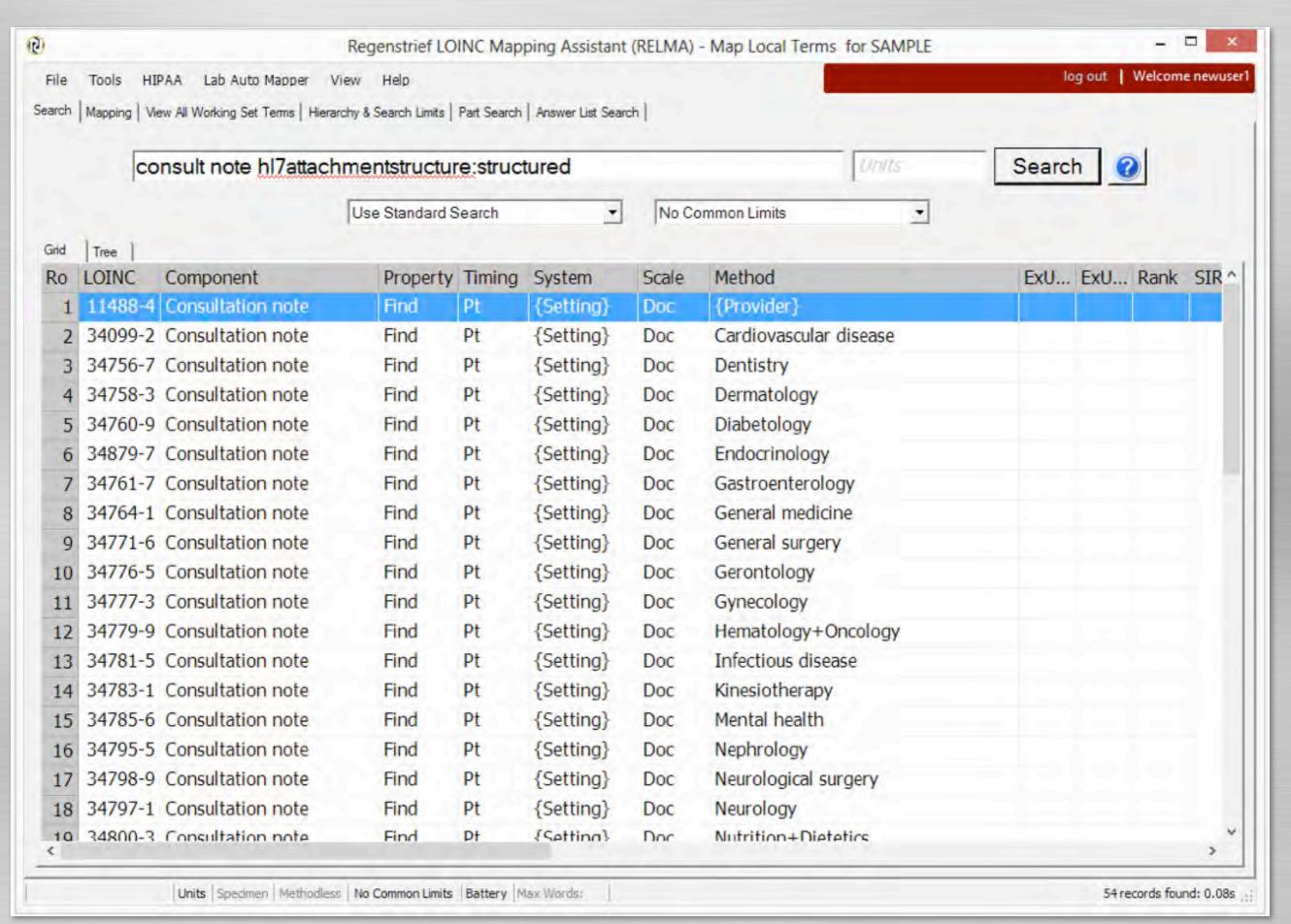
LO	HL7ATTACHMENTSTRU	CTURE:unstructured	Search			
н «	1 /4 D H				7 -	[1-14/54]
LOINC	LongName	Component	Property	Timing	System	Scale
52027-0	Abortion consent	Abortion consent	Find	Pt	^Patient	Doc
53243-2	Advanced beneficiary notice	Advanced beneficiary notice attachment	Find	Pt	^Patient	Doc
52032-0	Appeal denial letter	Appeal denial letter attachment	Find	Pt	^Patient	Doc
52065-0	Automobile liability	Automobile liability attachment	Find	Pt	^Patient	Doc
52041-1	Blood glucose monitors	Blood glucose monitors attachment	Find	Pt	^Patient	Doc
53242-4	Charge ticket or encounter form	Charge ticket or encounter form attachment	Find	Pt	^Patient	Doc
52042-9	Continuous positive airway pressure (CPAP)	Continuous positive airway pressure attachment	Find	Pt	^Patient	Doc
52040-3	Dental X-rays and other images (not DICOM)	Dental X-rays and other images (not DICOM) attachment	Find	Pt	^Patient	Doc
53245-7	Driver license image	Driver license image attachment	Find	Pt	^Patient	Doc
53247-3	Eligibility acknowledgement	Eligibility acknowledgement attachment	Find	Pt	^Patient	Doc
52071-8	Employee assistance program	Employee assistance program attachment	Find	Pt	^Patient	Doc
52043-7	Enteral nutrition	Enteral nutrition attachment	Find	Pt	^Patient	Doc
52030-4	Explanation of benefits	Explanation of benefits attachment	Find	Pt	^Patient	Doc
52031-2	Explanation of benefits to subscriber	Explanation of benefits to subscriber attachment	Find	Pt	^Patient	Doc

