

Appendix B: Candidate Terminologies for Encoding Problem Lists

Codification of problem lists enables interoperability and data mining for other purposes, such as quality of care measurement and administrative use, including claims submission for reimbursement.

SNOMED CT

Description: SNOMED-CT is a comprehensive, multilingual, controlled clinical reference terminology, with comprehensive coverage of diseases, clinical findings, etiologies, procedures, living organisms, and outcomes used for recording clinical data. It provides a common language that enables a consistent way of capturing, sharing, and aggregating health data across specialties and sites of care.

Content: A relational, concept-based system with more than 300,000 unique concepts and more than 900,000 descriptions. SNOMED CT may include multiple descriptions for each concept. Concepts are organized by defined relationships.

Uses: Focused on clinical data retrieval. Designed to index, store, and retrieve information about a patient in an electronic health record. Helps ensure comparability of data records by multiple practitioners. Provides a common language that enables a consistent way of capturing, sharing, and aggregating health data across specialties and sites of care.

Classification versus Terminology: Comprehensive clinical terminology

Ownership: Acquired in April 2007 by the International Health Terminology Standards Organization (IHTSDO). IHTSDO is responsible for ongoing maintenance, development, quality assurance, and distribution of SNOMED CT. The College of American Pathologists (CAP) will continue to support SDO operations under contract and to provide SNOMED-related products and services as a licensee of the terminology.

Updated: Twice a year in January and July (for English versions)

Proprietary versus Nonproprietary: SNOMED CT is a copyrighted work of the College of American Pathologists (CAP). CAP and the National Library of Medicine (NLM) entered into an agreement to provide SNOMED CT at no charge to those who execute a license agreement.

Means of Distribution: In addition to access to SNOMED CT within the UMLS Metathesaurus, UMLS licensees also have free access to SNOMED CT in its native file formats, the documentation of these files, and a growing set of subsets and mapping files. MetamorphoSys, free Java software, is distributed with the UMLS to assist users in producing subsets of the Metathesaurus. Effective May 15, 2007, UMLS licensees may obtain the English and Spanish editions of SNOMED CT in their native file formats from the UMLS Knowledge Sources Server.

Comments: SNOMED-CT is a comprehensive, multilingual, controlled clinical reference terminology, with comprehensive coverage of diseases, clinical findings, etiologies, procedures, living organisms, and outcomes used for recording clinical data. It provides a common language that enables a consistent way of capturing, sharing, and aggregating health data across specialties and sites of care.

Sources of Information: www.nlm.nih.gov/research/umls/Snomed/snomed_main.html
http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_027179.html

LOINC

Description: The Logical Observation Identifiers Names and Codes (LOINC) database facilitates the exchange and pooling of results such as blood hemoglobin, serum potassium, or vital signs for clinical care, outcomes management, and research.

Content: LOINC is comprised of more than 45,000 terms made up of laboratory, microbiology, toxicology, EKG, vital signs, hemodynamics, obstetric ultrasound, cardiac echocardiography, radiology, selected survey instruments and other clinical observations.

Uses: LOINC has been identified by CHI to be the standard terminology for the identification of laboratory results, as well as for the representation of patient assessment instruments, questions, and answers. It has also been proposed as the HIPAA standard for the communication of claims attachments.

Classification versus Terminology: Terminology

Ownership: Regenstrief Institute, Inc.

Updated: Two or three times a year. No set schedule, although the organization strives to finalize versions in June and December each year.

Proprietary versus Nonproprietary: The LOINC database is free of charge.

Means of Distribution: The LOINC database can be downloaded from Regenstrief's Web site. LOINC is available as a Microsoft Access (.mdb) database file and a tab-delimited text file (.txt).

Sources of Information: www.regenstrief.org/medinformatics/loinc/

ICD-9-CM

Description: ICD-9-CM consists of three sections: a tabular list containing a numerical list of disease code numbers, an alphabetic index to the diseases, and a list for surgical, diagnostic, and therapeutic procedures.

Content: ICD-9-CM is comprised of more than 13,000 numeric or alphanumeric codes and descriptions for diagnoses, and more than 4,000 numeric codes and descriptions for procedures. The hard copy edition or .pdf format of ICD-9-CM also contains more than 100,000 diseases, signs or symptoms as part of the index.

Uses: The International Classification of Diseases (ICD) is the classification used to code and classify mortality data from death certificates. The International Classification of Diseases, Clinical Modification (ICD-9-CM) is used to code and classify morbidity data from the inpatient and outpatient records, physician offices, and most National Center for Health Statistics (NCHS) surveys.

Classification versus Terminology: Classification

Ownership: The World Health Center for International Classification of Diseases, ninth edition, National Center for Health Statistics for Clinical Modifications specific to the United States.

