Terminology Products and Services at NLM

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Terminology Products and Services at NLM

NLM is the central coordinating body for clinical terminology standards within HHS

• SNOMED CT: NLM is the US Member Representative to the IHTSDO (ihtsdo.org). NLM creates US-centric concepts for the US Extension

• RxNorm: NLM creates RxNorm concepts

• LOINC: NLM funds LOINC development through contracts (Regenstrief institute)

• MeSH: NLM creates MeSH headings and assigns them to MEDLINE citations (Linked Data - RDF**)

• Unified Medical Language System: NLM creates CUIs that contain synonyms from various sources (SNOMED CT, ICD9/10-CM/PCS, CPT, MeSH, OMIM)

• AccessGUDID – resolve UDIs and retrieve implantable device info.

Tooling

- **USCRS: SNOMED CT Content Request System**
  - **Provides rapid turnaround for concepts relevant to the US**
- UMLS Terminology Services
  - GUI and web services API for searching UMLS content
- RxNav/RxNorm/RxMix API/RxClass (beta)**:
  - web services and 'daisy chaining' of RxNorm API calls
- Pubmed
  - Uses UMLS synonymy (mapping file) to retrieve MEDLINE citations
- Metamap
  - Free text in, CUIs out

(More) Tooling

- Medline+ Connect
  - SNOMED CT, ICD9-CM/10-CM, RxNorm
- MTI (indexing suggestions)
- MeSH Browser
- Newborn Screening Coding
- Semantic MEDLINE – citations in tuples
- **The Value Set Authority Center**
  - **Distributes value sets that support data elements for Clinical Quality Measures**.
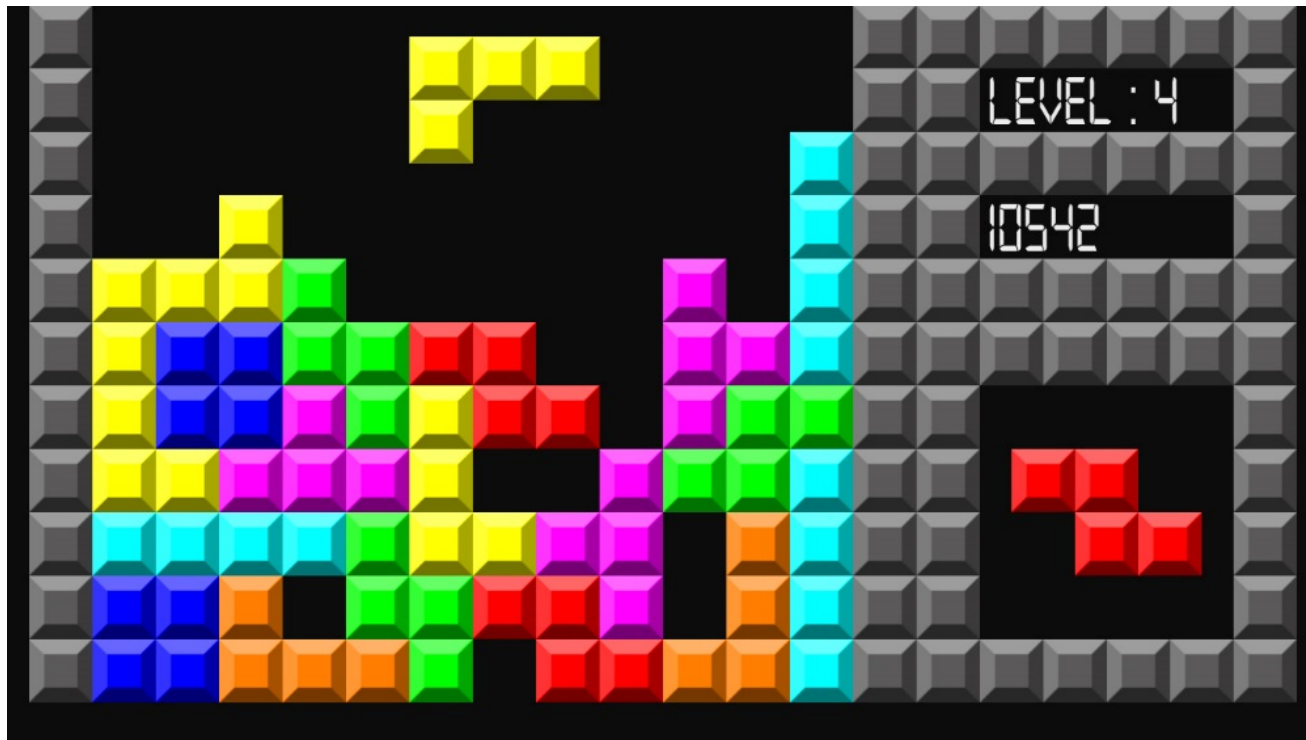
Bite-size pieces

