

NLM HL7 RFQ CHI mapping contract

August/September, 2006

The HL7 NLM vocabulary project has the need to map the complete set of HL7 vocabularies to their CHI recommended counterparts using the UMLS and get the new tables and value sets approved by the HL7 technical committees. The first task is the mapping of HL7 vocabularies to the CHI recommended counterparts and includes review of source content for accuracy, and quality assurance. A second task involves feeding back the mapped/revised content to the domain committees who are stewards of their content for their approval of the mapped tables and incorporation into balloted versions of HL7 Standards, and Realm-specific value sets.

Task One: Mapping of Complete set of HL7 vocabularies to their respective CHI vocabularies using the UMLS.

Map HL7 V2 and V3 vocabulary to content from vocabularies specified by the CHI (Consolidated Health Informatics). This will determine where there is a direct match to HL7 vocabulary values and where new values need to be created within the CHI vocabularies. The goal is, where appropriate, to replace HL7 vocabulary content with content from the CHI vocabularies or other related important vocabularies in the UMLS Metathesaurus. NLM will support this activity by providing a subset of the UMLS Metathesaurus to use as a starting point. This subset will contain the CHI vocabularies currently in the Metathesaurus plus any other up to date, English language sources. A suggested list of vocabularies this subset will contain is at the end of this document. This reference set will be used for both the HL7 Version 2.5 and the HL7 Version 3 mapping effort.

Task Deliverables

Working from a copy of the existing mappings between HL7 version 2.5 and version 3.0 code sets and other vocabularies in the UMLS Metathesaurus, version 2006AC, the contractor will:

1. For each value in each V3 value set or V2 table the contractor will establish best single matching concept from a CHI terminology or make a recommended compositional phrase. Please note: that the compositional phrase will be noted but not necessarily implemented in an HL7 message where a single code is now used.
2. For each matching concept that comes from a CHI approved terminology the name of the CHI vocabulary, the code, and the description will be shown.
3. If the concept is in the UMLS Metathesaurus, the UMLS CUI and AUI will be shown.
4. Contractor will participate in weekly NLM Vocab Conference calls, report on the progress of the deliverables, and work with the steering committee and project manager to assure success of the project.
5. Contractor will provide a document detailing implementation process of creating the HL7_VocabMapToCHI table using the tools and products available through the UMLS (specifically the Metathesaurus, and MetamorphoSys).

The deliverable will be a table with a one-to-many relationship to tbl_HL7_values (a unique set of all Version 2.5 table entries and all Version 3 Ballot 8 value sets). The contractor will produce the following table:

HL7_VocabMapToCHI table fields:

1. HL7 Table/Value Set ID
2. HL7 Code
3. HL7 Description
4. Match type - Exact, NT (HL7 concept is narrower than target term), BT (HL7 term is broader than target term), Not Found, Possible Error, CR (closest related or closely related). In all situations where there is not an exact match, the contractor will take the following steps:
 - If the needed concept is atomic (i.e. composition (post coordination) is not needed for expression of the needed HL7 concept in the target terminology), the contractor will create a submission in an appropriate format for addition of the atomic expression to the appropriate CHI terminology source organization
 - If composition (post coordination) is needed to create an exact mapping, then the contractor will provide the best compositional map for the HL7 concept that is possible within the target terminology
 - When compositional mappings occur, the contractor will indicate whether compositional expressions are allowed in the message field where the concept is used
 - If compositional expressions are not allowed in the message where the concept will be used, the contractor will create a submission in an appropriate format for addition of the pre-coordinated expression to the appropriate CHI terminology source organization
5. UMLS CUI (null if the vocabulary is not included in the UMLS)
6. UMLS AUI (null if the vocabulary is not included in the UMLS)
7. CHI source
8. CHI Code
9. CHI description
10. New CHI – HL7 concept does not exist in the CHI terminology, and the items in 6, 7, and 8 represent an addition to be suggested to the editors of that particular CHI terminology.
11. More than one possible CHI mapping
12. Structural HL7 code: should not be mapped. In this case, there would only be one entry in the table for the whole value set (HL7 V3) or table (HL7 v2.5).

We envision that the contractor will use automated methods to find candidate replacement values followed by manual review of the results. Bidders are encouraged to detail how their approach will accomplish these two steps in an accurate and timely manner.

Contractor will document implementation steps describing at a minimum the version of each CHI vocabulary used, significant questions posed, rationale for decisions, tools

used, queries & parameters that could be used to repeat the process, definition of codes in the “matchType” field and explicit coding rules.

