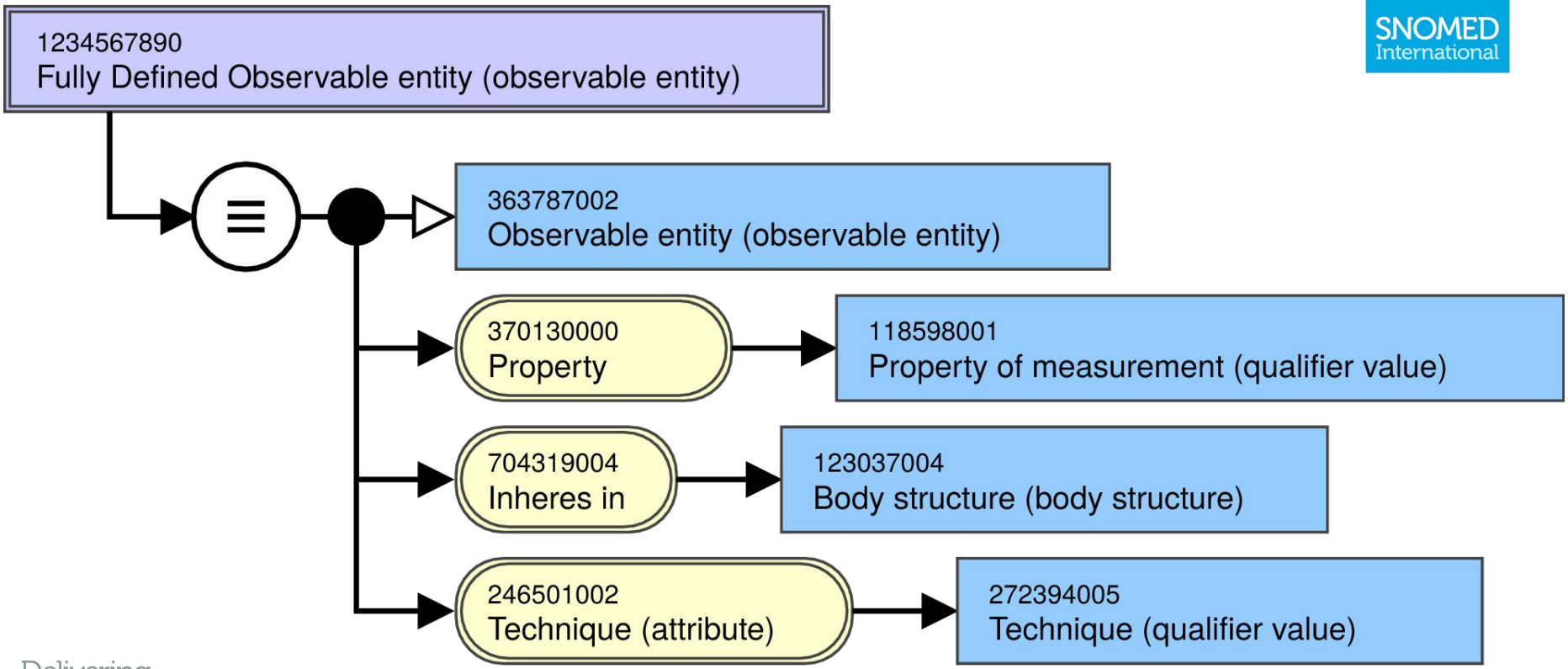
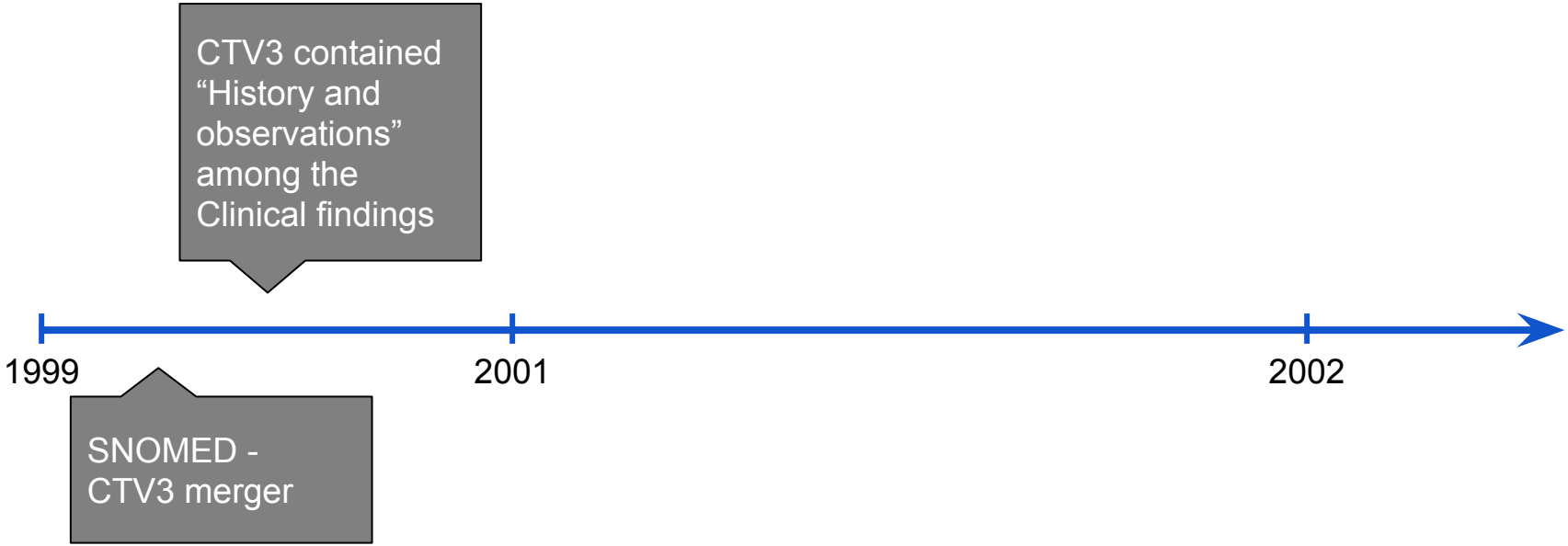


SNOMED International

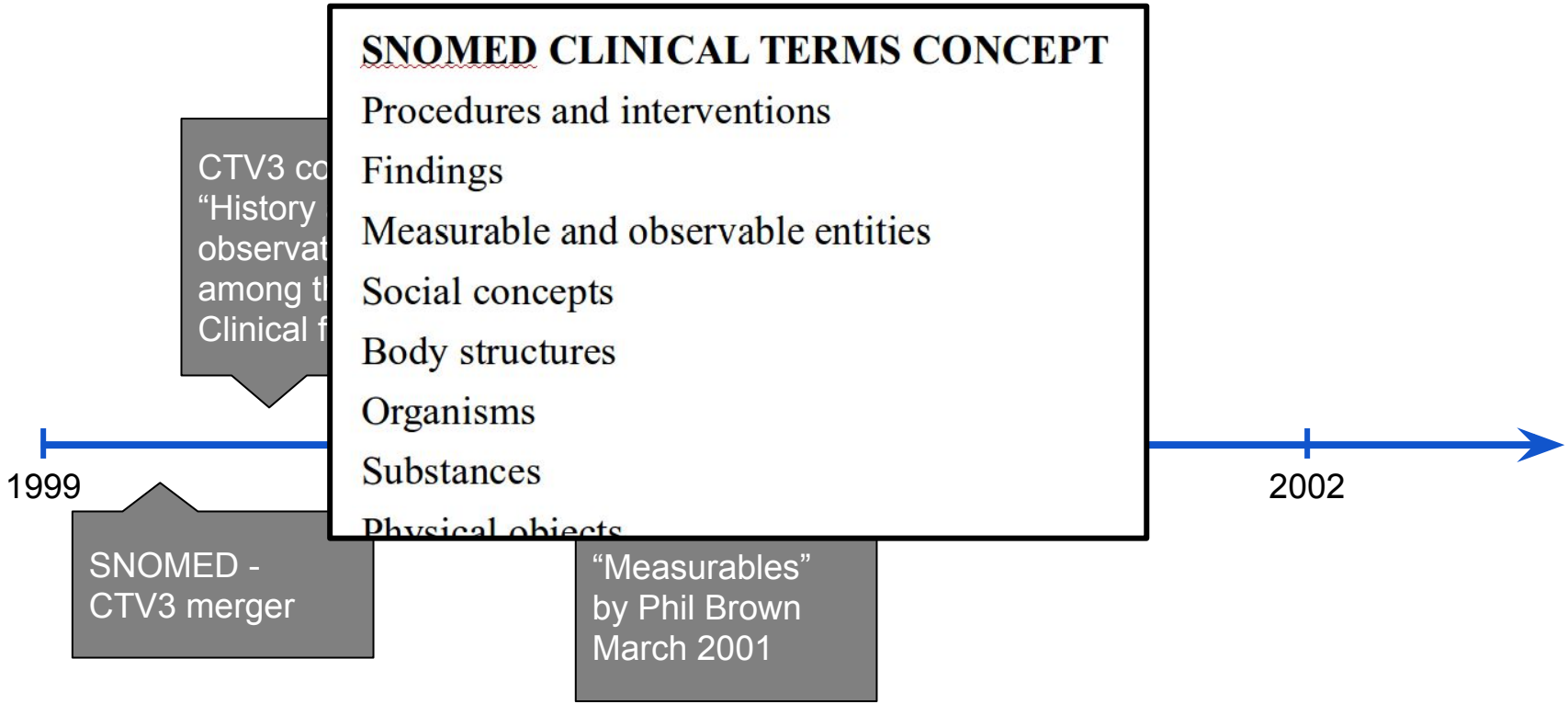
Delivering SNOMED CT The global language of healthcare

