Clinical Nomenclature Review: RxNorm, LOINC & SNOMED

A focus on SNOMED-CT in ICD 10 Transition

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Agenda

- Clinical Terminologies and vocabularies
- NLM
  - UMLS
- RxNorm
- Loinc
- SNOMED
  - Imagic

Clinical Terminologies and Vocabularies

- Clinical **Terminologies** represent terms related to the medical field while **Vocabularies** are the collections of terms.
- Both clinical terminologies and vocabularies provide a way to capture detailed data in an electronic health record (EHR). They support the transformation of paper-based to electronic records by providing a *machine-readable data structure*.
- Clinical terminologies are considered the **input** format while classification systems are the **output** format.(AHIMA)

Classification VS. Terminology

- Classification systems (output)
  - i.e.:ICD-9-CM, ICD-10-CM, and ICD-10-PCS

- Clinical terminology (input)
  - i.e.: SNOMED-CT

NLM

- National Library of Medicine
  - ▫ World's largest biomedical library

- Databases (i.e: PubMed/MEDLINE, MeSH, **UMLS**, ClinicalTrials.gov, MedlinePlus, TOXNET, Images from the History of Medicine, LocatorPlus....)

SePHIMA

UMLS -
Unified Medical Language System

- Integrates and distributes:
  - key terminology
  - classification and coding standards
  - associated resources to promote creation of more effective and interoperable biomedical information systems and services, including electronic health records.

UMLS, cont.

- Three tools called the Knowledge Sources:
    - [Metathesaurus]: Terms and codes from many vocabularies, including CPT®, ICD-10-CM, LOINC®, MeSH®, RxNorm, and SNOMED CT®
        - Semantic Network: Broad categories (semantic types) and their relationships (semantic relations)
        - SPECIALIST Lexicon and Lexical Tools: Natural language processing tools

RxNORM

RxNORM

- RxNorm
  - Normalized naming system for generic and branded drugs
  - A tool for supporting semantic interoperation between drug terminologies and pharmacy knowledge base systems

- NLM produces RxNorm
  1. Receives drug names from many data sources
  2. Analyzes and processes the data
  3. Outputs the data into RxNorm files in a standard format

What is the Purpose of RxNORM?

- Hospitals, pharmacies, and other organizations use computer systems to record and process drug information

- The purpose of RxNorm is to provide a normalized names and unique identifiers for medicines and drugs. The goal of RxNorm is to allow computer systems to comm related information efficiently and unambiguously(NLM)

Scope

- RxNorm contains the names of prescription and many over-the-counter drugs available in the United States. RxNorm includes generic and branded
- Clinical drugs - pharmaceutical products given to (or taken by) a patient with therapeutic or diagnostic intent
- Drug packs - packs that contain multiple drugs, or drugs designed to be administered in a specified sequence
- Radiopharmaceuticals, contrast media, food, dietary supplements, and medical devices, such as bandages and crutches, are all out of scope for RxNorm.

How is RxNorm Produced?

- NLM receives drug names from many data sources, analyzes and processes the data, and outputs the data into RxNorm files in a standard format. There are many steps involved in RxNorm production, but these five basic steps give a general idea of how RxNorm is produced....

Step 1

- **1. Group source data into collections of synonyms (called concepts).**
- Sample source data:
  - Naproxen Tab 250 MG
  - Naproxen 250mg tablet (product)
  - NAPROXEN@250 mg@ORAL@TABLET
  - Naproxen 250 MILLIGRAM In 1 TABLET ORAL TABLET
  - NAPROXEN 250MG TAB,UD [VA Product]
- Sources format their drug names in many different ways. Although the drug names in this Naproxen example appear different, they all have the same meaning at a certain level of abstraction. RxNorm groups these as synonyms into one concept.

Step 2

- **Create an RxNorm normalized name for each concept (if the concept is in scope and unambiguous).**
- About 60% of the drug names from source vocabularies receive RxNorm normalized names in addition to the names provided by the source vocabularies. The other 40% do not receive RxNorm normalized names, because they are either out of scope or their names are too ambiguous. The most common types of names that are not assigned RxNorm normalized names are medical devices, foods, and enzymes.

- The Naproxen concept above is in scope for RxNorm, so it is assigned an RxNorm normalized name. The normalized name consists of the ingredient, strength, and dose form (in that order) for fully-specified generic drugs. In our example, the RxNorm normalized name is 'Naproxen 250 MG Oral Tablet'. The branded version of this drug uses the same format but includes the brand name in brackets at the end (e.g., 'Naproxen 250 MG Oral Tablet [Prosaid]').

Step 3

- **Assign an RxNorm concept unique identifier (RXCUI) to each concept and an RxNorm atom unique identifier (RXAUI) to each atom.**
- Each concept receives an RXCUI, which is unique to that concept. An RXCUI is essentially the "name" of a concept that computers read and understand. RXCUIs are never deleted or reused; RXCUIs and the meanings of concepts persist from one RxNorm release to the next.
- Concepts are collections of synonyms at a given level of abstraction. Each drug name carries additional characteristics, including its source, its code (the unique identifier assigned by its source), and its term type (described below). An atom is a drug name plus these additional characteristics. Each atom within a concept receives an atom unique identifier, an RXAUI.
- NLM assigns the RXCUI '198013' to the Naproxen concept above. Each of the atoms associated with the drug names listed above receives a separate RXAUI.

