Using SNOMED-CT and Semantic Web (OWL/RDF) for Advanced Clinical Data Analysis

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ANYTHING IN THE UNIVERSE
Give it a CODE so anyone in the universe can refer to the same thing no matter what language they use.
Semiotic Triangle

- Thought or Reference
- Symbol
- Referent

- Symbolizes
- Refers to
- Stands for
ADD DEFINING RELATIONSHIPS

IS A

DISORDER
19829001

CODE

128601007

FINDING SITE
363698007

LUNG STRUCTURE
39607008

PATHOLOGICAL PROCESS
370135005

INFECTIOUS PROCESS
441862004

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**GIVE IT SOME HUMAN READABLE LABELS**

INFECTIOUS DISEASE OF LUNG

INFECTIOUS DISEASE OF LUNG (DISORDER)

PULMONARY INFECTION

LUNG INFECTION

* LABELS DON’T EFFECT MEANING AND CAN BE IN ANY LANGUAGE*
TO STORE IT, BREAK IT DOWN TO TRIPLES (LIKE RDF or OWL)

SUBJECT 1
LUNG INFECTION

PREDICATE 2
IS A

OBJECT 3
DISORDER

SUBJECT 1
LUNG INFECTION

PREDICATE 2
FINDING SITE

OBJECT 3
LUNG STRUCTURE
SOMETIMES A TERM DOES NOT EXIST
YOU CAN CREATE IT ON THE FLY AND QUERY
FOR ITS CHILDREN AND DESCENDANTS

AUTOIMMUNE
263680009

AUTOIMMUNE ARTHRITIS

INFLAMATION
23583003

JOINT STRUCTURE
39352004

PATHOLOGICAL PROCESS

FINDING SITE

DISORDER
64572001

IS A

ASSOCIATED MORPHOLOGY

A SNOMED SUBSUMPTION QUERY TO
FIND ALL AUTOIMMUNE ARTHRITIS
MAKE A GRAPH OF THE CLINICAL DATA

- Patient
- MRN 4675
- Outpatient Visit
- Lung Infection

Diagnoses:
- LUNG INFECTION

Encounters:
- HAD ENCOUNTER

Relationships:
- HAS MRN
THEREFORE

Note the link from Clinical Data to SNOMED concepts