LexEVS 6.x ICD-9 Mappings

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Source Data, General Comments

The ICD-9 data is provided in two text files. One is diagnosis codes (also referred to as Volume 1 and Volume 2) the other is procedure codes (referred to as Volume 3). Each file is formatted as a two column flat file. Column one is the ICD-9 code. Column two is a definition. The columns are separated by white space. Both files are loaded as a single LexGrid coding scheme. Decision for this was based on the behavior of the UMLS load of ICD-9 UMLS data where diagnosis and procedures codes are loaded into a single coding scheme.

Source Data, Source

The ICD-9 data for this loader came from Centers for Medicare & Medicaid Services (CMS, http://www.cms.gov/). http://www.cms.hhs.gov/ICD9ProviderDiagnosticCodes/Downloads/v26_icd9.zip

Source Data, Example:

- 0010 CHOLERA D/T VIB CHOLERAE
- 0011 CHOLERA D/T VIB EL TOR
- 0019 CHOLERA NOS

Source Data, Code Format

The ICD concpet code in the source data files does not contain a decimal point. The loader will add a decimal point to the concpet codes following these rules:

For diagnosis codes, the number part of the code will always be 3 digits with zero or one or two decimal digits. For procedure codes the numeric part of the code will be 2 digits with zero, one or two digits following the decimal point. Using the example diagnosis data above, 0010 will be read by the loader and 001.0 will be stored in the database.

Mappings

Coding Scheme data

No descriptive information about the data is included in the source. Default values are provided by the loader. The user must provided a version value to the loader which will be used as the coding scheme version.

Table: codingScheme

Field Name	Value
codingSchemeGuid	<generated value>
codingSchemeName	ICD-9-CM
codingSchemeUri	urn:oid:2.16.840.1.113883.6.2
representsVersion	<provided by user>
formalName	ICD-9 CM Volume 1,2, and 3
defaultLanguage	ENG
approxNumConcepts	Null

description	International Classification of Diseases, Ninth Revision, Clinical Modification
copyRight	Donna Pickett;Contact for Diseases; National Center for Health Statistics;3311 Toledo Road;Hyattsville;MD;United States; 20782;1-800-232-4636;dfp4@cdc.gov; http://www.cdc.gov/nchs
isActive	Null
owner	Null
status	Null
effectiveDate	Null
releaseGuid	Null
codingSchemeSource	U.S. Department of Health and Human Services, Centers for Medicare & Medicaid Services
entryStateGuid	Null

Also the following attributes are supported by coding scheme:
Table: supportedAttrib, tag: CodingScheme

Field Name	Value
csSuppAttribGuid	<generated>
codingSchemeGuid	<from codingScheme table>
supportedAttributeTag	CodingScheme
id	ICD-9-CM
uri	urn:oid:2.16.840.1.113883.6.2
idValue	<blank>
associationNames	Null
rootCode	Null
isForwardNavigable	Null
isImported	1
equivalentCodingScheme	Null
assemblyRule	Null
assnCodingScheme	Null
assnNamespace	Null
assnEntityCode	Null
propertyType	Null

The tables below continue to show default supported attributes for the coding scheme. Only fields with non-null values and non-generated values (such as Global Unique Identifiers or GUIDs) will be displayed.

Table: supportedAttrib (abbreviated), tag: EntityType

Field Name	Value
supportedAttributeTag	EntityType
id	CONCEPT
idValue	CONCEPT

Table: supportedAttrib (abbreviated), tag: Language

Field Name	Value

Field Name	Value
supportedAttributeTag	Language
id	ENG
idValue	CONCEPT

Table: supportedAttrib (abbreviated), tag: Association

Field Name	Value
supportedAttributeTag	Association
id	hasSubType
idValue	hasSubType

Table: supportedAttrib (abbreviated), tag: Association

Field Name	Value
supportedAttributeTag	Association
id	isA
idValue	isA

Table: supportedAttrib (abbreviated), tag: EntityType

Field Name	Value
supportedAttributeTag	EntityType
id	ASSOCIATION
idValue	ASSOCIATION

Table: supportedAttrib (abbreviated), tag: Property

Field Name	Value
supportedAttributeTag	Property
id	definition
idValue	definition
propertyType	PRESENTATION

Entity

Each row in the source file represents a concept. A LexGrid entityCode is the ICD concept code and entityName is the ICD definition. An entity type of concept is also created in the entityType table. The following tables are updated for each ICD concept: entity, entityType. Also, a property of type PRESENTATION is created for each concept so the property table is updated as well, where the property value is the ICD concept definition.