Updated: Once a year with fiscal year starting October 1. Errata and changes are submitted quarterly if needed.

Proprietary versus Nonproprietary: Nonproprietary, although copyrighted by the World Health Organization.

Means of Distribution: CD ROM database formats can be obtained directly from NCHS. There are also numerous vendors and distributors who distribute ICD-9-CM via hard copy or database format. Increasingly, there are Internet sites that provide subscriptions to the ICD-9-CM content with supporting resources.

Sources of Information: www.cdc.gov/nchs/icd9.htm,

http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_027179.html

ICD-10-CM

Description: ICD-10-CM represents a significant improvement over ICD-9-CM and ICD-10. Specific improvements include: the addition of information relevant to ambulatory and managed care encounters; expanded injury codes; the creation of combination diagnosis/symptom codes to reduce the number of codes needed to fully describe a condition; the addition of sixth and seventh characters; incorporation of common fourth and fifth digit subclassifications; laterality; and greater specificity in code assignment. The new structure will allow further expansion than was possible with ICD-9-CM.

Content: The proposed ICD-10-CM diagnoses volume contains more than 120,000 alphanumeric codes and descriptions. ICD-10-PCS has more than 90,000 alphanumeric codes and descriptions for procedures.

Uses: ICD-10 (unmodified) is currently used to classify death certificates within the United States. It is anticipated that ICD-10-CM will perform the same and probably enhanced functions as ICD-9-CM.

Classification versus Terminology: Classification

Ownership: The World Health Center for International Classification of Diseases, tenth edition edition, National Center for Health Statistics for Clinical Modifications specific to the United States.

Updated: Unknown at this time. The expectation is that at minimum an annual update will occur as it has with ICD-9-CM.

Proprietary versus Nonproprietary: Copyright held by the World Health Organization for ICD-10. For use in the US nonproprietary is expected (same as ICD-9-CM).

Means of Distribution: CD ROM database formats can be obtained directly from NCHS or the code sets may be downloaded from the NCHS Web site.

Comments: It is anticipated that ICD-10-CM will be adopted to replace ICD-9-CM at some time in the near future. Plans for adoption require congressional ratification.

Sources of Information: www.cdc.gov/nchs/icd9.htm,
http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_027179.html

CPT

Description: The American Medication Association (AMA) states that the codes and descriptions provide a mechanism for the reporting of medical services and procedures performed by physicians.

Content: CPT is comprised of more than 8,900 terms and codes. The codes are listed under three categories. Category I codes and descriptors make up the majority of CPT identifying services and procedures that are in common use within the medical community. Category II codes and descriptors are for use in reporting performance measurements. Category III codes and descriptors are used to report emerging technology.

Uses: Current Procedural Terminology has been adopted by HIPAA as the coding standard for the reporting of physician services. It is also an integral part of the reporting of outpatient hospital surgical procedures.

Classification versus Terminology: Classification system

Ownership: American Medical Association (AMA)

Updated: CPT is updated semi-annually with the primary release in the fall for implementation on January 1 of each year. An interim release is provided in the spring for implementation on July 1.

Proprietary versus Nonproprietary: Proprietary system requiring a license for use.

Means of Distribution: Hard copy and database formats can be purchased directly from the AMA. There are also numerous vendors and distributors who have been authorized to distribute CPT via hard copy or database format.

Comments: CPT is maintained by an editorial board through the AMA and supported by an advisory panel comprised of members appointed by the national medical specialty societies affiliated with the AMA.

Sources of Information: www.ama-assn.org/ama/pub/category/3113.html

MEDCIN

Description: MEDCIN is an EMR engine allowing rapid entry, retrieval, and correlation of relevant clinical information at the point of care. Each data element is a unique phrase of clinical content, presented in a hierarchical format. Additional information regarding relevant value ranges, units, laterality, and cross-references to external code sets allow for organization and interpretation of the data by the end user.

Content: Several tables consisting of 250,000 clinical data elements in a hierarchical format that can be accessed through Intelligent Prompting in order to display the clinically relevant terms.

Uses: Built to assist with problem-oriented flow sheets, alerts, and automated evaluation and management calculation

Classification versus Terminology: Knowledgebase of clinical terms and phrases.

Ownership: Medicomp Systems, Inc

Updated: Twice a year

Proprietary versus Nonproprietary: Proprietary systems requiring a license for use.

Means of Distribution: CDs are sent to licensed users.

Comments: MEDCI is distributed with a software development kit to assist with implementation of the front end.