- RxNorm: Current Prescribable Subset

  - Just the RxNorm names – completely free for use

- SNOMED CT: CORE Problem List Subset, Nursing Problem List Subset

- LOINC: top 300 lab orders, top 2k observations

- UMLS – customizable via MetamorphoSys ('active' subset)

- Mappings – SNOMED CT -> ICD10-CM

- CMT subsets (Ob Gyn, Hx, Injury and Orthopedics, etc) donated by KP

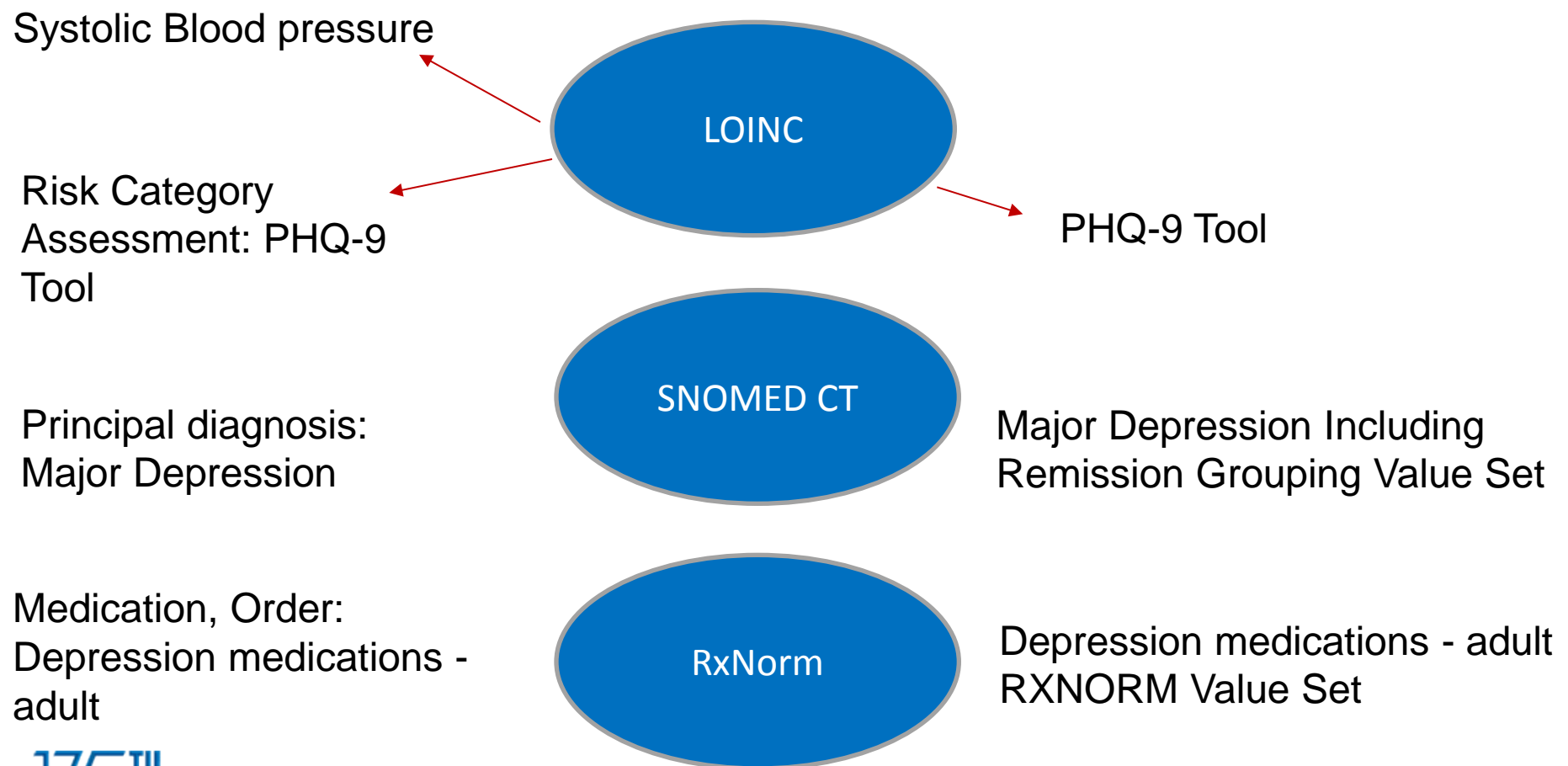- Newborn Screening Coding

Where does vocabulary fit in?

Vocabulary Standards now used in patient data capture and quality measures

SNOMED CT → Diseases, Procedures, Devices

RxNorm → Drugs

LOINC → Lab Tests, Patient Assessments
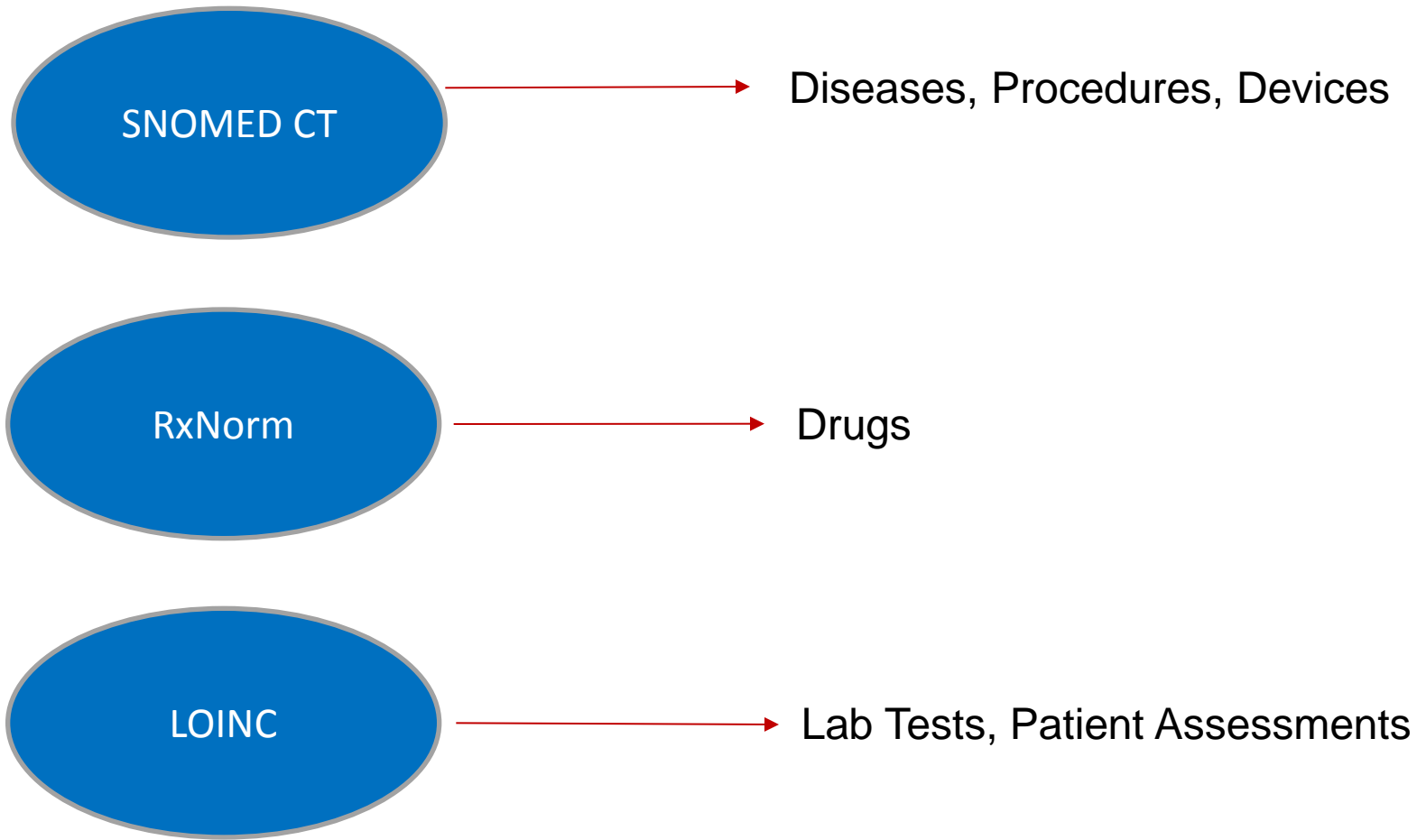
Vocabulary Standards now used in patient data capture for quality measures