Daniel Karlsson, Farzaneh Ashrafi, Suzanne Santamaria

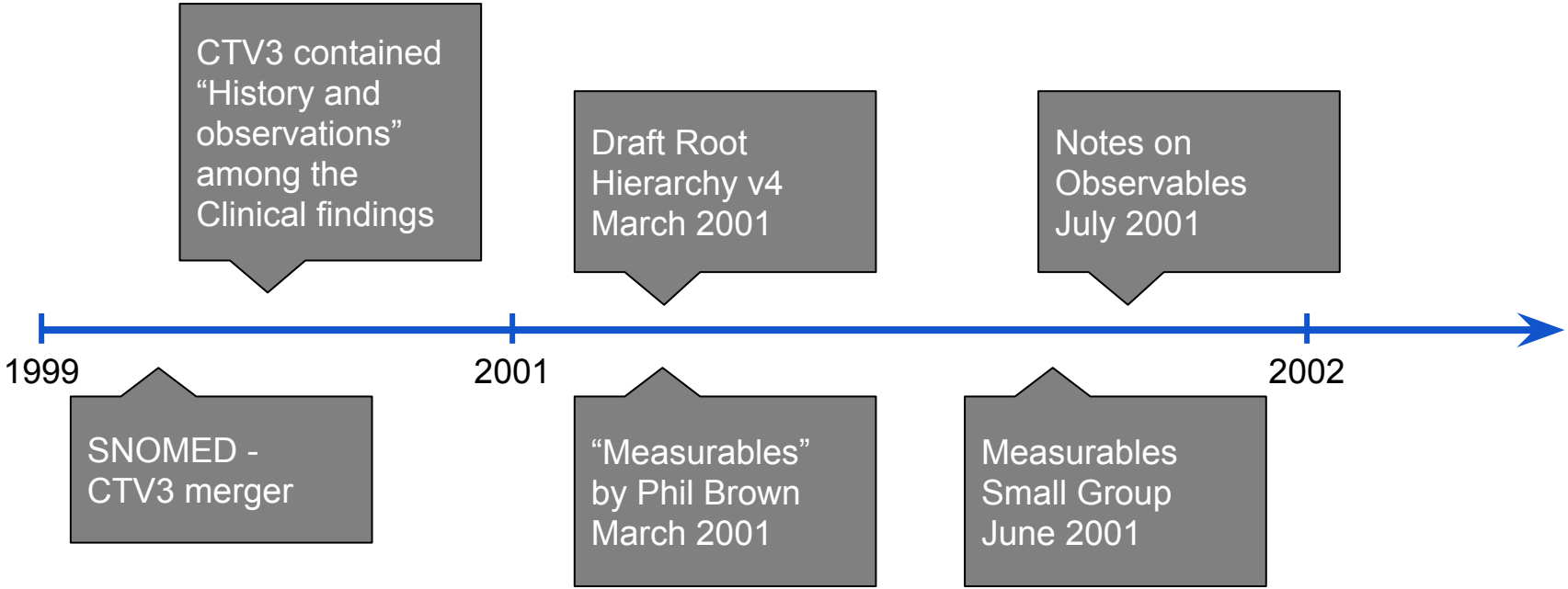
The birth


CTV3 contained “History and observations” among the Clinical findings
1999
2001
2002
SNOMED - CTV3 merger

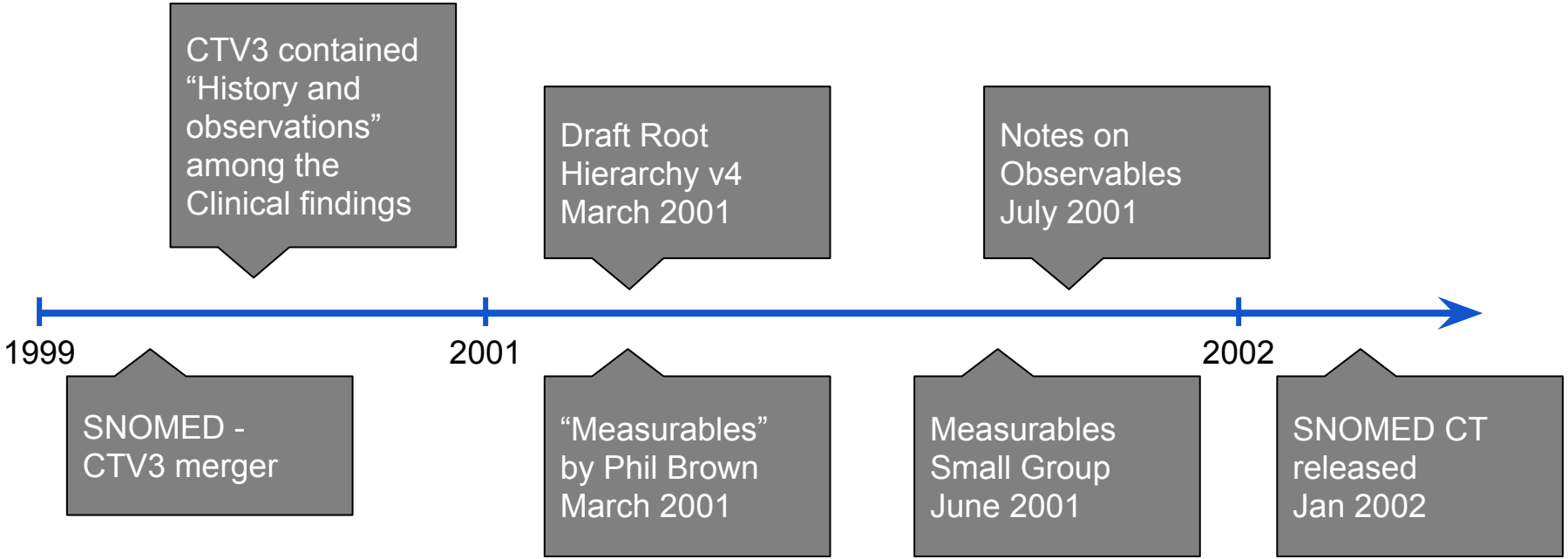
The birth


SNOMED CLINICAL TERMS CONCEPT
Procedures and interventions
Findings
Measurable and observable entities
Social concepts
Body structures
Organisms
Substances
Physical objects
CTV3 co
"History
observat
among t
Clinical f
1999
2002
SNOMED -
CTV3 merger
"Measurables"
by Phil Brown
March 2001

