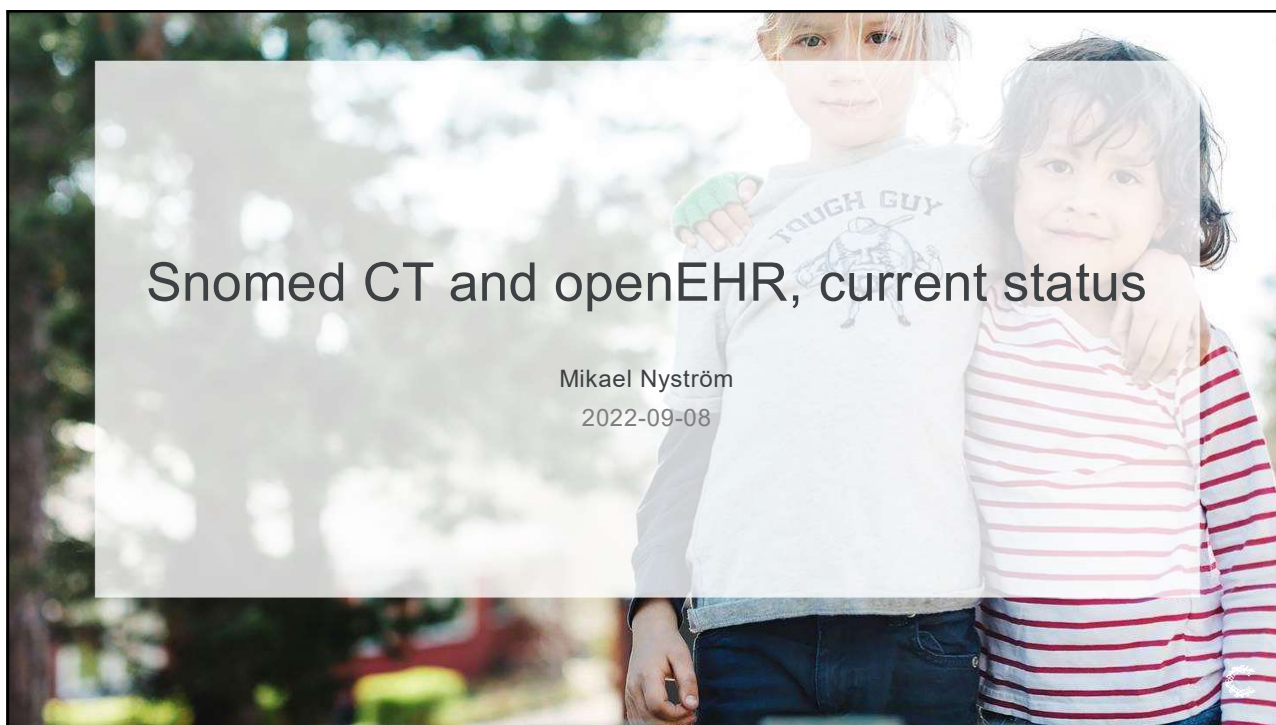
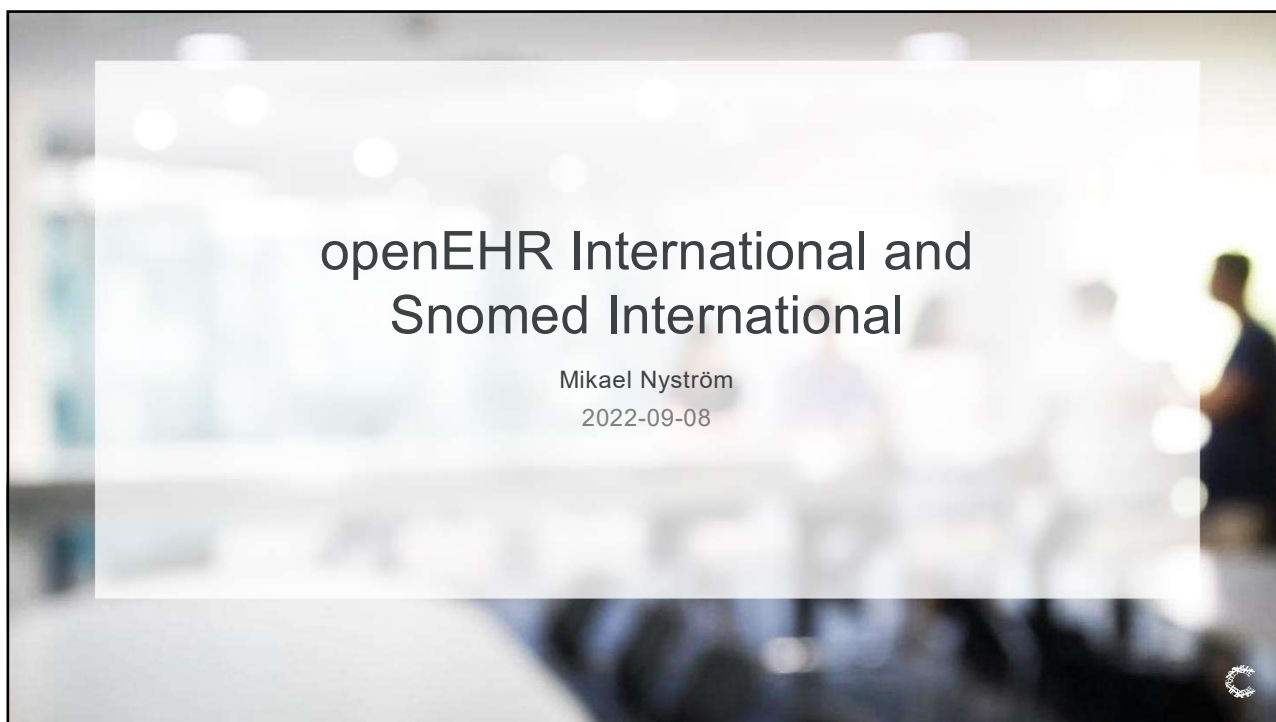