Data Elements (from Measures, Repositories, etc)

Value Sets (VSAC)

Systolic Blood pressure

Risk Category Assessment: PHQ-9 Tool

LOINC

PHQ-9 Tool

Principal diagnosis: Major Depression

SNOMED CT

Major Depression Including Remission Grouping Value Set

Medication, Order: Depression medications - adult

RxNorm

Depression medications - adult RXNORM Value Set

Value Sets live (and die) in VSAC

Name:
Bipolar Diagnosis

Type:
Grouping

Steward:
Quality Insights of Pennslyvania

OID:
2.16.840.1.113883.3.600.450

Definition Version: ⑦
20160322

Program:
CMS, MU2 Update 2016-04-01 using this value set

- **Metadata**
- **Description**
- **Measure**
- **Grouping Members**

Value Set Members

Expanded Code List

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Code ⇕	Descriptor	Code System	Version	Code System OID
10875004	Severe mixed bipolar I disorder with psychotic features, mood-incongruent (disorder)	SNOMEDCT	2015-09	2.16.840.1.113883.6.96
10981006	Severe mixed bipolar I disorder with psychotic features (disorder)	SNOMEDCT	2015-09	2.16.840.1.113883.6.96
111485001	Mixed bipolar I disorder in full remission (disorder)	SNOMEDCT	2015-09	2.16.840.1.113883.6.96
1196001	Chronic bipolar II disorder, most recent episode major depressive (disorder)	SNOMEDCT	2015-09	2.16.840.1.113883.6.96
13313007	Mild bipolar disorder (disorder)	SNOMEDCT	2015-09	2.16.840.1.113883.6.96
13581000	Severe bipolar I disorder, single manic episode with psychotic features, mood-congru	SNOMEDCT	2015-09	2.16.840.1.113883.6.96
13746004	Bipolar disorder (disorder)	SNOMEDCT	2015-09	2.16.840.1.113883.6.96
14495005	Severe bipolar I disorder, single manic episode without psychotic features (disorder)	SNOMEDCT	2015-09	2.16.840.1.113883.6.96
1499003	Bipolar I disorder, single manic episode with postpartum onset (disorder)	SNOMEDCT	2015-09	2.16.840.1.113883.6.96
162004	Severe manic bipolar I disorder without psychotic features (disorder)	SNOMEDCT	2015-09	2.16.840.1.113883.6.96
16295005	Bipolar II disorder, most recent episode major depressive (disorder)	SNOMEDCT	2015-09	2.16.840.1.113883.6.96
16506000	Mixed bipolar I disorder (disorder)	SNOMEDCT	2015-09	2.16.840.1.113883.6.96

Where can vocabularies be useful in the realm of implantable devices?