The birth


CTV3 contained "History and observations" among the Clinical findings
Draft Root Hierarchy v4 March 2001
Notes on Observables July 2001
1999
2001
2002
SNOMED - CTV3 merger
"Measurables" by Phil Brown March 2001
Measurables Small Group June 2001

The birth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Notes on Observables July 2001
1999
2001
2002
SNOMED - CTV3 merger
"Measurables" by Phil Brown March 2001
Measurables Small Group June 2001
SNOMED CT released Jan 2002

Learning

INTERNATIONAL HEALTH TERMINOLOGY
STANDARDS DEVELOPMENT ORGANISATION

SNOMED International

Observables Project Group – Agenda, July 1, 2008, Birmingham, England
DRAFT

1) **Welcome and introductions**
2) **Agenda review**
3) **Project purpose, scope, deliverables**
4) **Review of prior work**
5) **Specific recommendations**

Project title: Revision of the SNOMED Observable and Investigation Model

Project Purpose: ○ To improve consistency and usability of SNOMED CT for reporting the results of tests and observations, in all result reporting domains including laboratory, physical exam, radiography, pulmonary function testing, etc	
Start Date: Jan 2008	**Due Date**: Dec 2009
Project Lead: Chief Terminologist	
Scope: To include : ○ establish the concept model for observables ○ develop implementation guidance for results reporting, using observation procedures and/or observables ○ re-model the observable entities and observation procedures according to the new model	
Deliverables: ○ Proposed changes to concept model ○ Complete modeling of observables ○ Complete modeling of observation procedures	 July 2008 Dec 2009 Dec 2009
Dependencies: Progression of this project in 2008 may depend on the outcomes of discussion with LOINC and IUPAC.	

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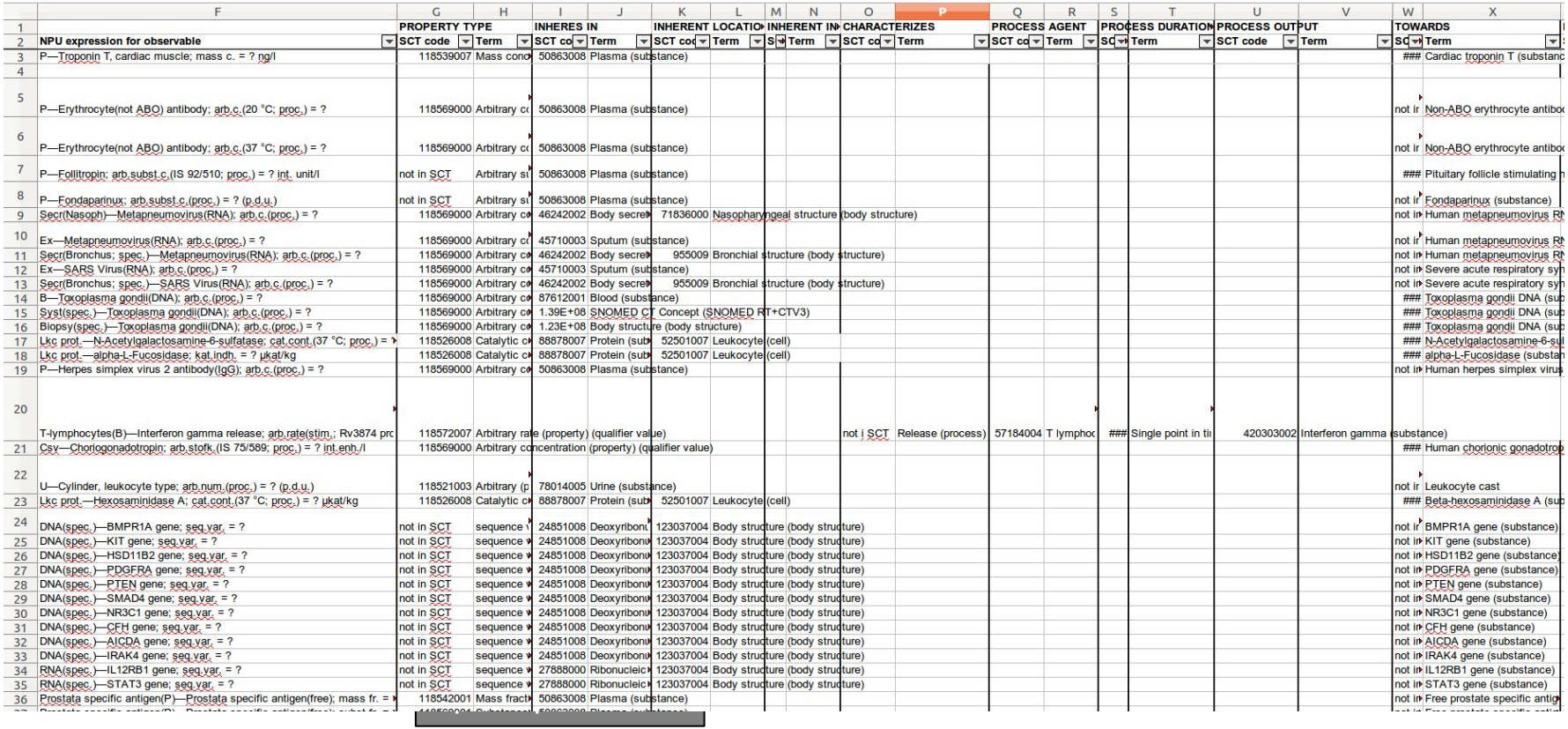
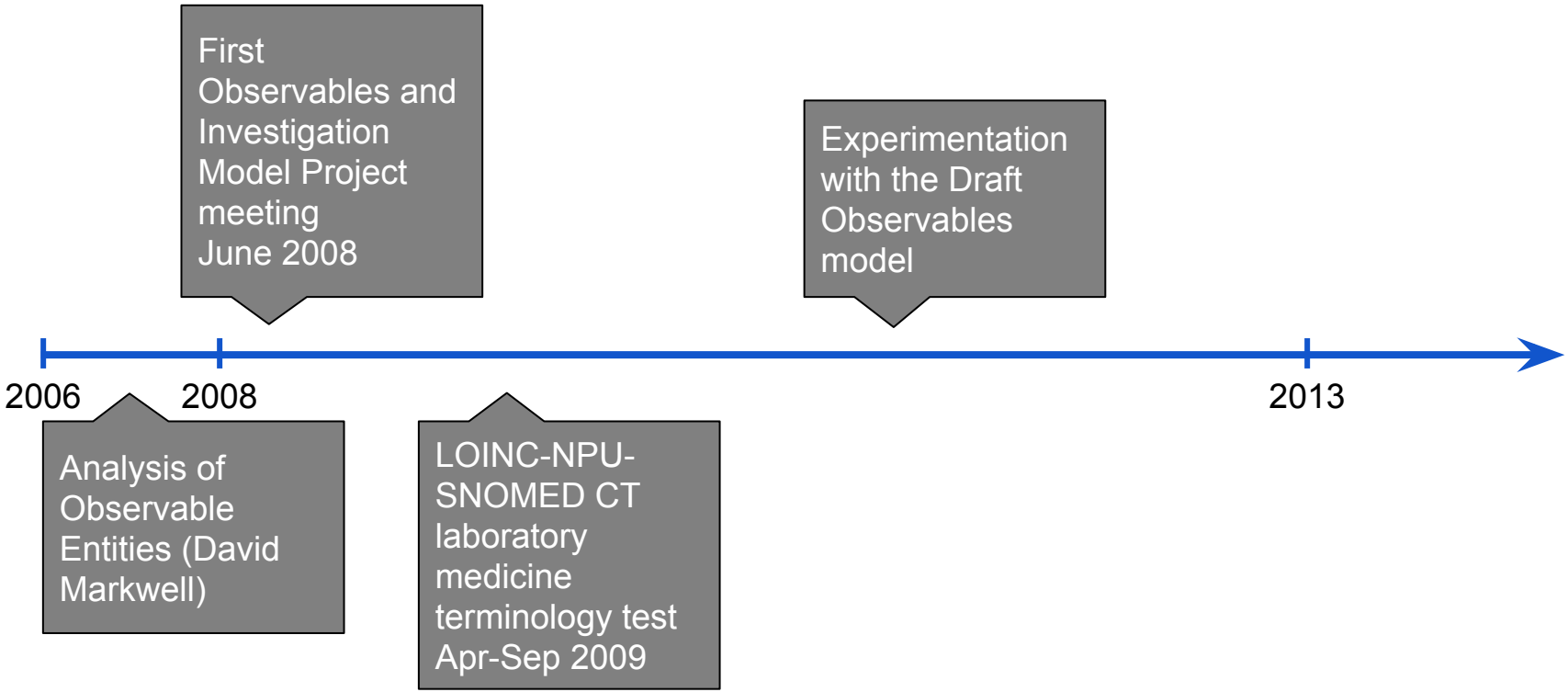
Analysis of Observable Entities (Dav Markwell)

