

# COMMONWEALTH OF VIRGINIA



**Information Technology Resource Management (ITRM)**

## **ENTERPRISE ARCHITECTURE HEALTH VOCABULARY DATA STANDARD**

**Virginia Information Technologies Agency (VITA)**



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## Health Vocabulary Standard Owners

The health vocabulary data standard owners shall have authority for the interpretation and application of this standard. The owners responsible for the development and ongoing maintenance of the Commonwealth's Health Vocabulary Data Standard are as follows:

- Department for the Aging (VDA): Leonard Eshmont, Chief Information Officer
- Department of Behavioral Health and Developmental Services (DBHDS): Sanford Hostetter, Chief Information Officer
- Department of General Services Division of Consolidated Laboratory Services (DCLS): Wanda Andrews, Director of Laboratory Operations
- Department of General Services Division of Consolidated Laboratory Services (DCLS): Vickie Tyson, IT Application Development and Project Manager
- Department of Health (VDH): Debbie Secor, Chief Information Officer
- Department of Health Professions (DHP): Patricia A. Paquette, Chief Information Officer
- Department of Medical Assistance Services (DMAS): Sylvia Hart, Chief Information Officer
- Department of Rehabilitative Services (DRS): Ernie Steidle, Chief Information Officer
- Department of Social Services (VDSS): Robert Hobbelman, Chief Information Officer

The Data Stewards associated with each agency are as follows:

- VDA: ?
- DBHDS: ?
- DCLS: ?
- VDH: ?
- DHP: ?
- DMAS: ?
- DRS: ?
- VDSS: ?

Health Information Technology Standards Advisory Committee (HITSAC) members are as follows:

- Mr. Geoff Brown, Senior Vice President and Chief Information Officer, Inova Health System
- Mr. Richard Pollack, Vice President and Chief Information Officer, VCU Health System
- Mr. John Quinn, Chief Technology Officer of HL7, Inc.
- Dr. Marshall Ruffin, Chief Technology and Health Information Officer, UVA Health System

The VITA Enterprise Solutions and Governance (ESG) has supported the development of the Health Vocabulary data standard and has reviewed it for completeness and accuracy according to data management best practices. The ESG resources responsible for supporting the Health Vocabulary standard are as follows:

- Jerry Simonoff, Director Enterprise Solutions and Governance

- Susan McCleary, HITSAC Administrator
- Akeisha Heard, Data Analyst
- Michael Hammel, Enterprise Architect

## ***Publication Version Control***

This following table contains a history of revisions to this publication.

<b>Version</b>	<b>Date</b>	<b>Revision Description</b>
1.0	mm/dd/2011	Initial Document

## ***Reviews***

- This publication was reviewed by the Policy, Practice and Architecture group.
- Online review was provided for agencies and other interested parties via the VITA Online Review and Comment Application (ORCA).

## Components of the Health Vocabulary Data Standard

The Health Vocabulary Data Standard consists of the following components:

1. A business narrative describing the standard (this document)

## Health Vocabulary Data Standard Background

Effective March 2010, Code of Virginia § [2.2-2699.5](#) created the Information Technology Advisory Council (ITAC) to advise the Chief Information Officer (CIO) and Secretary of Technology on information technology:

A. The Information Technology Advisory Council (ITAC) is established as an advisory council, within the meaning of § 2.2-2100, in the executive branch of state government. The ITAC shall be responsible for advising the CIO and the Secretary of Technology on the planning, budgeting, acquiring, using, disposing, managing, and administering of information technology in the Commonwealth.

As part of their duties, ITAC advises the CIO on data standards (The Code of Virginia § [2.2-2699.6](#)):

The ITAC shall have the power and duty to:

5. Advise the CIO on statewide technical and data standards for information technology and related systems, including the utilization of nationally recognized technical and data standards for health information technology systems or software purchased by a state agency of the Commonwealth;

The Health Information Technology Standards Advisory Committee (HITSAC) was established in Code of Virginia § [2.2-2699.7](#) as a health care and information technology advisory committee of ITAC:

The ITAC may appoint an advisory committee of persons with expertise in health care and information technology to advise the ITAC on the utilization of nationally recognized technical and data standards for health information technology systems or software pursuant to subdivision 5 of § 2.2-2699.6. The ITAC, in consultation with the Secretary of Health and Human Resources, may appoint up to five persons to serve on the advisory committee. Members appointed to the advisory committee shall serve without compensation, but shall be reimbursed for all reasonable and necessary expenses incurred in the performance of their duties as provided in § 2.2-2825. The CIO, the Secretary of Technology, and the Secretary of Health and Human Resources, or their designees, may also serve on the advisory committee.