Step 4

- **Include relationships and attributes from the source data.**
- Source data include more than drug names in some cases. Data can also include relationships that link drug names to other drug names and ingredients, as well as other information, such as National Drug Codes (NDCs), marketing categories, and pill imprint information.
- Using the same example as before, you'll find relationships to synonyms and ingredients, as well as NDC, manufacturer, and pill size attributes.

Step 5

- **Create related RxNorm names and relationships.**
- In addition to the fully complete clinical drug names (ingredient, strength, and dose form), RxNorm also creates names at other levels of specificity:
- ingredient / precise ingredient / multiple ingredients
- ingredient + strength
- ingredient + dose form / ingredient + dose form group
- Whenever NLM creates a fully-specified drug name, these more general names (and the concepts that contain these names) are also created if they don't already exist. RxNorm then creates relationships to link these concepts together. This set of concepts and relationships is a "graph." So for both generic and branded drugs, RxNorm "fills out the graph" by creating the related drug names (and their concepts) that don't already exist. In the case of branded drugs, NLM creates their generic counterparts when they don't already exist in the data.
- Along with the RxNorm fully-specified name 'Naproxen 250 MG Oral Tablet', NLM creates:
- 'Naproxen'
- 'Naproxen 250 MG'
- 'Naproxen Oral Tablet' / 'Naproxen Oral Products' / 'Naproxen Pills'
- RxNorm links these names using relationships. Here are a few examples:
- 'Naproxen 250 MG Oral Tablet' has_dose_form 'Oral Tablet'
- 'Naproxen' ingredient_of 'Naproxen 250 MG'
- 'Naproxen 250 MG Oral Tablet' isa 'Naproxen Oral Tablet'
- 'Naproxen Pills' has_ingredient 'Naproxen'

How Often is RxNorm Released?

- **Full Monthly Releases**
- The full RxNorm data set is released on the first Monday of each month. During months when the first Monday is a Federal holiday, RxNorm is released on the following Tuesday. The monthly release schedule for 2012 is as follows....

How often is RxNorm Released?

Date	Day
January 3	**Tuesday**
February 6	Monday
March 5	Monday
April 2	Monday
May 7	Monday
June 4	Monday
July 2	Monday
August 6	Monday
September 4	**Tuesday**
October 1	Monday
November 5	Monday
December 3	Monday

More Release Info:

- **Weekly Updates**
- RxNorm is updated every Wednesday with newly-approved drug information from the MTHSPL source vocabulary. Weekly updates are meant to be used in conjunction with the most recent full monthly release and any previous weekly updates for that same month.
- **UMLS Semiannual Releases**
- RxNorm is available through the UMLS, which is updated in May and November each year. The RxNorm data in the UMLS is always a few months behind the current RxNorm monthly release. For example, the November release of the UMLS would contain the September RxNorm data. At each UMLS release, the monthly RxNorm data is synchronized with the data contained in that UMLS release.

Where Can I Get More Info On RxNorm?

- **Technical documentation**
- For more-detailed, technical information about RxNorm, including scripts for loading RxNorm data into Oracle and MySQL databases, read the RxNorm technical documentation.
- **Release notes**
- For each monthly release, the release notes provide information about source vocabulary updates, data changes, and data counts. The RxNorm Files page contains a link to the current release notes.
- **Listserv**
- RXNORM-ANNOUNCES-L is an announcement-only listserv for information related to the RxNorm release files, technical issues related to accessing the files, and other important announcements. Visit the RXNORM-ANNOUNCES-L page to subscribe and access the list archives.
- **E-mail**
- Questions and comments can be directed at: rxnorminfo@nlm.nih.gov

LOINC

LOINC

- **L**ogical **O**bservation **I**dentifiers **N**ames and **C**odes

- Database and universal standard for identifying medical laboratory observations

- It was developed and is maintained by the Regenstrief Institute, a US non-profit medical research organization, in 1994(Wiki)

LOINC Facts

- Suite of designated standards for use in U.S. Federal Government systems for the <u>electronic exchange of clinical health information</u>

- likely to become a HIPAA standard for some segments of the Claims Attachment transaction