Learning to walk

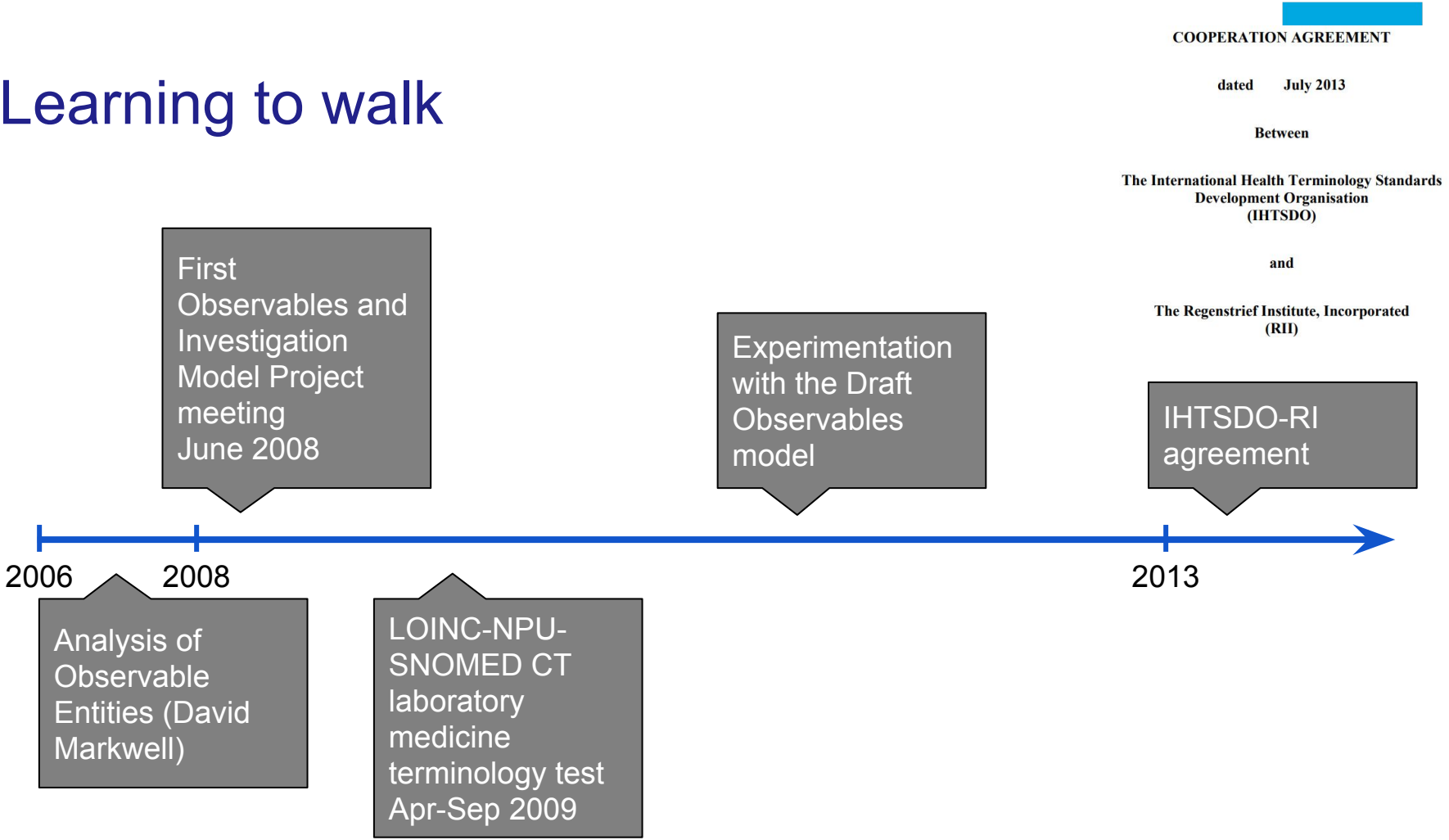


	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1		PROPERTY TYPE		INHERES IN		INHERENT LOCATIO		INHERENT IN		CHARACTERIZES		PROCESS AGENT		PROCESS DURATION		PROCESS OUTPUT		TOWARDS	
2	NPU expression for observable	SCT code	Term	SCT co	Term	SCT cod	Term	S	Term	SCT co	Term	SCT co	Term	SC	Term	SCT code	Term	SC	Term
3	P—Troponin T, cardiac muscle; mass c. = ? ng/l	118539007	Mass conc	50863008	Plasma (substance)													###	Cardiac troponin T (substanc
4																			
5	P—Erythrocyte(not ABO) antibody; arb.c.(20 °C; proc.) = ?	118569000	Arbitrary co	50863008	Plasma (substance)													not ir	Non-ABO erythrocyte antibo
6	P—Erythrocyte(not ABO) antibody; arb.c.(37 °C; proc.) = ?	118569000	Arbitrary co	50863008	Plasma (substance)													not ir	Non-ABO erythrocyte antibo
7	P—Follitropin; arb.subst.c.(IS 92/510; proc.) = ? int. unit/l	not in SCT	Arbitrary su	50863008	Plasma (substance)													###	Pituitary follicle stimulating h
8	P—Fondaparinux; arb.subst.c.(proc.) = ? (p.d.u.)	not in SCT	Arbitrary su	50863008	Plasma (substance)													not ir	Fondaparinux (substance)
9	Secr(Nasoph)—Metapneumovirus(RNA); arb.c.(proc.) = ?	118569000	Arbitrary co	46242002	Body secret	71836000	Nasopharyngeal structure (body structure)											not ir	Human metapneumovirus RN
10	Ex—Metapneumovirus(RNA); arb.c.(proc.) = ?	118569000	Arbitrary co	45710003	Sputum (substance)													not ir	Human metapneumovirus RN
11	Secr(Bronchus; spec.)—Metapneumovirus(RNA); arb.c.(proc.) = ?	118569000	Arbitrary co	46242002	Body secret	955009	Bronchial structure (body structure)											not ir	Human metapneumovirus RN
12	Ex—SARS Virus(RNA); arb.c.(proc.) = ?	118569000	Arbitrary co	45710003	Sputum (substance)													not ir	Severe acute respiratory syn
13	Secr(Bronchus; spec.)—SARS Virus(RNA); arb.c.(proc.) = ?	118569000	Arbitrary co	46242002	Body secret	955009	Bronchial structure (body structure)											not ir	Severe acute respiratory syn
14	B—Toxoplasma gondii(DNA); arb.c.(proc.) = ?	118569000	Arbitrary co	87612001	Blood (substance)													###	Toxoplasma gondii DNA (sub
15	Syst(spec.)—Toxoplasma gondii(DNA); arb.c.(proc.) = ?	118569000	Arbitrary co	1.39E+08	SNOMED CT	Concept (SNOMED RT+CTV3)												###	Toxoplasma gondii DNA (sub
16	Biopsy(spec.)—Toxoplasma gondii(DNA); arb.c.(proc.) = ?	118569000	Arbitrary co	1.23E+08	Body structure (body structure)													###	Toxoplasma gondii DNA (sub
17	Lkc prot.—N-Acetylgalactosamine-6-sulfatase; cat.cont.(37 °C; proc.) = ?	118526008	Catalytic co	88878007	Protein (sub	52501007	Leukocyte (cell)											###	N-Acetylgalactosamine-6-sul
18	Lkc prot.—alpha-L-Fucosidase; kat.indh. = ? µkat/kg	118526008	Catalytic co	88878007	Protein (sub	52501007	Leukocyte (cell)											###	alpha-L-Fucosidase (substan
19	P—Herpes simplex virus 2 antibody(IgG); arb.c.(proc.) = ?	118569000	Arbitrary co	50863008	Plasma (substance)													not ir	Human herpes simplex virus
20	T-lymphocytes(B)—Interferon gamma release; arb.rate(stim.; Rv3874 prc	118572007	Arbitrary rate	(property)	(qualifier value)					not i SCT	Release (process)	57184004	T lymphoc	###	Single point in ti	420303002	Interferon gamma (substance)		