Table: entity

Field Name	Value
entityGuid	<generated >
codingSchemeGuid	< from codingScheme table>
entityCode	E96.84
entityCodeNamespace	urn:oid:2.16.840.1.113883.6.2
isDefined	Null
isAnonymous	Null
description	ASSAULT-CRIMINAL NEGLECT
isActive	1

owner	Null
status	Null
effectiveDate	Null
expirationDate	Null
entryStateGuid	< generated - used with revisions >
forwardName	Null
reverseName	Null
isNavigable	Null
isTransitive	Null

Table: entityType

Field Name	Value
entityGuid	< from entity table>
entityType	CONCEPT

Table: property

Field Name	Value
propertyGuid	<generated >
referenceGuid	< guid from entity table >
referenceType	entity
propertyId	definition
propertyType	presentation
propertyName	definition
language	ENG
format	Null
isPreferred	1
matchIfNoContext	0
degreeOfFidelity	< blank >
representationalForm	Null
propertyValue	ASSAULT-CRIMINAL NEGLECT
isActive	Null
owner	Null
status	Null
effectiveDate	Null
expirationDate	Null
entryStateGuid	< generated > used if revision

Relations

A default relations container is created by the loader.

Table: relation

Field Name	Value

relationGuid	<generated >
relationGuid	< from codingScheme table >
containerName	icd9CmCmsVol1Vol2Vol3Relations
isMapping	0
representsVersion	Null
sourceCodingScheme	Null
sourceCodingSchemeVersion	Null
targetCodingScheme	urn:oid:2.16.840.1.113883.6.2
targetCodingSchemeVersion	< provided by user >
description	ICD-9-CM CMS Vol 1, Vol 2 and Vol 3 relations container
isActive	Null
owner	Null
status	Null
effectiveDate	Null
expirationDate	Null
entryStateGuid	< generated >

Associations

There is no hierarchy present in the source files. However, the loader does create a root concept, @, that all other concepts are associated with via the hasSubType and isA relationships.

Two Associations are defined: hasSubType and isA. For each type of association an entry will be made in the following tables: associationPredicate, entity, entityType. Only hasSubType is shown in the examples below.

Note: isA is also created as a reverse association for hasSubType. It was thought at the time the loader was written that a reverse assocation was required but that may not be the case. The isA association may be removed in a later version of the loader.

Table: associationPredicate

Field Name	Value
associationPredicateGuid	<generated>
relationGuid	<from relation table>
associationName	hasSubType

Table: entity

Field Name	Value
entityGuid	<generated >
codingSchemeGuid	< from codingScheme table >
entityCode	hasSubType
entityCodeNamespace	urn:oid:2.16.840.1.113883.6.2
isDefined	Null
isAnonymous	Null
description	the object has a sub-type relationship with another object
isActive	1
owner	Null
status	Null

effectiveDate	Null
expirationDate	Null
entryStateGuid	< generated >
forwardName	hasSubtype
reverseName	isA
isNavigable	1
isTransitive	0

Table: entityType

Field Name	Value
entityGuid	<from entity table>
entityType	ASSOCIATION

Concept to Concept Associations

These are the concepts with relationships to each other. As mentioned earlier, there really are none in the ICD data. But we create a default root concept for all the ICD concepts to associate with.

Each ICD concept will be associated with the root concept by the hasSubType association.

Table: entityAssnsToEntity

Field Name	Value
entityAssnsGuid	<generated>
associationPredicateGuid	< from associationPredicate table >
sourceEntityCode	@
sourceEntityCodeNamespace	urn:oid:2.16.840.1.113883.6.2
targetEntityCode	87.41
targetEntityCodeNamespace	urn:oid:2.16.840.1.113883.6.2
associationInstanceId	<generated>
isDefining	1
isInferred	Null
isActive	1
owner	Null
status	Null
effectiveDate	Null
expirationDate	Null
entryStateGuid	< generated - used with revisions >