- In 1999, it was identified by the *HL7* Standards Development Organization as *a preferred code set* for laboratory test names in transactions between health care facilities, laboratories, laboratory testing devices, and public health authorities.
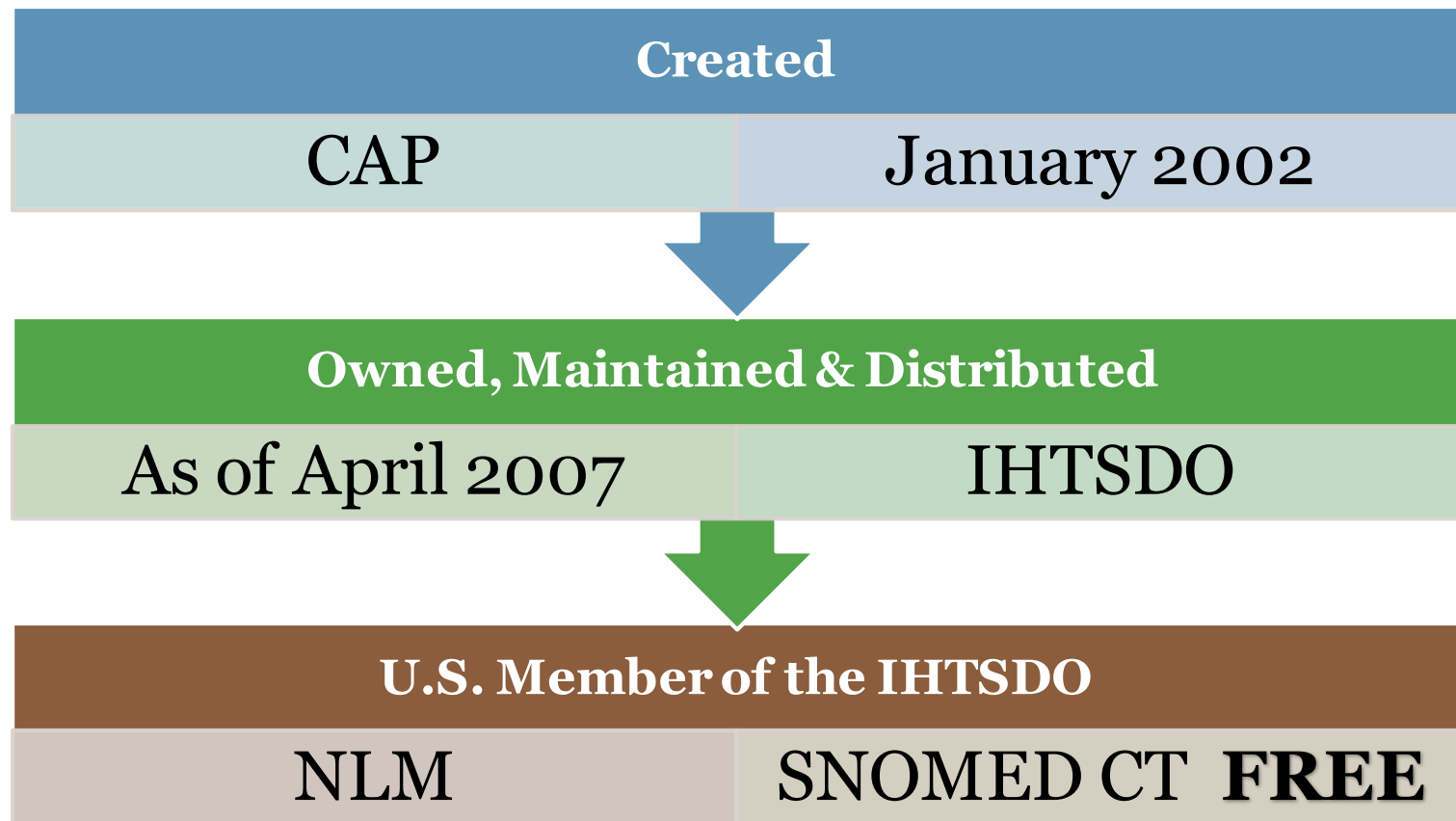
LOINC

- NLM supports the ongoing development of LOINC through a contract arrangement.

- LOINC, along with the Systematized Nomenclature of Medicine -- Clinical Terms (SNOMED CT) and HL7's Reference Information Model, helps define *medical concepts in the Clinical Document Architecture markup standard.*

SNOMED-CT

SNOMED-CT

- **S**ystematized **No**menclature of **Med**icine - **C**linical **T**erms

- The most comprehensive, multilingual clinical healthcare terminology in the world

- Introduced in 1965 by SNOP: the **S**ystematized **N**omenclature of **P**athology
  - ▫ Topography
  - ▫ Morphology
  - ▫ Procedure

Some Background

Created	
CAP	January 2002

Owned, Maintained & Distributed	
As of April 2007	IHTSDO

U.S. Member of the IHTSDO	
NLM	SNOMED CT **FREE**

HOW ?

- SNOMED CT is the merger of:
  - SNOMED RT
  - the United Kingdom's CTV 3 terminology, formerly known as the Read codes.