21	Csv—Choriogonadotropin; arb.stofk.(IS 75/589; proc.) = ? int.enh./l	118569000	Arbitrary co	concentration	(property)	(qualifier value)												###	Human chorionic gonadotrop
22	U—Cylinder, leukocyte type; arb.num.(proc.) = ? (p.d.u.)	118521003	Arbitrary (p	78014005	Urine (substance)													not ir	Leukocyte cast
23	Lkc prot.—Hexosaminidase A; cat.cont.(37 °C; proc.) = ? µkat/kg	118526008	Catalytic co	88878007	Protein (sub	52501007	Leukocyte (cell)											###	Beta-hexosaminidase A (sub
24	DNA(spec.)—BMPR1A gene; seq.var. = ?	not in SCT	sequence v	24851008	Deoxyribonu	123037004	Body structure (body structure)											not ir	BMPR1A gene (substance)
25	DNA(spec.)—KIT gene; seq.var. = ?	not in SCT	sequence v	24851008	Deoxyribonu	123037004	Body structure (body structure)											not ir	KIT gene (substance)
26	DNA(spec.)—HSD11B2 gene; seq.var. = ?	not in SCT	sequence v	24851008	Deoxyribonu	123037004	Body structure (body structure)											not ir	HSD11B2 gene (substance)
27	DNA(spec.)—PDGFRA gene; seq.var. = ?	not in SCT	sequence v	24851008	Deoxyribonu	123037004	Body structure (body structure)											not ir	PDGFRA gene (substance)
28	DNA(spec.)—PTEN gene; seq.var. = ?	not in SCT	sequence v	24851008	Deoxyribonu	123037004	Body structure (body structure)											not ir	PTEN gene (substance)
29	DNA(spec.)—SMAD4 gene; seq.var. = ?	not in SCT	sequence v	24851008	Deoxyribonu	123037004	Body structure (body structure)											not ir	SMAD4 gene (substance)
30	DNA(spec.)—NR3C1 gene; seq.var. = ?	not in SCT	sequence v	24851008	Deoxyribonu	123037004	Body structure (body structure)											not ir	NR3C1 gene (substance)
31	DNA(spec.)—CFH gene; seq.var. = ?	not in SCT	sequence v	24851008	Deoxyribonu	123037004	Body structure (body structure)											not ir	CFH gene (substance)
32	DNA(spec.)—AICDA gene; seq.var. = ?	not in SCT	sequence v	24851008	Deoxyribonu	123037004	Body structure (body structure)											not ir	AICDA gene (substance)
33	DNA(spec.)—IRAK4 gene; seq.var. = ?	not in SCT	sequence v	24851008	Deoxyribonu	123037004	Body structure (body structure)											not ir	IRAK4 gene (substance)
34	RNA(spec.)—IL12RB1 gene; seq.var. = ?	not in SCT	sequence v	27888000	Ribonucleic	123037004	Body structure (body structure)											not ir	IL12RB1 gene (substance)
35	RNA(spec.)—STAT3 gene; seq.var. = ?	not in SCT	sequence v	27888000	Ribonucleic	123037004	Body structure (body structure)											not ir	STAT3 gene (substance)
36	Prostata specific antigen(P)—Prostata specific antigen(free); mass fr. = ?	118542001	Mass fracti	50863008	Plasma (substance)													not ir	Free prostate specific antig

Learning to walk



Learning to walk



Graduation day

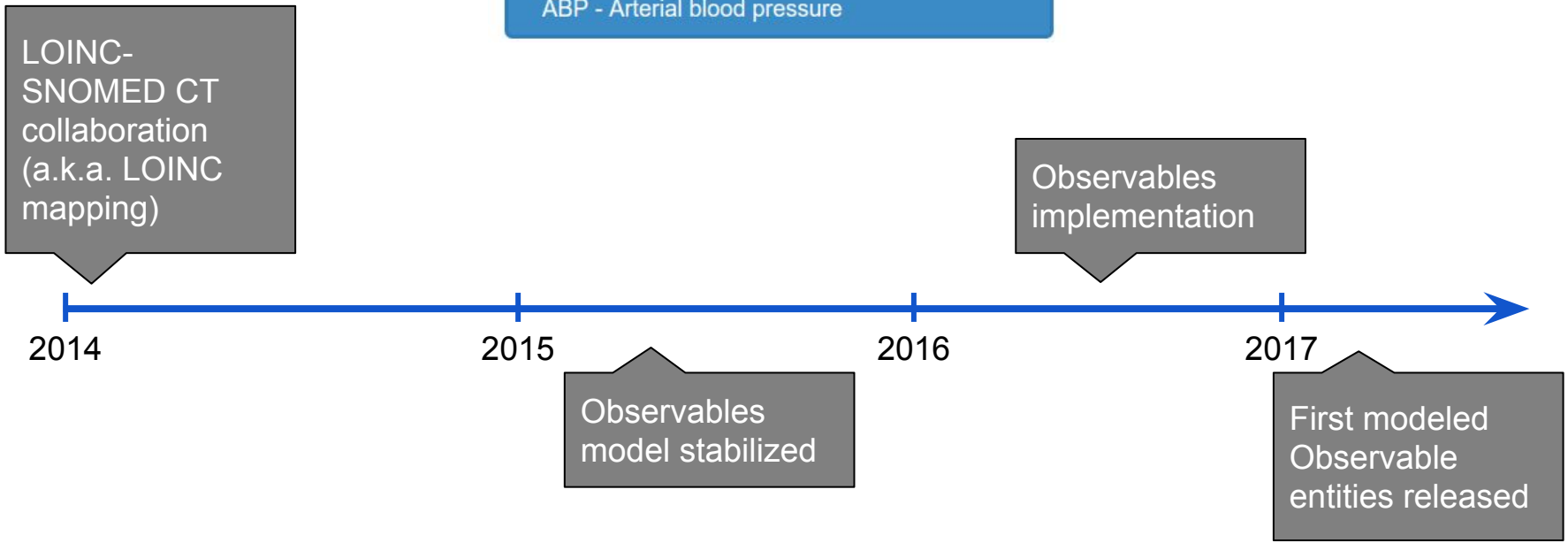
Arterial blood pressure (observable entity)

SCTID: 386534000

386534000 | Arterial blood pressure (observable entity) |

Arterial blood pressure (observable entity)
Arterial blood pressure
ABP - Arterial blood pressure

Inheres in → Arterial structure
Characterizes → Cardiac process
Property type → Pressure (property)
Scale type → Quantitative



Observables areas worked on

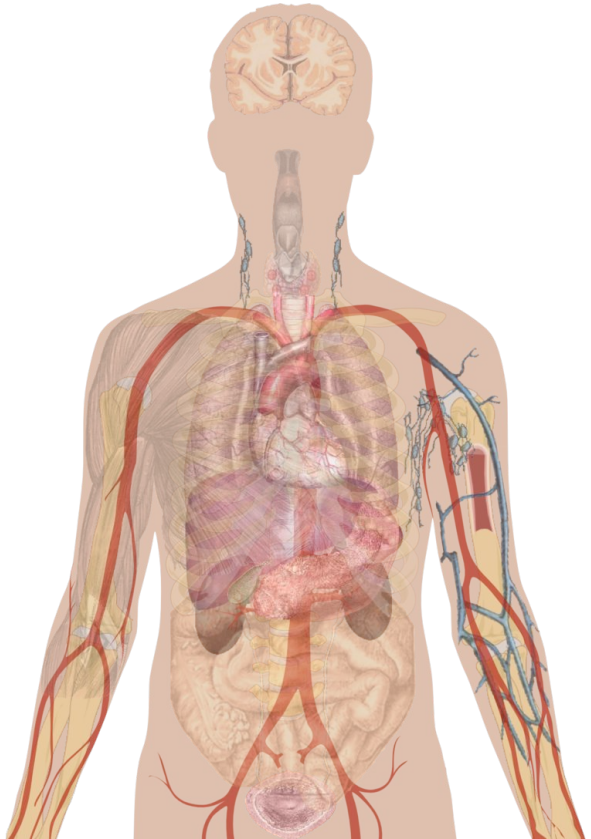
- Large areas of laboratory medicine
- Functioning together with Functioning project and Nursing CRG/SIG
- (Histo)pathology och molecular biology observables with IPaLM CRG/SIG
- Vital signs
- ...and smaller scale experiments in many areas