## Scope

This standard details the vocabulary that agencies in the Health and Human Resources secretariat and their partners use to indicate medical terminology, medical procedures, measurements and other relevant data in their information technology systems and data exchanges.

[discussion of why DSO are doing this]

## Definitions

**Concatenation:** Concatenation is the state of being linked together as in a chain; union in a linked series. These are data attributes typically joined together to create uniqueness. (e.g. combining tax identification type and tax identifier to ensure identification numbers issued by Social Security and the IRS are unique).

**Data Dictionary:** A data dictionary is a centralized repository of information about data such as meaning, relationships to other data, origin, usage, and format." (ACM, IBM Dictionary of Computing, 10th edition, 1993) A data dictionary includes such items as complete and accurate definitions of both entities and attributes, attribute domains, valid values, synonyms or aliases, default values, data type and length, required/not required constraints, etc.

**Data Owner:** The Agency Data Owners define, manage and control the use of data within their organizations. The Agency Head or designee designates the Agency Data Owner(s) for the functional/subject areas within their jurisdictional control or authority. They also ensure adequate resources for Agency Data Owners to effectively develop and maintain their respective functional/subject areas in support of the Commonwealth's Data Management Program.

**Data Steward:** A data steward is the person assigned by an agency to represent the agency's interagency data needs and ensure that proposed standards meets those needs. The Agency Data Steward works on behalf of their Agency Data Owner. The data steward should have a broad understanding of the agency's data, be able to research data usage, and be empowered to obtain agreement from data owners and speak authoritatively for the agency.

**Vocabulary:** A vocabulary (also called a code set) is a list of controlled terminology most often associated with a list of codes that are used to indicate a particular piece of information such as medical concepts, medical diagnosis, or medical procedures.

## Health Vocabulary Data Standards

The following table lists the vocabularies that are adopted as standards by the Commonwealth of Virginia. The text that follows describes each adopted standard, when the standard will be used, availability and source of information.

### Adopted Vocabulary Data Standards

<b>Name</b>	<b>Acronym</b>
<a href="#"><u>Consolidated Health Informatics Terminology</u></a>	CHI
<a href="#"><u>CVX</u></a>	CVX
<a href="#"><u>Enzyme Nomenclature</u></a>	Enzyme Codes
<a href="#"><u>Codes for the Identification of Counties and Equivalent Entities of the United States, its Possessions, and Insular Areas</u></a>	ANSI INCITS 31:2009
<a href="#"><u>Health Level 7 Vocabulary</u></a>	HL7 Vocabulary
<a href="#"><u>International Classification of Diseases, Ninth Revision, Clinical Modification</u></a>	ICD-9CM
<a href="#"><u>International Classification of Diseases, Tenth Revision</u></a>	ICD-10
<a href="#"><u>Logical Observation Identifiers Names and Codes</u></a>	LOINC
<a href="#"><u>MX</u></a>	MX
<a href="#"><u>National Immunization Program Current Procedural Terminology</u></a>	NIP CPT
<a href="#"><u>Office of Management and Budget, Statistical Policy Directive No. 15, Race and Ethnic Standards for Federal Statistics and Administrative Reporting</u></a>	OMB
<a href="#"><u>Online Mendelian Inheritance in Man</u></a>	OMIM
<a href="#"><u>Public Health Information Network Vocabulary Access and Distribution System</u></a>	PHIN-VADS
<a href="#"><u>Public Health Laboratory Interoperability Project</u></a>	PHLIP
<a href="#"><u>Pulsenet DNA patterns</u></a>	Pulsenet DNA patterns
<a href="#"><u>S. Braenderup H2812 - ATCC BAA-664</u></a>	S. Braenderup H2812 - ATCC BAA-664
<a href="#"><u>Systemized Nomenclature of Medicine-Clinical Terms</u></a>	SNOMED CT
<a href="#"><u>Unified Code for Units of Measure</u></a>	UCUM
<a href="#"><u>U.S. Department of Agriculture Animal and Plant Health Inspection Service Surveillance and Data Standards</u></a>	USDA-APHIS



## ***Vocabulary Data Standards Descriptions***

### **Consolidated Health Informatics (CHI)**

#### ***Maintained By***

Office of the National Coordinator (ONC), Health Informational Technology's Federal Health Architecture

#### ***Description***

CHI "adopts a portfolio of existing health information interoperability standards (health vocabulary and messaging) enabling all agencies in the federal health enterprise to "speak the same language" based on common enterprise-wide business and information technology architectures." (ONC)

#### ***Use***

[when should it be used?]