- SNOMED CT's 19 hierarchies provide coverage in diseases, findings, procedures, body structures, pharmacy products and other health care concepts.
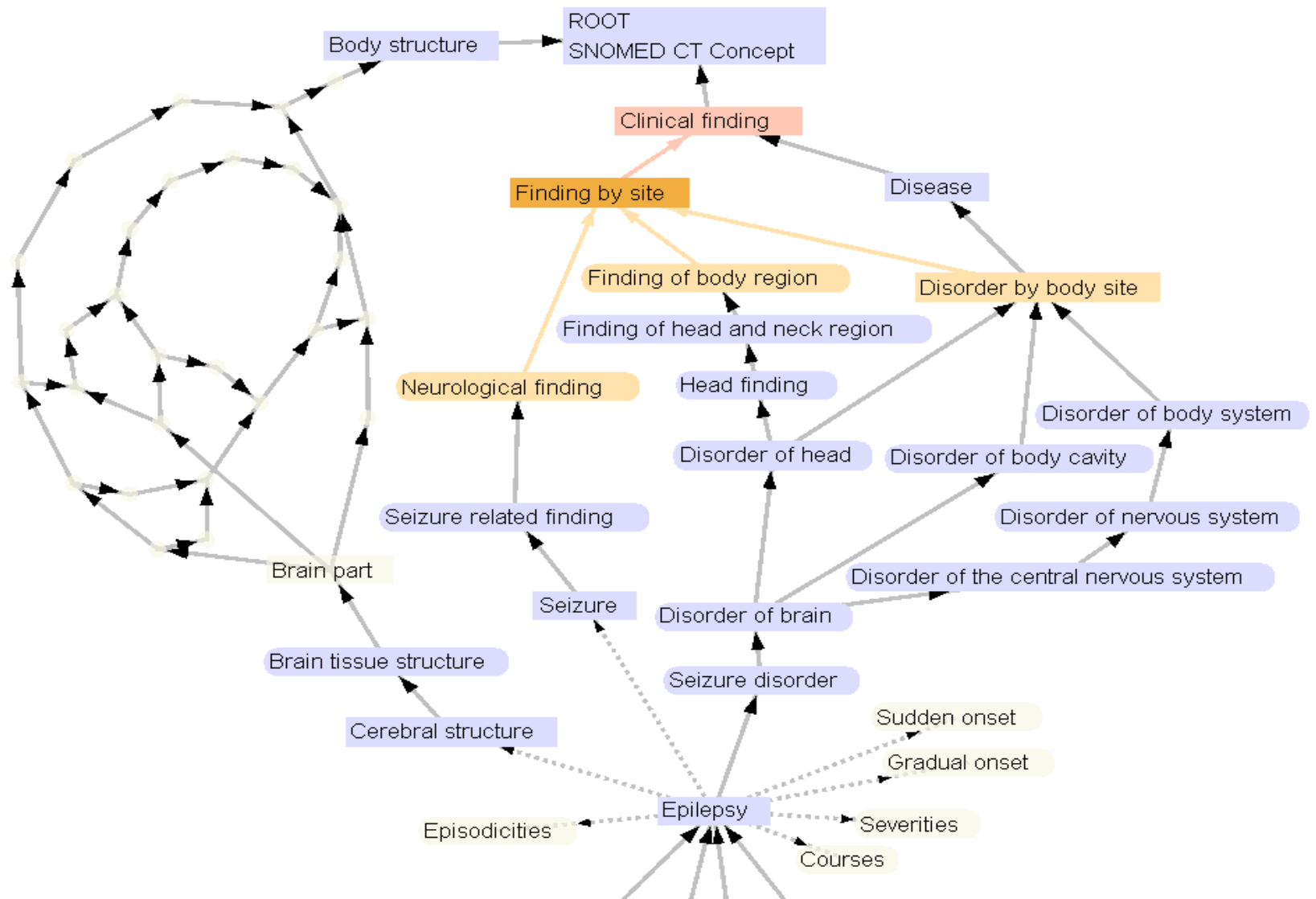
Structure

Over 300,000 concepts

- *96,000 concepts -- 59,244 disorders and 36,616 findings -- have been mapped to ICD-9-CM.* (2003)

Over 900,000 descriptions

- *comprehensive coverage of diseases, clinical findings, etiologies, procedures and living organisms*

SNOMED-CT vs. ICD

SNOMED

- 100,000 clinical findings
- +300,000 concepts
- Clinically-based:
  - document whatever is needed for patient care

ICD-10-CM

- 68,000
- Statistical
- "catch-all"
  - loss of information

ICD-9-CM

- 14,000
- Statistical
- "catch-all"
  - loss of information

SePHIMA

	ICD-9-CM	ICD-10-CM	SNOMED CT
Asperger's disorder	299.8 Other specified pervasive developmental disorders	F84.5 Asperger's disorder	23560001 Asperger's disorder
Apert syndrome	755.55 Acrocephalosyndactyly	Q87.0 Congenital malformation syndromes predominantly affecting facial appearance	205258009 Apert syndrome
Metabolic acidosis	276.2 Acidosis	E87.2 Acidosis	59455009 Metabolic acidosis
Respiratory acidosis	276.2 Acidosis	E87.2 Acidosis	12326000 Respiratory acidosis
Lactic acidosis	276.2 Acidosis	E87.2 Acidosis	91273001 Lactic acidosis

SNOMED CT & ICD-10-CM

- Clinical data coded in SNOMED CT can be used to generate ICD-10-CM codes ("code once, use multiple times")