Observables model as of today

- All-in-all 20 attributes used to define Observable entities
- Model is stable, but changes can be made to accommodate for new use cases

Observables model principles

WHAT

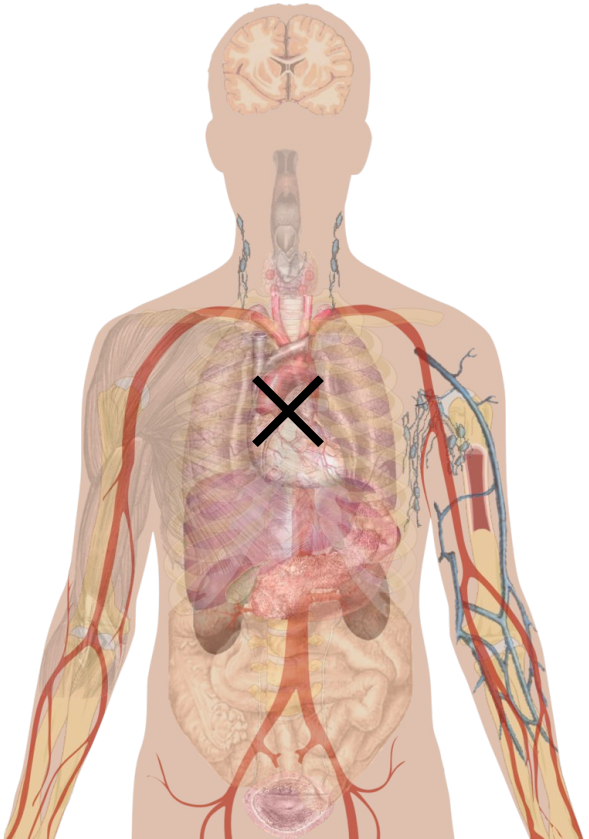


HOW

Observables model principles

WHAT

Core temperature, also called core body temperature, is the operating **temperature** of an organism, specifically in **deep structures of the body** such as the liver, in comparison to temperatures of peripheral tissues.



HOW

Observables model principles

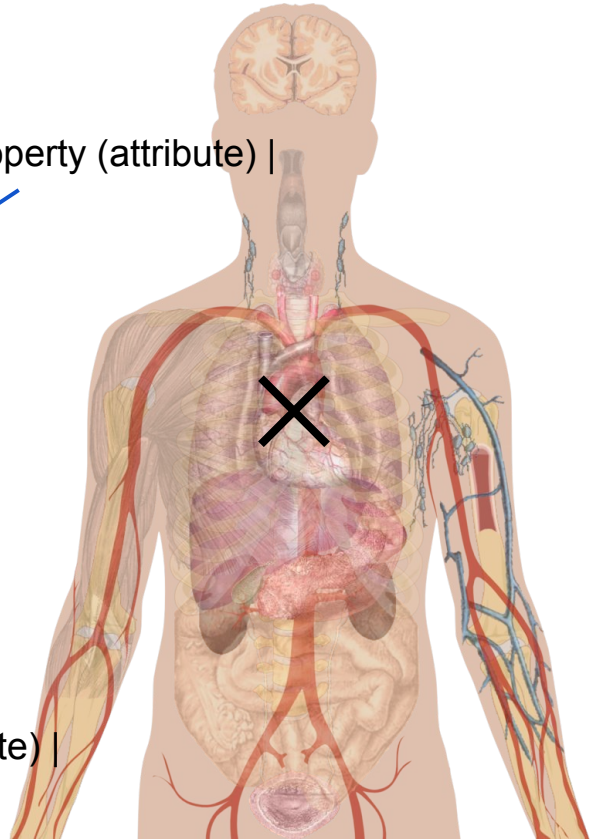
WHAT

370130000 | Property (attribute) |

HOW

Core temperature, also called core body temperature, is the operating **temperature** of an organism, specifically in **deep structures of the body** such as the liver, in comparison to temperatures of peripheral tissues.

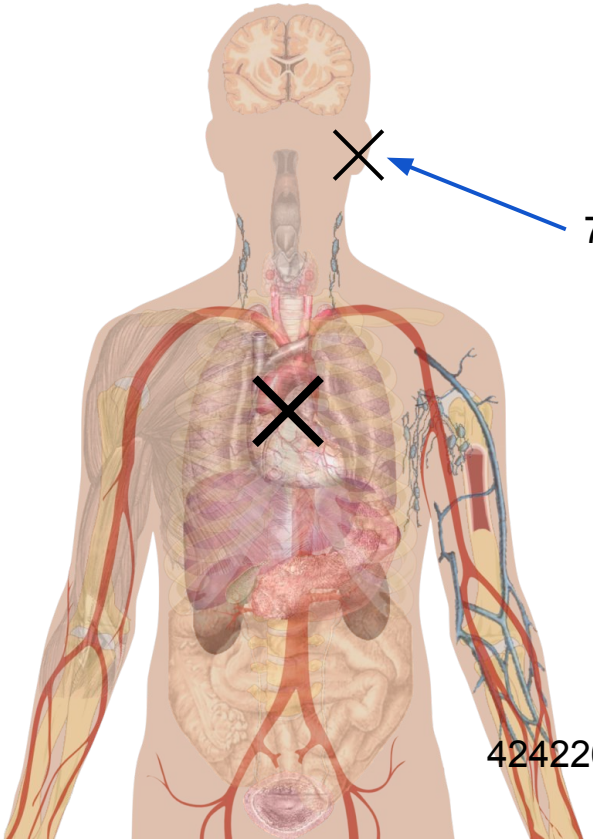
704319004 | Inheres in (attribute) |



Observables model principles

WHAT

Core temperature, also called core body temperature, is the operating **temperature** of an organism, specifically in **deep structures of the body** such as the liver, in comparison to temperatures of peripheral tissues.



HOW

704327008 | Direct site (attribute) |

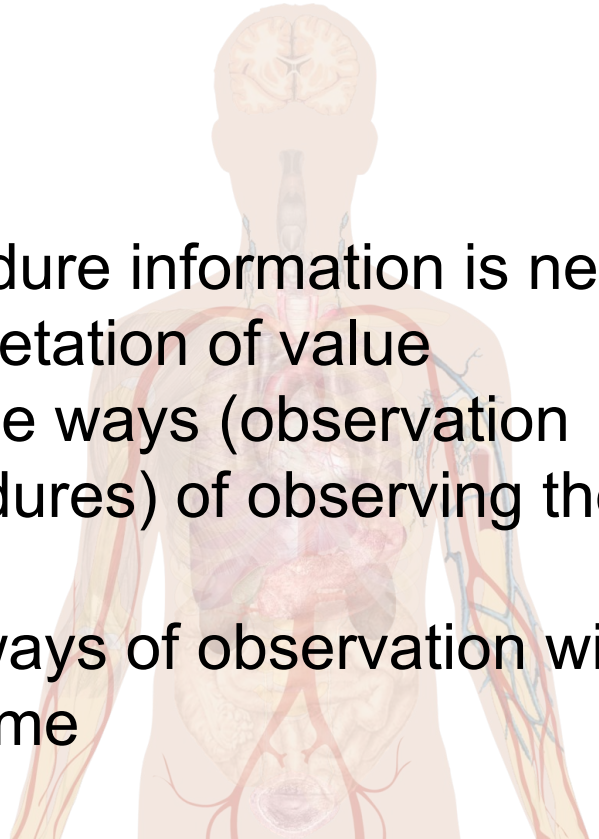
370132008 | Scale type (attribut

424226008 | Using device (attribute) |

Observables model principles

WHAT

HOW



- Procedure information is needed for interpretation of value
- Multiple ways (observation procedures) of observing the same “thing”
- New ways of observation will evolve over time