#### ***Availability***

[Unknown]

#### ***Website***

<http://www.hhs.gov/healthit/chiinitiative.html>

### **CVX**

#### ***Maintained By***

Centers for Disease Control and Prevention (CDC) National Center of Immunization and Respiratory Diseases (NCIRD)

#### ***Description***

CVX is HL7 Table 0292, Vaccine Administered (CVX). It includes both active and inactive vaccines available in the U.S. (CDC)

#### ***Use***

[when should it be used?]

### ***Availability***

Excel, PDF, flat and XML format files are available for free from the CDC website.

### ***Website***

<http://www2a.cdc.gov/nip/IIS/IISStandards/vaccines.asp?rpt=cvx>

## **Enzyme Nomenclature**

### ***Maintained By***

Nomenclature Committee of the International Union of Biochemistry and Molecular Biology (NC-IUBMB)

### ***Description***

List contains the accepted names of enzymes

### ***Use***

[when should it be used?]

### ***Availability***

A searchable database and lists by Enzyme Code (EC) are available for free on the IUBMB website.

### ***Website***

<http://www.chem.qmul.ac.uk/iubmb/enzyme/>

## **Codes for the Identification of Counties and Equivalent Entities of the United States, its Possessions, and Insular Areas (ANSI INCITS 31:2009)**

### ***Maintained By***

American National Standards Institute (ANSI)

### ***Description***

ANSI codes are a standardized set of numeric or alphabetic codes issued by the American

National Standards Institute (ANSI) to ensure uniform identification of geographic entities through all federal government agencies. INCITS 31:2009 specifically covers counties and statistically equivalent entities.

This was previously known as the Federal Information Processing Standard (FIPS) Code 6-4. The FIPS standard was withdrawn by National Institute of Standards and Technology (NIST) as a Federal Information Processing Standard on September 2, 2008 [Federal Register, September 2, 2008 (Volume 73, Number 170), page 51276, <http://edocket.access.gpo.gov/2008/E8-20138.htm>]. (U.S. Census Bureau)

### ***Use***

[when should it be used?]

### ***Availability***

A common-delimited file is available for free on the U.S. Census Bureau website (<http://www.census.gov/geo/www/ansi/download.html>).

### ***Website***

<http://www.census.gov/geo/www/ansi/ansi.html>

## **Health Level 7 Vocabulary (HL7 Vocabulary)**

### ***Maintained By***

Health Level 7

### ***Description***

"Version 2 Messages, formally published as "Application Protocol for Electronic Data Exchange in Healthcare Environments" is an interoperability specification for transactions produced and received by computer systems. These specifications are published as a collection of chapters that describe the transaction interactions by domain.

Version 3 Messages is an interoperability specification for transactions that are derived from the HL7 V3 Foundation models and vocabulary and define communications produced and received by computer systems. V3 Messages include the concepts of message wrappers, sequential interactions, and model-based message payloads. These specifications are published as a collection of topics that describe the transaction interactions by domain."

### ***Use***

[when should it be used?]

## ***Availability***

Membership at the organizational, support or benefactor level to HL7 is required to access the standard documentation. Documentation may also be available as part of software packages that handle HL7 messages.

## ***Website***

<http://www.hl7.org>

## **International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9CM)**

### ***Maintained By***

U.S. National Center for Health Statistics (NCHS) and the Centers for Medicare and Medicaid Services (CMS)

### ***Description***

"The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) is based on the World Health Organization's Ninth Revision, International Classification of Diseases (ICD-9). ICD-9-CM is the official system of assigning codes to diagnoses and procedures associated with hospital utilization in the United States." (CDC)

### ***Use***

[when should it be used?]

### ***Availability***

Rich Text Format (RTF) files can be downloaded for free from the CDC website below. A CD-ROM containing Folio InfoBase format files can be purchased from the [U.S. Government Printing Office](#).

### ***Website***

<http://www.cdc.gov/nchs/icd/icd9cm.htm>

## International Classification of Diseases, Tenth Revision (ICD-10)

### ***Maintained By***

World Health Organization (WHO)

### ***Description***

"The ICD is the international standard diagnostic classification for all general epidemiological, many health management purposes and clinical use. These include the analysis of the general health situation of population groups and monitoring of the incidence and prevalence of diseases and other health problems in relation to other variables such as the characteristics and circumstances of the individuals affected, reimbursement, resource allocation, quality and guidelines.