Notes:

- Contractor will provide a list of the meanings of the abbreviations used in the CHI source column of this table.
- The contractor will consult with the steering committee in deciding that something does not need to be mapped. Possible reasons for not mapping are: deprecate-don't replace, HL7 structural code, and errors in the HL7 table.
- Send the list of unmatched terms, grouped by table or value set, to the project co-leaders and project manager for review and possible submission to the external vocabulary body (e.g. SNOMED CT, LOINC, etc.).
- Understand and work towards a process for having unmatched codes added where appropriate.

Required Skills:

Expert knowledge of HL7 Version 2 and Version 3 vocabulary tables, expert knowledge of the UMLS content and identifier structure, familiarity with UMLS and other semantic toolsets, knowledge of SQL and XML data structures. Familiarity with HL7 vocabulary TC and HDF processes. Knowledge of additional scripting and/or transformation languages as required.

Estimated start: September 20, 2006

Expected duration: 10 weeks

Tools, queries, programs, transforms, models and methods used will be explicitly documented. Intellectual property will enter the public domain under the ownership of HL7.

Payment will be dependent on approval of the deliverable and payment by NLM to HL7.

Appendix

All or part of the following vocabularies have been approved as CHI standards by HHS, DOD, and VA:

Vocabulary	In UMLS Metathesaurus?	Version in 2006AC UMLS Metathesaurus
ABC	yes	2006
CDT	yes	2005
CPT4	yes	2006
Diagnostic Related Groups (DRGs)	no	
EPA Substance Registry System	no	
FDA Ingredient & UNII codes	no	
FDA/CDER standards	no	

manual		
HCPCS	yes	2006
HL7	yes	V2.5 (2003_08_30); V3.0 (2006_05)
HUGO Gene Nomenclature	yes	2005_04
ICD-9-CM	yes	2006
LOINC	yes	2.16
NCI Thesaurus		2004_11_17 (subset only)
NDC (National Drug Codes)	yes	FDA NDC Directory 2006_03_10
NDF-RT		2004_01
RxNorm	yes	06AB_060605F
SNOMED CT	yes	2006_01_31

Unofficial list of messaging standards designated by CHI (may or may not have associated vocabularies):

Messaging standard	Associated vocabulary in UMLS Metathesaurus?	Version in UMLS Metathesaurus
ASC X12N	no	
DICOM	no	
HL7 messaging	yes	V2.5 (2003_08_30); V3.0 (2006_05)
IEEE 1073	no	
NCPDP SCRIPT; Telecommunication Standards	no	

Task Two: Approval of CHI mappings by HL7 Technical Committees and incorporation into the HL7 Vocabulary Database

Taking the work product from the UMLS/CHI mapping, review it for accuracy and divide the HL7 mapped tables/value sets and present the completed material to the steward committees within HL7 for their review and approval. This task is to be completed no later than the May 2007 ballot.

Time Frame: This contract will run simultaneously with contract one and continue through May of 2007. Estimated Hours: 1000 (but may be increased at the discretion of the technical co-leads and the NLM,

Qualifications: Advanced knowledge of HL7 processes, HL7 tooling, HL7 vocabulary standards and source vocabularies including the UMLS; excellent communication and technical writing skills.

METHOD

1. Create tooling that is complimentary to existing HL7 (LexGrid and MIF representations) so that members/TC/stakeholders have a mechanism, method and working environment to review mappings and present them to their committee members and domain experts.
2. Review the Part One work product for accuracy; identify and correct errors in mapping;
3. Divide tables to reflect the content by steward committee. Populate the tool with recommended content; and make the tools so that it is simple and convenient for the vocabulary facilitators to review and present the new content to the respective committees; and submit the results of the review in a format that can be automatically processed using the existing HL7 vocabulary tooling and processes;
4. Collate feed back to a comprehensive change file and report.
5. Final approval of the mappings
 - a. For version 3, present the materials to the HL7 and the US realm.
 - b. For version 2.5 submit the materials to the appropriate HL7 authority.

Estimated start time: September 20, 2006

Estimated duration: approximately 1,000 hours

Tools, queries, programs, transforms, models and methods used will be explicitly documented. Intellectual property will enter the public domain under the ownership of HL7.

Payment will be dependent on approval of the deliverable and payment by NLM to HL7.

Responses are due by COB Eastern Time on September 13th and sent to Sarah A. Ryan, Sarah@HL7.org

Questions should be directed to:

Sarah A. Ryan
NLM Project Manager
Sarah@HL7.org
www.HL7.org
281-326-1233