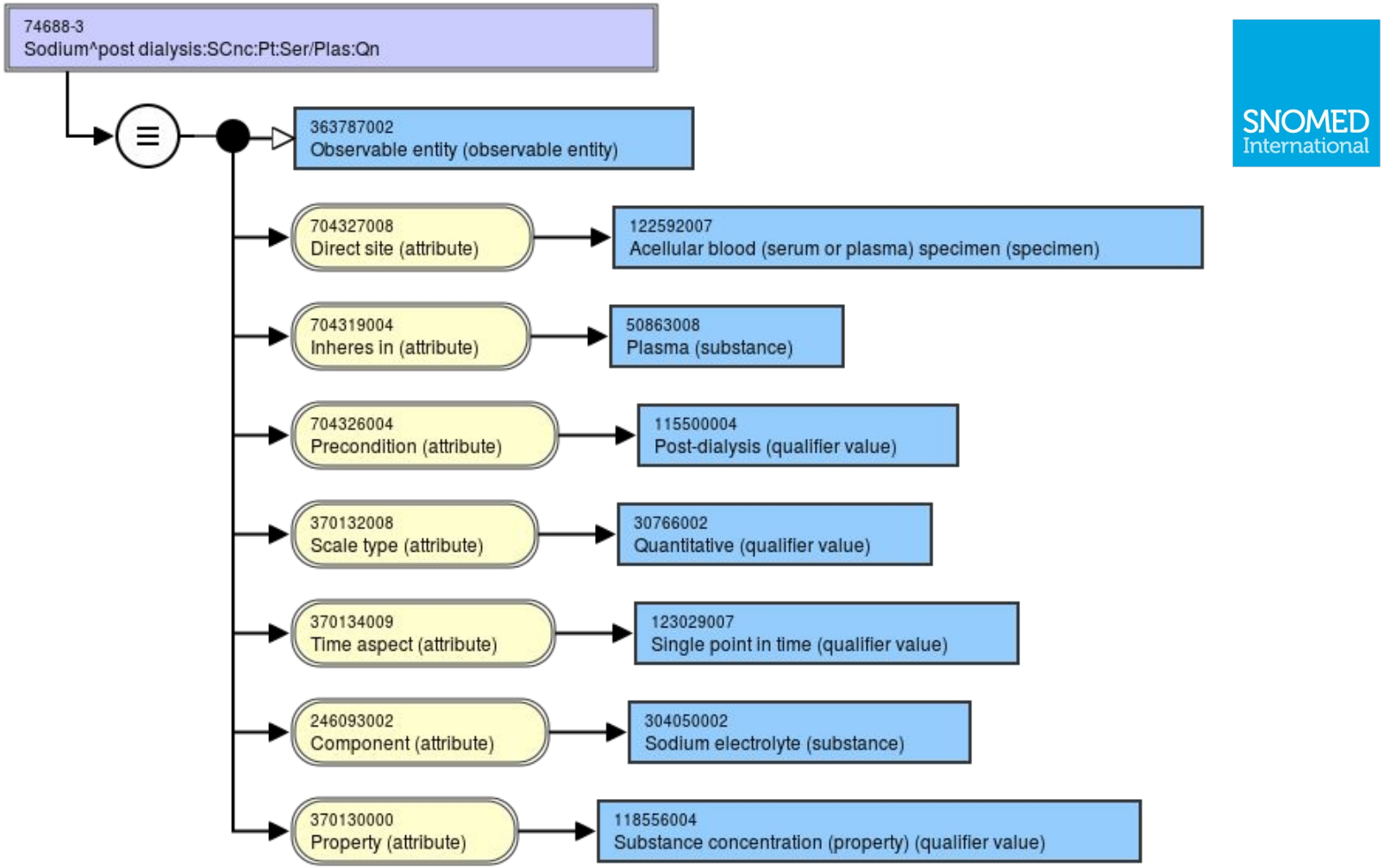
Kinds of observable

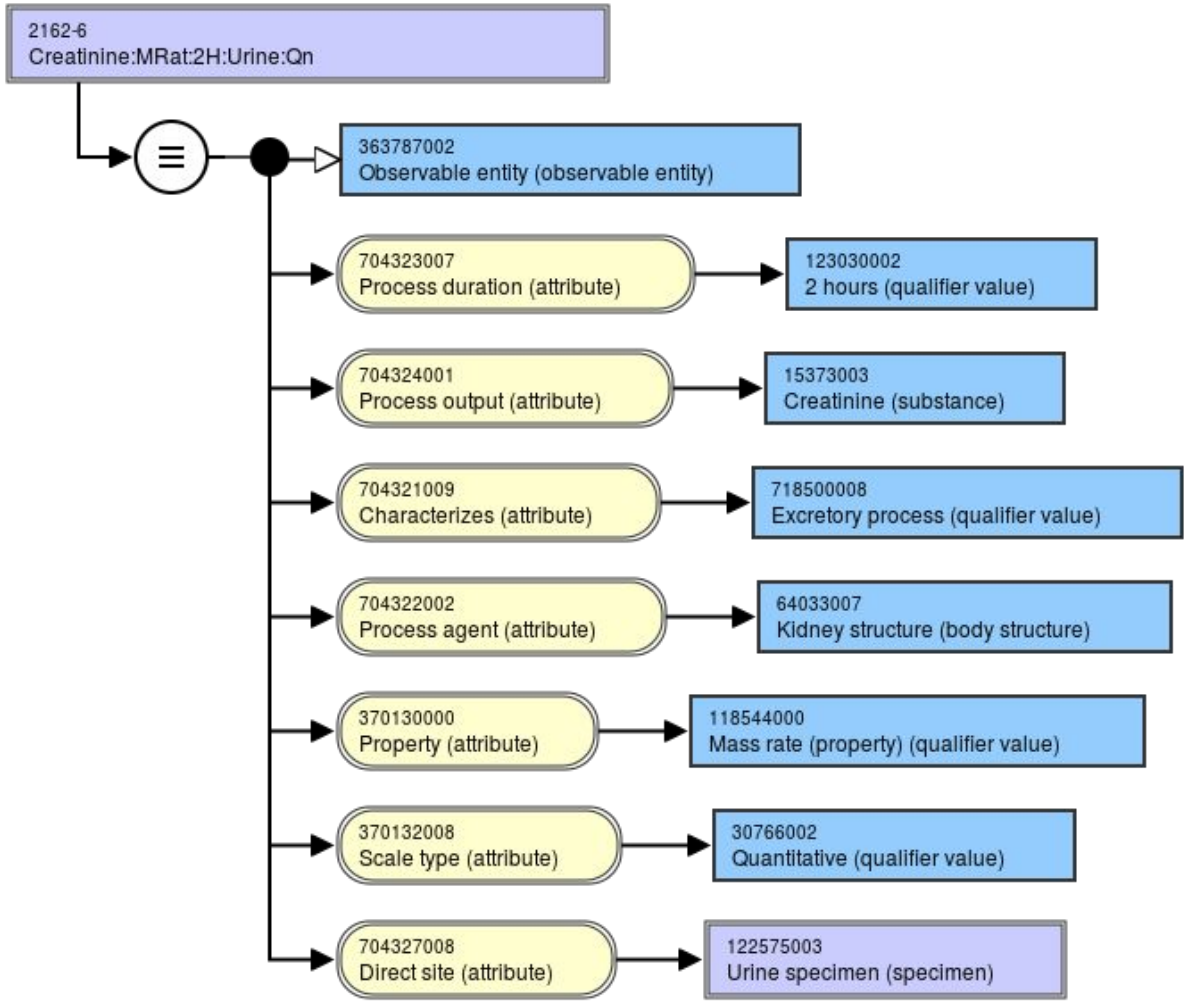
- Quality observable (including quantities)
- Process observable
- Function observable
- Disposition observable
- ...