- Implementation of SNOMED CT in the EHR will not only improve the quality of data, but can also help the transition to ICD-10-CM(AHIMA)
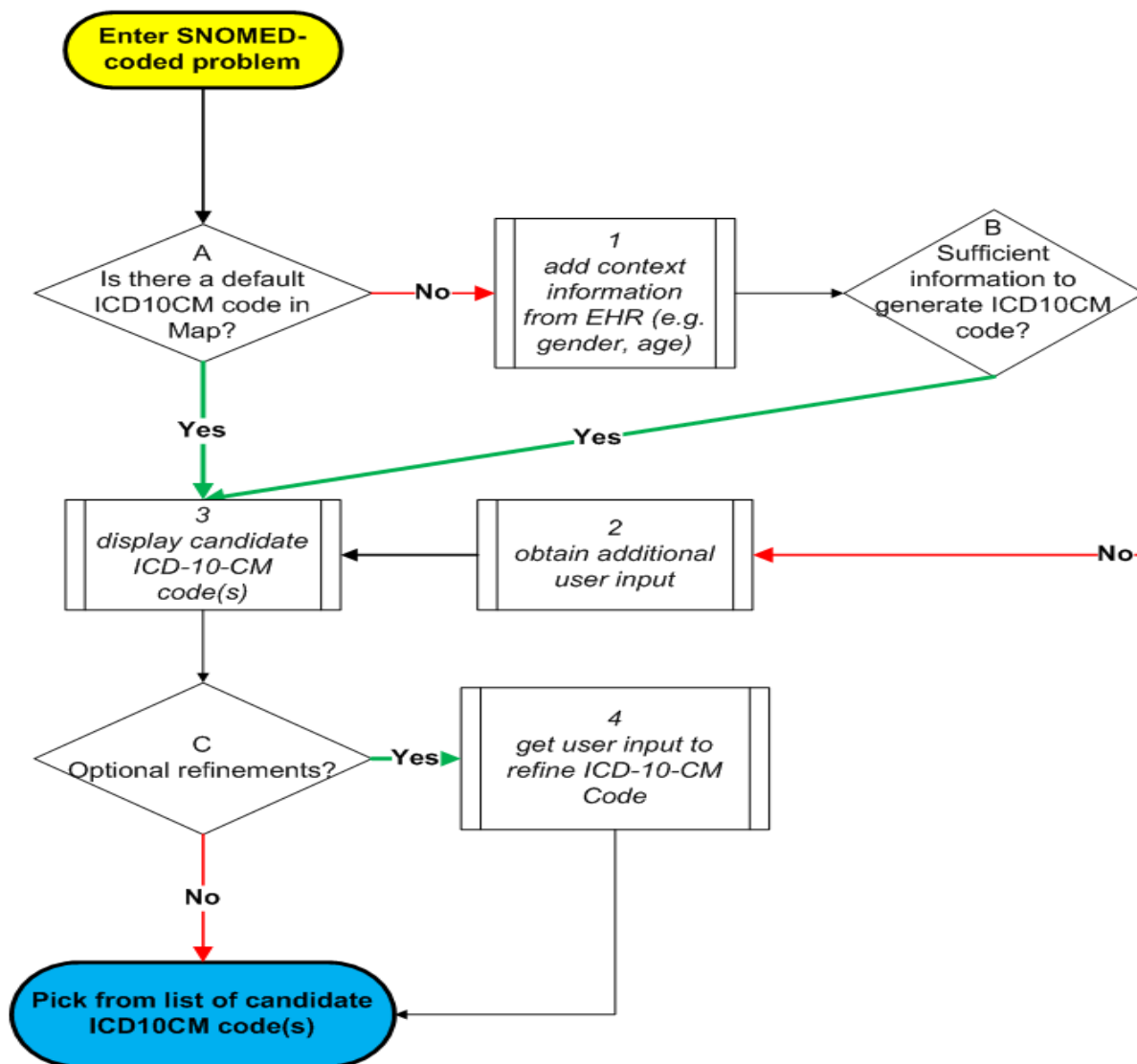
Purpose of the map

- Embedded in the EHR to find ICD-10-CM codes in real-time – (See the I-MAGIC use case Demo)

- The map was designed to assist coding professionals by suggesting ICD codes based on SNOMED CT-encoded problems (i.e.: like CAC)

Scope of the map

- Only mapping those SNOMED CT concepts suitable for the problem list: clinical findings, events and situation

- Commonly occurring concepts are mapped first
  - CORE Problem List Subset
  - Donated content from Kaiser Permanente's Convergent Medical Terminology (CMT)

Interactive Map-Assisted Generation of ICD Codes (I-MAGIC) Algorithm

iMagic

- **I**nteractive **M**ap-**A**ssisted **G**eneration of **I**CD **C**odes
  - ▫ http://imagic.nlm.nih.gov/imagic/code/map

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SNOMED CT to ICD-10-CM Map

Download the Map

SNOMED CT to ICD-10-CM Map Version	Derived from SNOMED CT version	Derived from ICD-10-CM version	Documentation
SNOMEDCT_ICD10CM_map.201202	July 2011 International Release	2011	Release Notes (PDF)

Supporting Materials

- **I-MAGIC Demo Page** – to see the Map in action. The I-MAGIC (Interactive Map-Assisted Generation of ICD Codes) Algorithm utilizes the SNOMED CT to ICD-10-CM Map in a real-time, interactive manner to generate ICD-10-CM codes. This demo simulates a problem list interface in which the user enters problems with SNOMED CT terms, which are then used to derive ICD-10-CM codes using the Map.

- **Technical Documentation** (PDF) for the SNOMED CT ... mplar file (Excel).

- **Frequently Asked Questions**

- **Mapping from SNOMED CT to ICD-10 and ICD-10-C** ... S (Healthcare Information and Management Systems Society) 2012 Conference

Link to I-MAGIC demo tool

Introduction

SNOMED CT (**S**ystematized **No**menclature of **Med**icine-**C**linical **T**erms) is considered to be the most comprehensive, multilingual clinical healthcare terminology in the world. It is designed for use in clinical documentation in the Electronic Health Record (EHR). The purpose of the SNOMED CT to ICD-10-CM map (herein referred to as "the Map") is to support semi-automated generation of ICD-10-CM codes from clinical data encoded in SNOMED CT for reimbursement and statistical purposes.

Use cases supported

The Map can be used in the following scenarios:

- **Real-time use by the healthcare provider** – In this scenario, the Map is embedded in the problem list application of the EHR used by the physician or other healthcare provider. At the end of a clinic encounter, the clinician updates the problem list, which is encoded in SNOMED CT.

I-MAGIC

About | Instructions | Demo

The I-MAGIC (Interactive Map-Assisted Generation of ICD Codes) Algorithm utilizes the SNOMED CT to ICD-10-CM Map in a real-time, interactive manner to generate ICD-10-CM codes. This demo simulates a problem list interface in which the user enters problems with SNOMED CT terms, which are then used to derive ICD-10-CM codes using the Map.

Name: [My Patient ▼]   Gender: [▼]   Date of Birth: [ ]

Problem List (SNOMED-CT terms)

What's wrong with the patient? Please add problem(s) here. (Hint: type 'dizzy')

Action	SNOMED-CT Name
Add	Problem:
	[ ]

(Only SNOMED CT terms included in the published SNOMED CT to ICD-10-CM Map are shown.)