RELIMAR

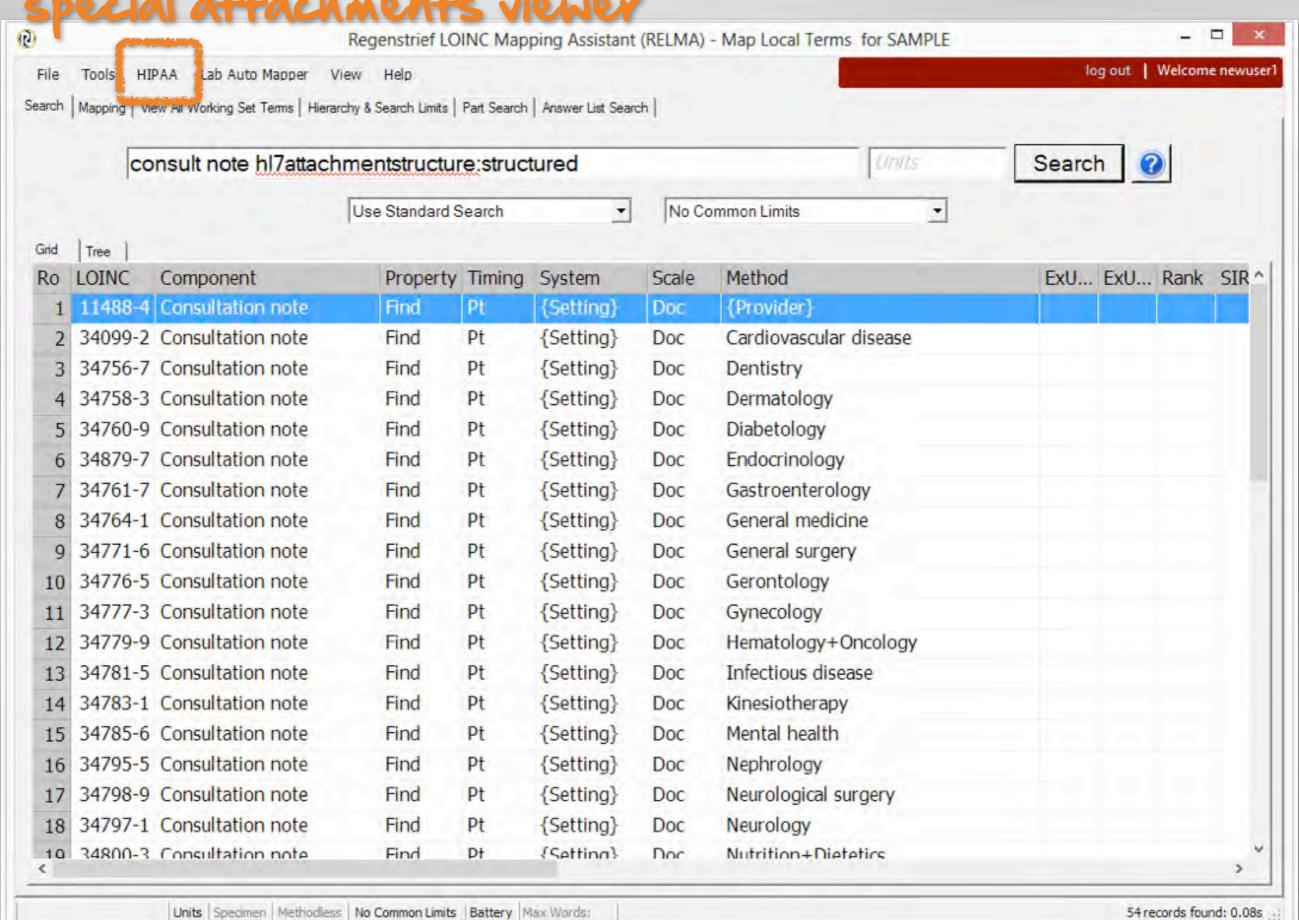
REgenstrief LOINC Mapping Assistant



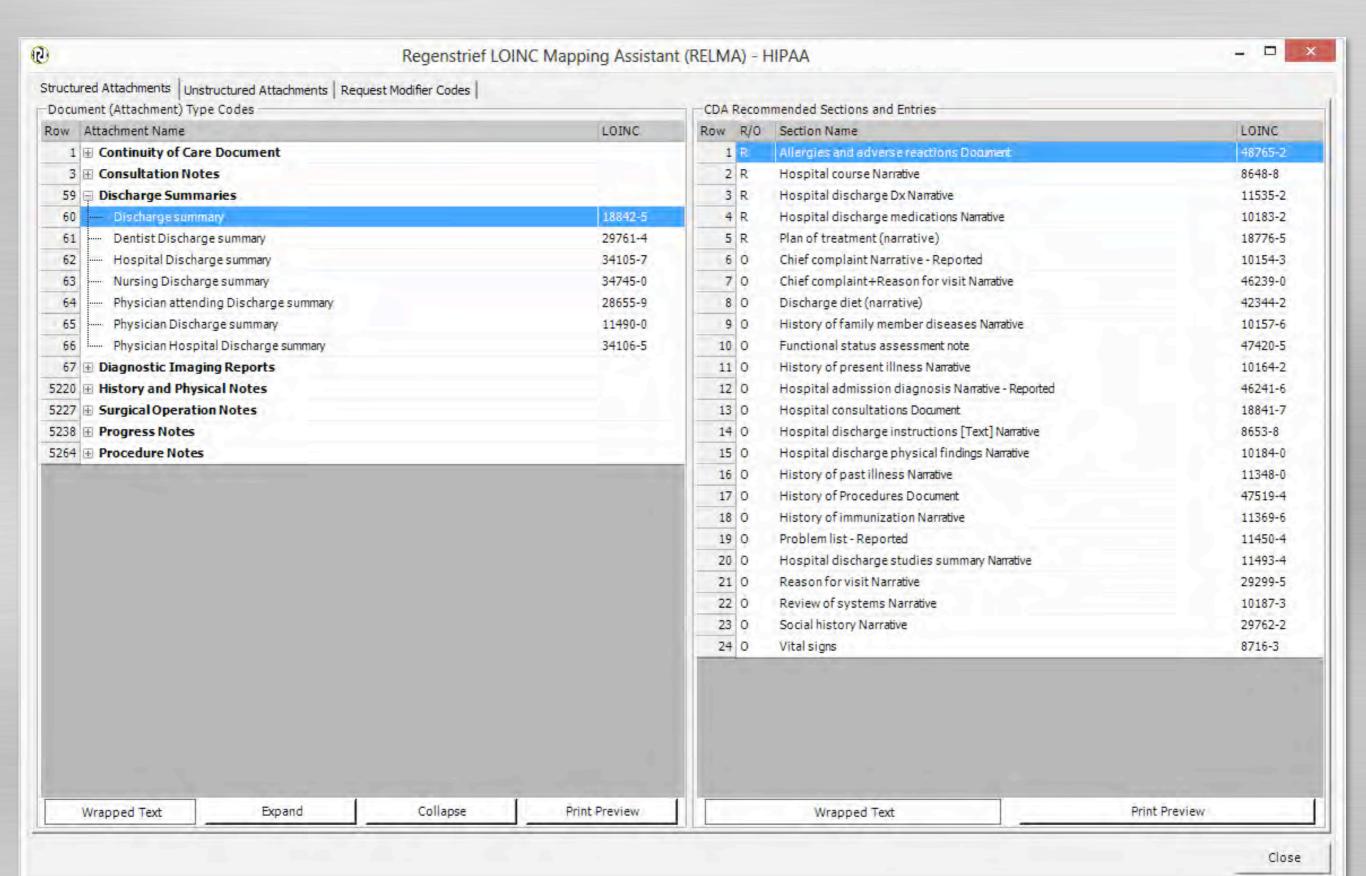
RELMA Search Window



RELMA Search Window



Structured Attachments



Structured	Atta	chments	
	OWE	sections	From C-

Ð	Regenstrief LOING	Mapping Assistan	t (RELM	A) - H	HIPAA
	red Attachments Unstructured Attachments Request Modifier Codes ment (Attachment) Type Codes		-CDA	Recom	nmended
Row	Attachment Name	LOINC	Row	R/0	Section
1			1	R	Allergi
3			2	R	Hospit
59	Discharge Summaries		3	R	Hospit
60	— Discharge summary	18842-5	4	R	Hospit
61	Dentist Discharge summary	29761-4	5	R	Plan of
62	Hospital Discharge summary	34105-7	6	0	Chief c
63	Nursing Discharge summary	34745-0	7	0	Chiefo
64	Physician attending Discharge summary	28655-9	8	0	Discha