From the Device to the Patient Record

- SNOMED CT is the most comprehensive clinical terminology available, with over 300k active concepts
- AccessGUDID provides the link between the UDI and SNOMED CT concept
- SNOMED CT concepts **populate the patient record**, which has benefits for
  - A more comprehensive patient record for providers
  - Safety recalls – easily identify/aggregate patients with 'this type' of device in EHR systems
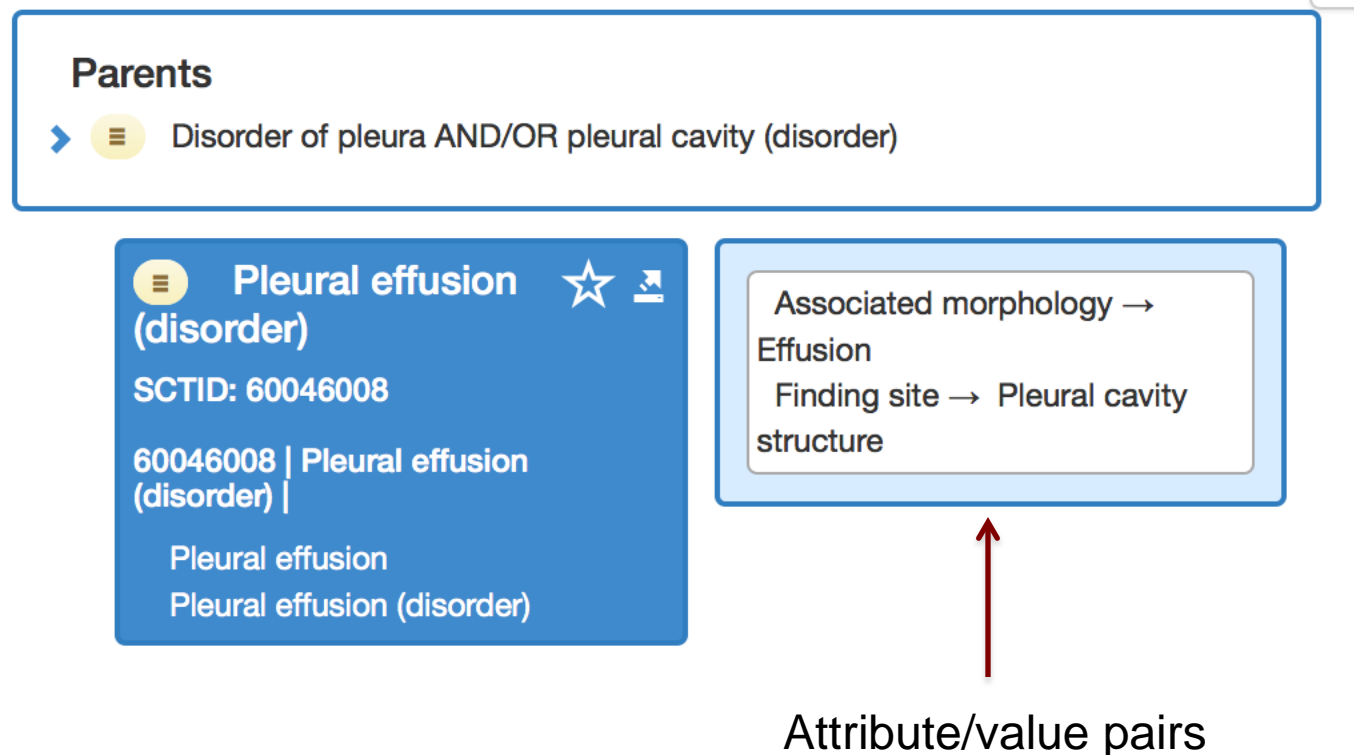 - Outcome studies based on aggregation of devices in patient records
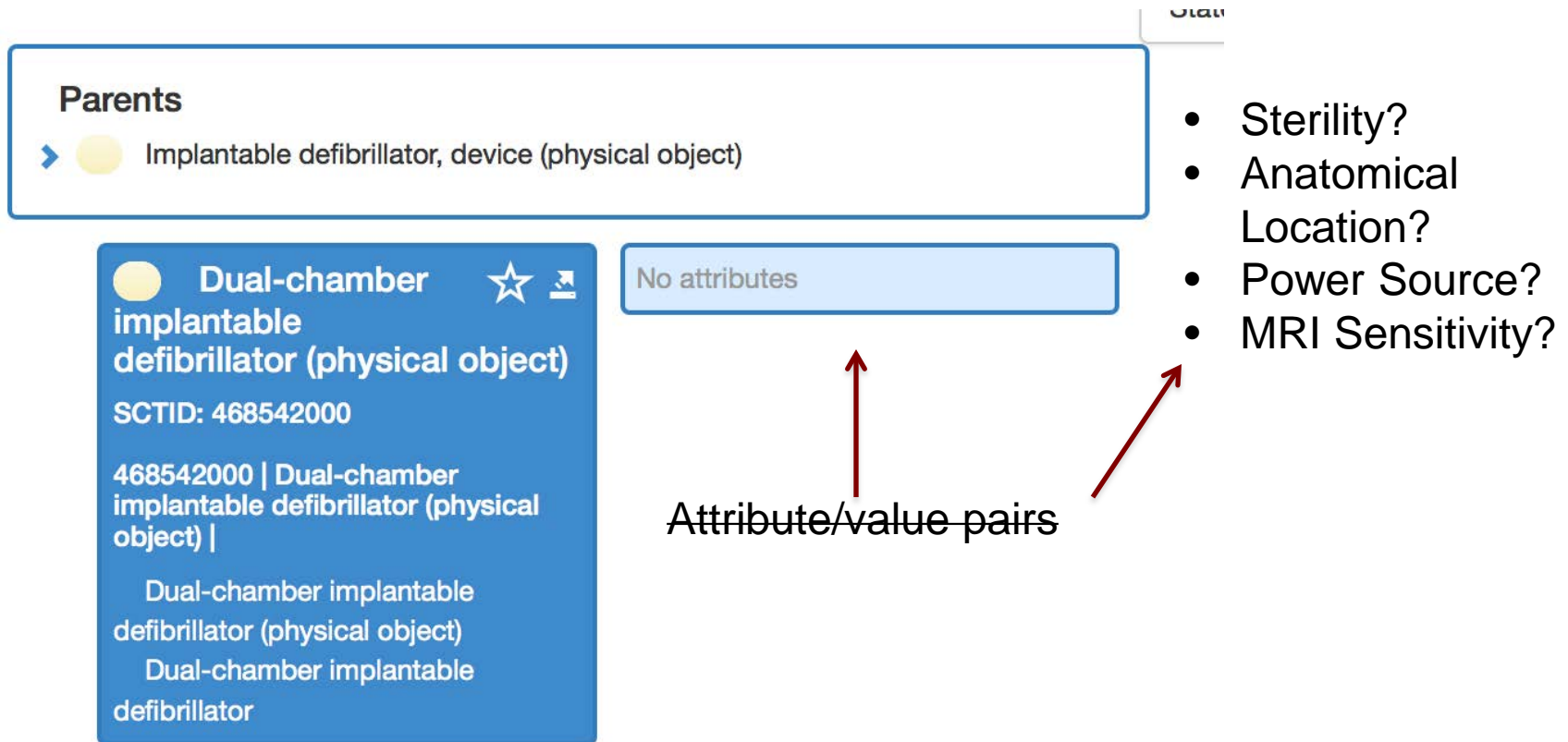
GMDN to SNOMED CT

GMDN terms are modeled as 'primitives' in SNOMED CT

A fully-defined concept

Attribute/value pairs

GMDN term modeled as primitive in SNOMED CT

Parents

> ◯ Implantable defibrillator, device (physical object)

◯ **Dual-chamber implantable defibrillator (physical object)** ☆ ◪

SCTID: 468542000

468542000 | Dual-chamber implantable defibrillator (physical object) |

Dual-chamber implantable defibrillator (physical object)
Dual-chamber implantable defibrillator

No attributes

Attribute/value pairs

- Sterility?
- Anatomical Location?
- Power Source?
- MRI Sensitivity?

Discussion/challenges

What measures related to implantable devices can advance health care/research without burdening providers/implementers?

What types of data elements and value sets would be used in such measures?

Who will steward these measures and value sets?

To what extent is further modeling of implantable devices needed (or not) in SNOMED CT?

Questions?

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