[Update List]   [Get ICD Codes]   Add Complex Examples: [▼]

Information from EHR

Problem list entry interface

Kin Wah Fung   Contact Us

Lister Hill National Center for Biomedical Communications, U.S. National Library o

National Institutes of Health, Department of Health & Human Services,

USA.gov, Copyright, Privacy, Accessibility, Freedom of Information Act

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I-MAGIC

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Name: My Patient (modified)   Gender: Male   Date of Birth: 8 Jun 1980

Problem List (SNOMED-CT terms)

What's wrong with the patient? Please add problem(s) here. (Hint: type 'dizzy')

Action	SNOMED-CT Name
Add	Problem:
	otitis

Labyrinthitis (23919004)
Otitis externa (3135009)
Otitis media (65363002)
Epidemic vertigo (186738001)
Acute exudative otitis media (19399000)
Chronic otitis media (21186006)
Chronic non-suppurative otitis media (232254004)
Acute otitis media (3110003)
Acute eczematoid otitis externa (54272002)
Acute suppurative otitis media with spontaneous rupture of ear drum (86279000)

(Only SN

Update

SNOMED CT terms included in the published map

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Name: My Patient (modified) ▼   Gender: Male ▼   Date of Birth: 8 Jun 1980

Problem List (SNOMED-CT terms)

What's wrong with the patient? Please add or remove problem(s) here.

Action	SNOMED-CT Name
☐ Remove	Otitis media
☐ Remove	Failure to gain weight
☐ Remove	Herniated urinary bladder
Add	Problem:

(Only SNOMED CT terms included in the published ... Map are shown.)

Click here to see ICD-10-CM codes

Update List   **Get ICD Codes**   Add Complex Examples:

SePHIMA

I-MAGIC

About	Instructions	Demo

The I-MAGIC (Interactive Map-Assisted Generation of ICD Codes) Algorithm utilizes the SNOMED CT to ICD-10-CM Map in a real-time, interactive manner to generate ICD-10-CM codes. This demo simulates a problem list interface in which the user enters problems with SNOMED CT terms, which are then used to derive ICD-10-CM codes using the Map.

Name: My Patient (modified) ▾   Gender: Male ▾   Date of Birth: 8 Jun 1980

Mapping Problems to ICD-10-CM

SNOMED-CT	ICD-10-CM Code	ICD-10-CM Name	Optional refinement
Otitis media (65363002)			
	H66.90	Otitis media, unspecified, unspecified ear	Laterality / ICD notes
Failure to gain weight (36440009)			
	R62.7	Adult failure to thrive	
Herniated urinary bladder (410070006)			
	N32.89	Other specified disorders of bladder	

Submit Refinement   **Back to Problem List**

ICD-10-CM codes

Options to refine ICD-10-CM codes

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Name: [My Patient (modified) ▼]   Gender: [Male ▼]   Date of Birth: [8 Jun 1980]

Mapping Problems to ICD-10-CM

SNOMED-CT	ICD-10-CM Code	ICD-10-CM Name		Optional refinement
Otitis media (65363002)				
	H66.90	Otitis media, unspecified, unspecified ear		Laterality ICD notes

Laterality refinement

Refine "Otitis media, unspecified":
- ○ Otitis media, unspecified, **unspecified ear**
- ○ Otitis media, unspecified. **right** ear
- ○ Otitis media, unspecified, **left** ear
- ○ Otitis media, unspecified, **bilateral**

Laterality refinement choices

Failure to gain weight (36440009)				
	R62.7	Adult failure to thrive		
Herniated urinary bladder (410070006)				
	N32.89	Other specified disorders of bladder		

Submit Refinement   **Back to Problem List**

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Name: My Patient (modified) ▾   Gender: Male ▾   Date of Birth: 8 Jun 1980

Mapping Problems to ICD-10-CM

SNOMED-CT	ICD-10-CM Code	ICD-10-CM Name		Optional refinement
Otitis media (65363002)				
	H66.90	Otitis media, unspecified, unspecified ear		Laterality / ICD notes

ICD coding notes

ICD notes for "Suppurative and unspecified otitis media"

Use additional code for any associated perforated tympanic membrane (H72.-)

Use additional code to identify:
exposure to environmental tobacco smoke (Z77.22)
exposure to tobacco smoke in the perinatal period (P96.81)
history of tobacco use (Z87.891)
occupational exposure to environmental tobacco smoke (Z57.31)
tobacco dependence (F17.-)
tobacco use (Z72.0)

Failure to gain weight (36440009)			
	R62.7	Adult failure to thrive	
Herniated urinary bladder (410070006)			
	N32.89	Other specified disorders of bladder	

Submit Refinement   **Back to Problem List**

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I-MAGIC

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Name: My Patient (modified) ▾   Gender: Male ▾   Date of Birth: 8 Jun 1980

Mapping Problems to ICD-10-CM

SNOMED-CT	ICD-10-CM Code	ICD-10-CM Name		Optional refinement
Otitis media (65363002)				
	H66.90	Otitis media, unspecified, unspecified ear		Laterality / ICD notes
Failure to gain weight (36440009)				
	R62.7	Adult failure to thrive		
Herniated urinary bladder (410070006)				
	N32.89	Other specified disorders of bladder		

> ICD-10-CM code for adult

Submit Refinement   **Back to Problem List**

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Name: My Patient (modified)   Gender: Male   Date of Birth: 8 Jun 2006