Source of Information: www.medicomp.com

MeSH

Description: Preferred list of terms used by the National Library of Medicine to catalogue books and library materials and to index articles for inclusion in health-related databases, including MEDLINE. MeSH descriptors are arranged in both an alphabetic and a hierarchical structure. There are 22,997 descriptors in MeSH. The most general level of the hierarchical structure contains very broad headings such as "Anatomy" or "Mental Disorders."

Content: Consists of sets of terms naming descriptors in a hierarchical structure that permits searching at various levels of specificity.

Uses: Used by NLM for indexing articles from 4,800 of the world's leading biomedical journals for the MEDLINE/PubMED database. Also used for the NLM-produced database that includes cataloging of books, documents, and audiovisuals by the library.

Classification versus Terminology: Terminology

Ownership: National Library of Medicine

Updated: Continually updates by subject specialists. The vocabulary is also published in print each January

Proprietary versus Nonproprietary: Nonproprietary. The MeSH Web site is the central access point for more information

Means of Distribution: MeSH, in machine-readable form, is provided at no charge via electronic means. The MeSH Web site, <http://www.nlm.nih.gov/mesh>, is the central access point for additional information and for obtaining MeSH in electronic form. The vocabulary is also published in print each January.

Comments: MeSH can be a difficult tool to use, and initially users may have problems in locating appropriate subject headings. MeSH requires a certain amount of knowledge before it can be used productively. MeSH prefers clinical terms such as neoplasm as opposed to more common terms like cancer or tumor. Also, some compound terms are not listed in natural word order. For example, juvenile rheumatoid arthritis is listed under arthritis, juvenile, rheumatoid.

Source of Information: <http://www.nlm.nih.gov/mesh/>

UMLS

Description: Consists of three knowledge sources: the Metathesaurus (vocabulary database), the Semantic Network (categorization and relationships of and between the vocabulary terms), and the SPECIALIST Lexicon (information to assist with natural language processing). The MetamorphoSys is a tool used to assist in installation and customization of the knowledge sources.

Content: Several of the data sources contained within the UMLS include MeSH, CPT, ICD-9-CM, LOINC, and SNOMED CT.

Uses: The multipurpose UMLS databases and software tools are meant to facilitate the development of the interoperability of computer systems in the many different aspects of the healthcare information.

Classification versus Terminology: Vocabulary database of more than 130 terminologies and classification systems

Ownership: The Unified Medical Language System is owned and maintained by the National Library of Medicine.

Updated: Three to four times a year.

Proprietary versus Nonproprietary: More than 130 terminologies and classification systems within the UMLS are proprietary, many of which are proprietary and require separate license agreements for use. However, access to all of the UMLS knowledge sources is free, but requires a license agreement with the NLM.

Means of Distribution: Through Web site distribution or DVD obtained through the NLM.

Comments: Through Web site distribution or DVD obtained through the NLM.

Source of Information: www.nlm.nih.gov/research/umls/about_umls.html

Clinical Care Classification

Description: Terminology that identifies the discrete data elements of nursing practice. Standardized framework and coding structure of diagnoses interventions, and outcomes for assessing, documenting, and classifying care in all healthcare settings. Used to track and measure patient/client care holistically over time, across settings, population groups, and geographic locations.

Content: 182 nursing diagnostic coded concepts; 792 nursing interventions and action-coded concepts (198 interventions and 4 action qualifiers—assess/monitor, direct care/perform, teach/instruct. manage/refer); 546 nursing outcomes (182 diagnoses and three expected and actual outcome qualifiers—improve, stabilize, or deteriorate); 21 care components classifies, codes and links terminologies.

Uses: It is used to document nursing care in the electronic health record computer-based patient record, and personal health record systems. It serves as a language for nursing and other healthcare providers such as physical, occupational, and speech therapists, medical social workers, etc. It is used for document integrated patient care processes to classify and track clinical care, develop evidence-based practice models, analyze patient profiles and populations, and predict care needs, resources, and costs.

Classification versus Terminology: Classification

Ownership: Developed and maintained by Virginia K. Saba and colleagues from the University of Georgetown.

Updated: No information available.

Proprietary versus Nonproprietary: Version 2.0 is free and granted upon permission and available at www.sabacare.com

Means of Distribution: Through Web site distribution of tables. A manual is also available for \$45.

Comments: On January 22, 2007 the CCC was accepted by the Department of Health and Human Services as a named standard within the Healthcare Information Technology Standards Panel (HITSP) Interoperability Specification for Electronic Health Records, Biosurveillance and Consumer Empowerment. The CCC system is recognized as the terminology of choice for documenting the essence of patient care in the EHR systems. It meets all the features of a concept-oriented terminology and has been formally accepted by the various standards organizations. It has been incorporated into LOINC and UMLS and is a separate subset of SNOMED CT (for a separate fee through CAP).

Source of Information: www.sabacare.com