65	Physician Discharge summary	11490-0	9	0	History
66	Physician Hospital Discharge summary	34106-5	10	0	Functio
67	■ Diagnostic Imaging Reports		11	0	History
5220	⊞ History and Physical Notes		12	0	Hospit
5227	■ Surgical Operation Notes		13	0	Hospit
5238			14	0	Hospit
5264	Procedure Notes		15	0	Hospit
77.23		- 3	16	0	History
				4	

Expand

Wrapped Text

Collapse

Print Preview

low R/	Section Name	LOINC
1 R	Allergies and adverse reactions Document	48765-2
2 R	Hospital course Narrative	8648-8
3 R	Hospital discharge Dx Narrative	11535-2
4 R	Hospital discharge medications Narrative	10183-2
5 R	Plan of treatment (narrative)	18776-5
6 0	Chief complaint Narrative - Reported	10154-3
7 0	Chief complaint+Reason for visit Narrative	46239-0
8 0	Discharge diet (narrative)	42344-2
9 0	History of family member diseases Narrative	10157-6
10 0	Functional status assessment note	47420-5
11 0	History of present illness Namative	10164-2
12 0	Hospital admission diagnosis Narrative - Reported	46241-6
13 0	Hospital consultations Document	18841-7
14 0	Hospital discharge instructions [Text] Narrative	8653-8
15 0	Hospital discharge physical findings Narrative	10184-0
16 0	History of past illness Narrative	11348-0
17 0	History of Procedures Document	47519-4
18 0	History of immunization Narrative	11369-6
19 0	Problem list - Reported	11450-4
20 0	Hospital discharge studies summary Narrative	11493-4
21 0	Reason for visit Narrative	29299-5
22 0	Review of systems Narrative	10187-3
23 0	Social history Narrative	29762-2
24 0	Vital signs	8716-3