It is used to classify diseases and other health problems recorded on many types of health and vital records including death certificates and health records. In addition to enabling the storage and retrieval of diagnostic information for clinical, epidemiological and quality purposes, these records also provide the basis for the compilation of national mortality and morbidity statistics by WHO Member States." (WHO)

U.S. National Center for Health Statistics (NCHS) "is using a copy modified and corrected by NCHS. The NCHS version converts the English spellings to American spellings and incorporates changes made after the WHO version was published." (CDC)

### ***Use***

[when should it be used?]

### ***Availability***

The vocabulary is available in HTML format on the WHO website for free. Print, CD-ROM, and downloadable versions can be purchased from the WHO website. NCHS lists of causes used to publish mortality data are available. The detailed each cause list can be obtained from the Web site at [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/ICD10/](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/ICD10/)" (according to <http://www.cdc.gov/nchs/data/dvs/icd10fct.pdf>). Centers for Medicare and Medicaid Services (CMS) has a website (<http://www.who.int/classifications/icd/en/>) detailing the transition from ICD-9 to ICD-10.

### ***Website***

<http://www.who.int/classifications/icd/en/>

## Logical Observation Identifiers Names and Codes (LOINC)

### ***Maintained By***

Regenstrief Institute, Inc

### ***Description***

"The purpose of LOINC® is to facilitate the exchange and pooling of clinical results for clinical care, outcomes management, and research by providing a set of universal codes and names to identify laboratory and other clinical observations." (Regenstrief)

### ***Use***

[when should it be used]

### ***Availability***

Microsoft Access and tab-delimited formats files can be downloaded for free from the LOINC website.

### ***Website***

<http://www.loinc.org>

## **MVX**

### ***Maintained By***

Centers for Disease Control and Prevention (CDC) National Center of Immunization and Respiratory Diseases (NCIRD)

### ***Description***

MVX is HL7 Table 0227, Manufacturers of Vaccines (MVX). It includes both active and inactive manufacturers of vaccines in the U.S. (CDC)

### ***Use***

[when should it be used?]

### ***Availability***

Excel, PDF, flat and XML format files are available for free from the CDC website.

### ***Website***

<http://www2a.cdc.gov/nip/IIS/IISStandards/vaccines.asp?rpt=mvx>

## **National Immunization Program Current Procedural Terminology (NIP CPT)**

### ***Maintained By***

American Medical Association and Centers for Disease Control and Prevention

### ***Description***

List cross-references Current Procedural Terminology (CPT™) codes that are related to vaccines, toxoids and immune globulins with their corresponding CVX codes

### ***Use***

[when should it be used?]

### ***Availability***

Excel, PDF, flat and XML format files are available for free from the CDC website.

### ***Website***

<http://www2a.cdc.gov/nip/IIS/IISStandards/vaccines.asp?rpt=cpt>

## **Office of Management and Budget, Statistical Policy Directive No. 15, Race and Ethnic Standards for Federal Statistics and Administrative Reporting (OMB)**

### ***Maintained By***

Office of Management and Budget

### ***Description***

OMB's Statistical Policy Directive No. 15 provided a common language to promote uniformity and comparability for data on race and ethnicity for the population groups specified in the Directive. They were developed in cooperation with Federal agencies to provide consistent data on race and ethnicity throughout the Federal Government.

### ***Use***

[when should it be used?]

### ***Availability***

The list is available on the OMB website for free.

### ***Website***

[http://www.whitehouse.gov/omb/fedreg\\_1997standards/](http://www.whitehouse.gov/omb/fedreg_1997standards/)

## **Online Mendelian Inheritance in Man (OMIM)**

### ***Maintained By***

McKusick-Nathans Institute of Genetic Medicine, Johns Hopkins University School of Medicine

### ***Description***

"OMIM is a comprehensive, authoritative, and timely compendium of human genes and genetic phenotypes. The full-text, referenced overviews in OMIM contain information on all known mendelian disorders and over 12,000 genes. OMIM focuses on the relationship



between phenotype and genotype." (NLM)

***Use***

[when should it be used?]

***Availability***

The searchable database is available on the National Library of Medicine website for free.

***Website***

<http://www.ncbi.nlm.nih.gov/omim>

## **Public Health Information Network Vocabulary Access and Distribution System (PHIN-VADS)**

***Maintained By***

Centers for Disease Control and Prevention

***Description***

"PHIN VADS is a web-based enterprise vocabulary system for accessing, searching, and distributing vocabularies used within the PHIN." (CDC)

***Use***

[when should it be used?]

***Availability***

The searchable database is available on the CDC website for free.

***Website***

<http://phinvads.cdc.gov/vads/>

## Public Health Laboratory Interoperability Project (PHLIP)

### ***Maintained By***

Association of Public Health Laboratories

### ***Description***

Aggregation of multiple code sets used specifically for PHLIP messaging; while these sets are largely defined elsewhere (e.g., SNOMED and LOINC), many codes are specific to the PHLIP project.