Mapping Problems to ICD-10-CM

SNOMED-CT	ICD-10-CM Code	ICD-10-CM Name		Optional refinement
Otitis media (65363002)				
	H66.90	Otitis media, unspecified, unspecified ear		Laterality / ICD notes
Failure to gain weight (36440009)				
	R62.51	Failure to thrive (child)		
Herniated urinary bladder (410070006)				
	N32.89	Other specified disorders of bladde		

ICD-10-CM code for child

Submit Refinement   **Back to Problem List**

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Name: [My Patient (modified) ▼]   Gender: [Male ▼]   Date of Birth: [1 Apr 2012]

Mapping Problems to ICD-10-CM

SNOMED-CT	ICD-10-CM Code	ICD-10-CM Name		Optional refinement
Otitis media (65363002)				
	H66.90	Otitis media, unspecified, unspecified ear		Laterality / ICD notes
Failure to gain weight (36440009)				
	P92.6	Failure to thrive in newborn		
Herniated urinary bladder (410070006)				
	N32.89	Other specified disorders of bladder		

ICD-10-CM code for newborn

[Submit Refinement]   [Back to Problem List]

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Name: My Patient (modified)   Gender: Male   Date of Birth: 8 Jun 1980

Mapping Problems to ICD-10-CM

SNOMED-CT	ICD-10-CM Code	ICD-10-CM Name		Optional refinement
Otitis media (65363002)				
	H66.90	Otitis media, unspecified, unspecified ear		Laterality / ICD notes
Failure to gain weight (36440009)				
	R62.7	Adult failure to thrive		
Herniated urinary bladder (410070006)				
	N32.89	Other specified disorders of bladder		

Submit Refinement   **Back to Problem List**

> ICD-10-CM code for male

I-MAGIC

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Name: My Patient (modified) Gender: Female Date of Birth: 8 Jun 1980

Mapping Problems to ICD-10-CM

SNOMED-CT	ICD-10-CM Code	ICD-10-CM Name	Optional refinement
Otitis media (65363002)			
	H66.90	Otitis media, unspecified, unspecified ear	Laterality / ICD notes
Failure to gain weight (36440009)			
	R62.7	Adult failure to thrive	
Herniated urinary bladder (410070006)			
	N81.10	Cystocele, unspecified	

Submit Refinement   **Back to Problem List**

ICD-10-CM code for female

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Name: Mother 1 (modified)　　Gender: Female　　Date of Birth: 20 Jun 1990

Mapping Problems to ICD-10-CM

SNOMED-CT	ICD-10-CM Code	ICD-10-CM Name		Optional refinement
Chorioamnionitis (11612004)				
	O41.1290	Chorioamnionitis, unspecified trimester (not applicable or unspecified)		Trimester / Multiple fetuses

Trimester refinement

Refine Trimester:
- ○ **unspecified** trimester
- ○ **first** trimester
- ○ **second** trimester
- ○ **third** trimester

Trimester specification

Multiple fetuses refinement
- ○ **not applicable or unspecified**
- ○ **fetus 1**
- ○ fetus **2**
- ○ fetus **3**
- ○ fetus **4**
- ○ fetus **5**
- ○ **other fetus**

Fetus specification

Submit Refinement　　**Back to Problem List**

SePHIMA

I-MAGIC

The I-MAGIC (Interactive Map-Assisted Generation of ICD Codes) Algorithm utilizes the SNOMED CT to ICD-10-CM Map in a real-time, interactive manner to generate ICD-10-CM codes. This demo simulates a problem list interface in which the user enters problems with SNOMED CT terms, which are then used to derive ICD-10-CM codes using the Map.

Name: Male adult 1 (modified)   Gender: Male   Date of Birth: 1 Dec 1965

Mapping Problems to ICD-10-CM

SNOMED-CT	ICD-10-CM Code	ICD-10-CM Name		Optional refinement

Simple goiter (267369002)　　　　　　　　　　　　　　　　　　　　　　　　Refine problem

Problem refinement

Would one of the following diagnoses apply? Choose the most specific one:

○ Non-toxic multinodular goiter
○ Non-toxic uninodular goiter
○ Non-toxic nodular goiter
○ *The above choices are not applicable*