Wrapped Text

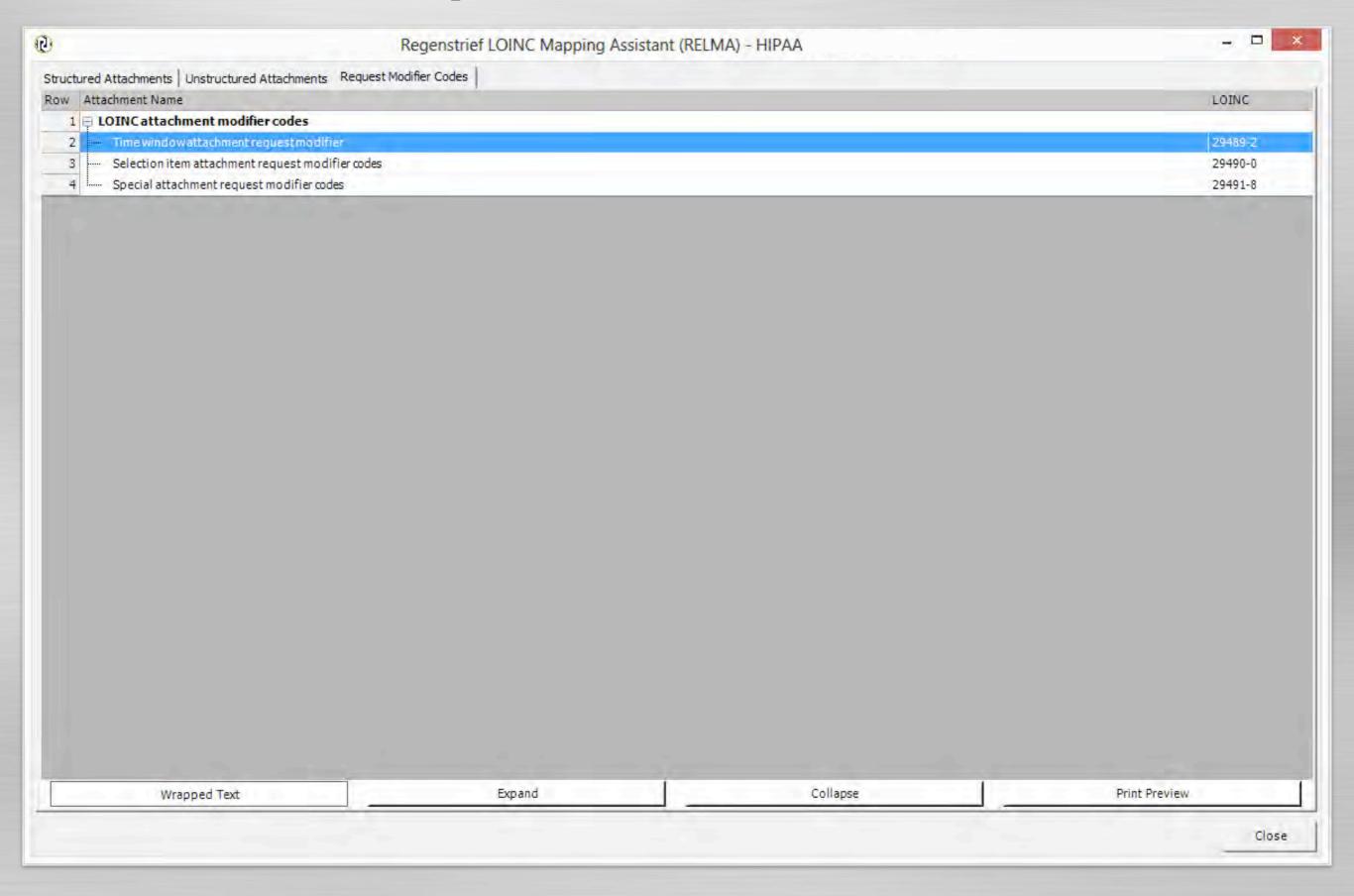
Print Preview

Unstructured Attachments

0	Regenstrief LOINC Mapping Assistant (RELMA) - HIPAA	_ 0
Structured Attachments Unstructured A	Attachments Request Modifier Codes	
Row Attachment Name		LOINC
1 Abortion consent		52027-0
2 Advanced beneficiary notice		53243-2
3 Appeal denial letter		52032-0
4 Automobile liability		52065-0
5 Blood glucose monitors		52041-1
6 Charge ticket or encounter form		53242-4
7 Continuous positive airway pres	sure (CPAP)	52042-9
8 Dental X-rays and other images ((not DICOM)	52040-3
9 Driverlicenseimage		53245-7
10 Eligibility acknowledgement		53247-3
11 Employee assistance program		52071-8
12 Enteral nutrition		52043-7
13 Explanation of benefits		52030-4
14 Explanation of benefits to subso	iber	52031-2
15 External infusion pump		52044-5
16 First report of injury		52064-3
17 Gait trainers		52045-2
18 General correspondence		52033-8
19 Home health claims		52035-3
20 Home health prior authorization		52036-1
21 Hospital beds		52046-0
22 Hysterectomy consent		52028-8
23 Immunosuppressive drugs		52047-8
24 Lymphedema pumps		52048-6
25 Manual wheelchair		52049-4
26 Member ID card copy		52037-9
27 Motorized wheelchair		52050-2
28 Non-emergency transportation		52072-6
29 Non-medical services		53246-5
30 Notice of Discharge Medicare Ap	peal Rights (NODMAR) form	52066-8
31 Notice of privacy practices receip	t .	53244-0
32 Orthotics/Prosthetics		52051-0
	Wrapped Text Pri	nt Preview

Close

Request Modifier Codes



Request Modifier Codes