Each require a (slightly) different set of attributes

Avoid overloading

Examples


74688-3
Sodium^post dialysis:SCnc:Pt:Ser/Plas:Qn
363787002
Observable entity (observable entity)
704327008
Direct site (attribute)
122592007
Acellular blood (serum or plasma) specimen (specimen)
704319004
Inheres in (attribute)
50863008
Plasma (substance)
704326004
Precondition (attribute)
115500004
Post-dialysis (qualifier value)
370132008
Scale type (attribute)
30766002
Quantitative (qualifier value)
370134009
Time aspect (attribute)
123029007
Single point in time (qualifier value)
246093002
Component (attribute)
304050002
Sodium electrolyte (substance)
370130000
Property (attribute)
118556004
Substance concentration (property) (qualifier value)



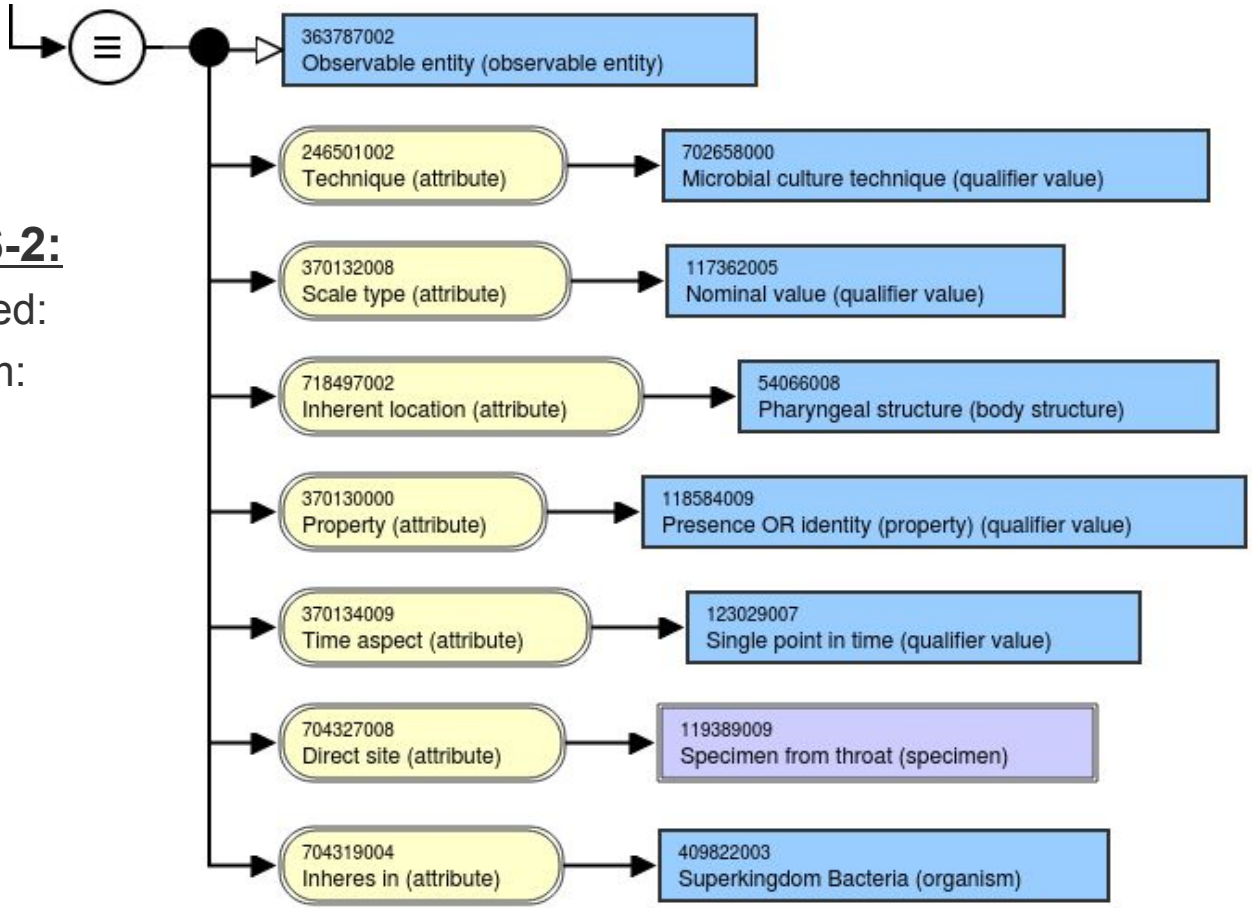
SNOMED International

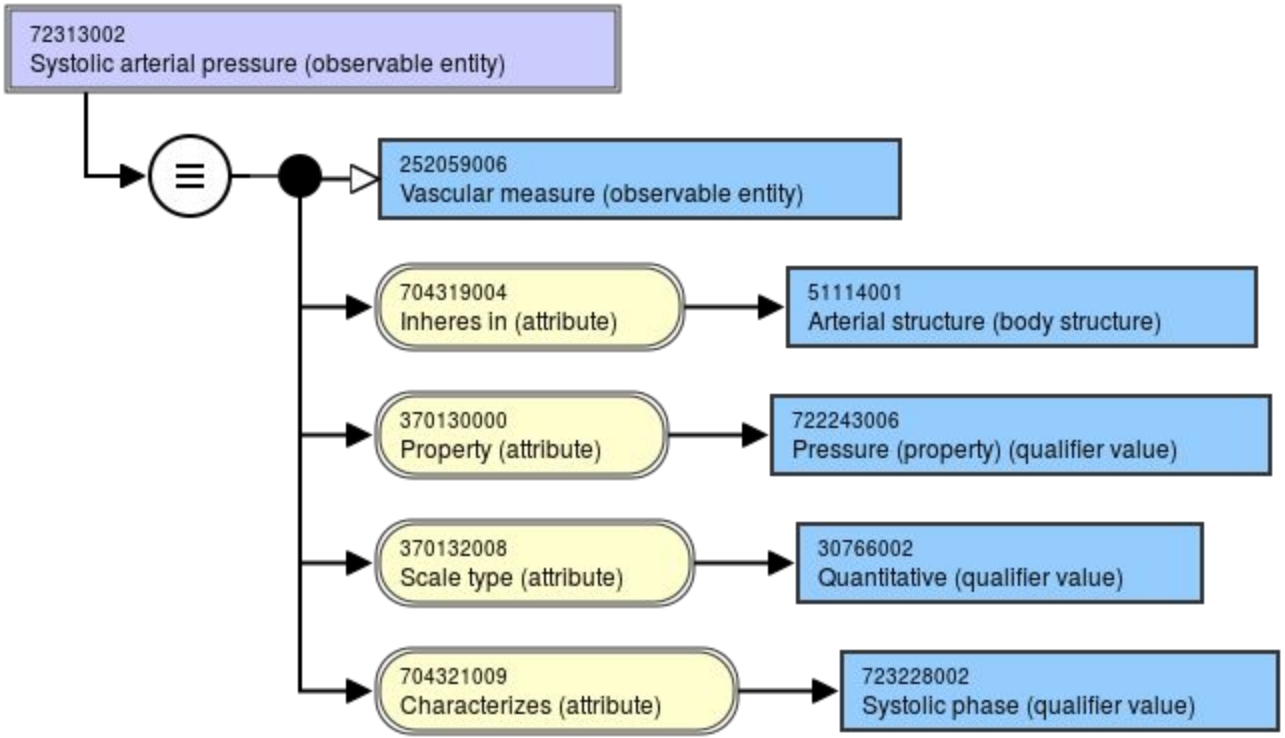
LOINC ID:626-2:

Bacteria identified:

Prid:Pt:Thrt:Nom:

Culture




72313002
Systolic arterial pressure (observable entity)
≡
252059006
Vascular measure (observable entity)
704319004
Inheres in (attribute)
51114001
Arterial structure (body structure)
370130000
Property (attribute)
722243006
Pressure (property) (qualifier value)
370132008
Scale type (attribute)
30766002
Quantitative (qualifier value)
704321009
Characterizes (attribute)
723228002
Systolic phase (qualifier value)

What's next

Thanks and Questions