Different ICD-10-CM codes if these more specific conditions apply

☐ Replace the original problem with the more specific diagnosis

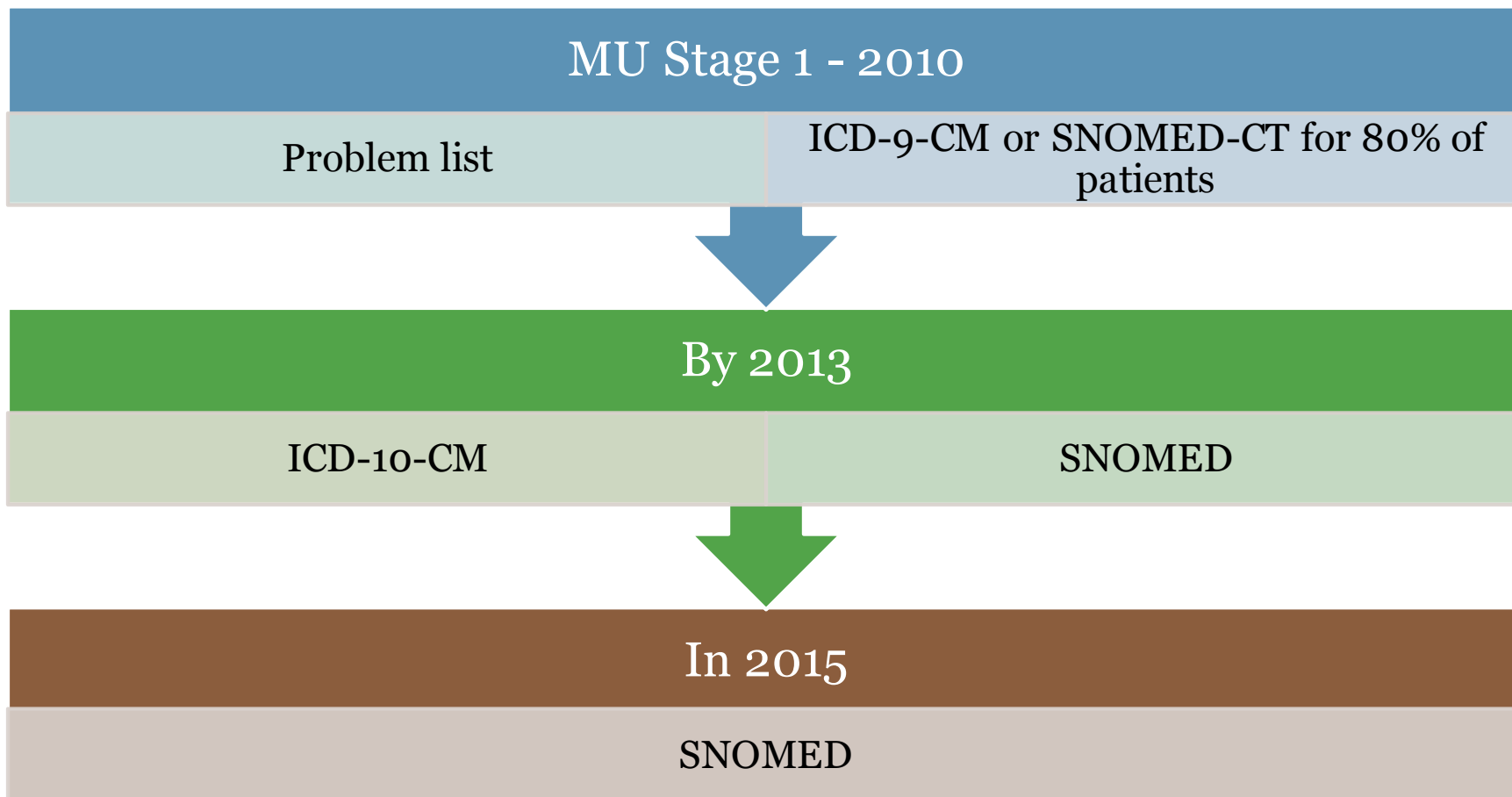| E04.0	Nontoxic diffuse goiter

Submit Refinement　　　**Back to Problem List**

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Name: Trauma 1 (modified) ▼   Gender: Male ▼   Date of Birth: 25 Sep 1989

Mapping Problems to ICD-10-CM

SNOMED-CT	ICD-10-CM Code	ICD-10-CM Name		Optional refinement

Fracture of thoracic spine (125607007)

S22.009-   Unspecified fracture of unspecified thoracic vertebra

ICD notes

Required Episode refinement

○ initial encounter for **closed** fracture
○ initial encounter for **open** fracture
○ **subsequent** encounter for fracture **with routine healing**
○ subsequent encounter for fracture with **delayed** healing
○ subsequent encounter for fracture with **nonunion**
○ **sequela**

No valid default ICD-10-CM code

Mandatory refinement choices

Submit Refinement   Back to Problem List

Why is this Important ??

Meaningful Use & SNOMED

MU Stage 1 - 2010	
Problem list	ICD-9-CM or SNOMED-CT for 80% of patients

By 2013	
ICD-10-CM	SNOMED

In 2015
SNOMED

Meaningful Use & SNOMED

- The HIT Standards Committee endorsed recommendations to call for SNOMED CT for physician's clinical observations by 2015. In 2010, providers must use ICD-9 or SNOMED CT to qualify, and in 2013 they must use ICD-10 or SNOMED CT.

- According to Janet Corrigan, co-chairwoman of the Clinical Quality workgroup, the measures will start in 2011 and gradually become more complex by 2015 as CMS pays out bonuses during that period

NLM SNOMED CT resources

- Subsets
  - CORE Problem List Subset http://www.nlm.nih.gov/research/umls/Snomed/core_subset.html

  - Convergent Medical Terminology Subsets   http://www.nlm.nih.gov/research/umls/Snomed/cmt.html

  - Nursing Problem List Subset http://www.nlm.nih.gov/research/umls/Snomed/nursing_problemlist_subset.html

  - Route of Administration Subset   http://www.nlm.nih.gov/research/umls/Snomed/roa_subset.html
- Mappings
  - SNOMED CT to ICD-10-CM Map
    http://www.nlm.nih.gov/research/umls/mapping_projects/snomedct_to_icd10cm.html

  - SNOMED CT to ICD-9-CM Map
    http://www.nlm.nih.gov/research/umls/mapping_projects/snomedct_to_icd9cm_reimburse.html

  - ICD-9-CM Map to SNOMED CT map (under development)
- US Extension http://www.nlm.nih.gov/research/umls/Snomed/us_extension.html
- US SNOMED CT Content Request System https://uscrs.nlm.nih.gov/
- UMLS-enhanced SNOMED CT browser https://uts.nlm.nih.gov/snomedctBrowser.html

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