### ***Use***

[when should it be used?]

### ***Availability***

[Unknown]

### ***Website***

<http://www.aphl.org/aphlprograms/informatics/collaborations/phlip/pages/default.aspx>

## Pulsenet DNA patterns

### ***Maintained By***

Centers for Disease Control and Prevention

### ***Description***

This dataset consists of genomic DNA banding patterns (fingerprints) of bacteria generated using a technique called pulsed-field gel electrophoresis (PFGE). Labs subtype bacteria by searching local and national databases for clusters of these matching patterns. The data is then entered into Pulsenet and sent to CDC for use in national surveillance.

### ***Use***

[when should it be used?]

### ***Availability***

[Unknown]

## **Website**

<http://www.cdc.gov/pulsenet/>

## **S. Braenderup H2812 - ATCC BAA-664**

### **Maintained By**

[Unknown – ATCC?]

### **Description**

These are part of molecular size standard that is used for matching DNA patterns from different gels and even different laboratories to the national database (PulseNet) so labs can identify families of bacteria such as salmonella, e coli, Shigella, and Listeria.(???)

S. Braenderup H2812 is ????

The DNA from ATCC BAA-664 is used by laboratories in the Pulsenet system as the molecular size standard for Pulsed-field gel electrophoresis (PFGE) analysis of bacterial pathogens.

(<http://www.atcc.org/ATCCAdvancedCatalogSearch/ProductDetails/tabid/452/Default.aspx?ATCCNum=BAA-664&Template=bacteria>)

### **Use**

[when should it be used?]

### **Availability**

[Unknown]

### **Website**

<http://www.atcc.org>, [others???

## **Systemized Nomenclature of Medicine-Clinical Terms (SNOMED CT)**

### **Maintained By**

International Health Terminology Standards Development Organisation (IHTSDO)

### **Description**

SNOMED CT is a "multilingual clinical healthcare terminology" used "to accurately record health care encounters." (IHTSDO)

### **Use**

[when should it be used?]

### **Availability**

The U.S. National Library of Medicine (NLM) distributes SNOMED CT for free to organizations, under the terms of the standard IHTSDO affiliate license which is included in the Unified Medical Language System (UMLS) license agreement. SNOWMED CT can be downloaded or received on DVD by requesting a UMLS Metathesaurus license and creating a UMLS Terminology Services (UTS) account at <https://uts.nlm.nih.gov/home.html>.

### **Website**

<http://www.ihtsdo.org/>

## **Unified Code for Units of Measure (UCUM)**

### **Maintained By**

Regenstrief Institute, Inc

### **Description**

"The Unified Code for Units of Measure is a code system intended to include all units of measures being contemporarily used in international science, engineering, and business. The purpose is to facilitate unambiguous electronic communication of quantities together with their units." (Regenstrief)

### **Use**

[when should it be used]

### **Availability**

HTML and XML documents are available for free on the UCUM website

### **Website**

<http://unitsofmeasure.org/>

## **U.S. Department of Agriculture Animal and Plant Health Inspection Service Surveillance and Data Standards (USDA-APHIS)**

### ***Maintained By***

U.S. Department of Agriculture Animal and Plant Health Inspection Service

### ***Description***

This standard "provides guidelines for the types of data to collect for animal health management and surveillance programs and standards for data terminology and formatting." (USDA)

### ***Use***

[when should it be used?]

### ***Availability***

Data standards for animal health management and surveillance programs (Chapter 2 of 3) are available on the USDA website for free.

### ***Website***

<http://www.aphis.usda.gov/vs/nahss/resources.htm#standards>

## Health Vocabulary Data Standard Compliance

The Commonwealth of Virginia have established the above vocabulary to be standards when dealing with health data.

As of **January 1, 2016**, agencies and institutions implementing new applications or upgrading applications that contain health information must comply with all aspects of the Health Vocabulary Data Standard prior to production use of the application.

Agencies and Institutions which are unable to comply with the standard must inform the Data Standard Owners using the VITA Exception Form available at [http://www.vita.virginia.gov/uploadedFiles/Oversight/EA/Data\\_Management\\_Group/EA%20Change-Exception%20Request%20Form.doc](http://www.vita.virginia.gov/uploadedFiles/Oversight/EA/Data_Management_Group/EA%20Change-Exception%20Request%20Form.doc). The completed form should be emailed to [ea@vita.virginia.gov](mailto:ea@vita.virginia.gov).

### ***General Guidance***

- XXXXXXXX