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openEHR International & SNOMED International

- Previous discussions, but no current collaboration agreement
 - Ongoing discussions 2017
- openEHR International has recently contacted SNOMED International about collaboration
 - Background
 - Increased interest to use openEHR and SNOMED CT together
 - Would strengthen the Clinical Program reboot
 - Implementation guide for using openEHR and SNOMED CT together would be useful

INTERNAL

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Strengths and weaknesses for ontologies and information models

SNOMED CT		Ontology	What, How and Why
	+++		Disease, Symptom, Sign, Procedure, Body structure, Morphology, Substance, Drug, Equipment, Organism
	++		Semantic constraints, Refinement of concepts (e.g. laterality)
	+	+	Context-dependent clinical situations, Present / absent / uncertain, Family history, Previous history, Referred / planned / completed
	++		Structural constraints of classes and attributes, Relationships between journal notes
	+++		Date, Time, Duration, Quantity, Text, Instance (e.g. of people, organization and place), Context
openEHR		Information model	Who, When and Where

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Strengths and weaknesses for ontologies and information models

SNOMED CT

Ontology		What, How and Why
	+++	Disease, Symptom, Sign, Procedure, Body structure, Morphology, Substance, Drug, Equipment, Organism
	++	Semantic constraints, Refinement of concepts (e.g. laterality)
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++		Structural constraints of classes and attributes, Relationships between journal notes
+++		Date, Time, Duration, Quantity, Text, Instance (e.g. of people, organization and place), Context
Information model		Who, When and Where

openEHR



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Information model

*Date, Time, Duration, Quantity, Text,
Instance (e.g. of people, organization and place), Context*

Data type DV_DATE, e.g. 2021-01-13

Data type DV_TIME, e.g. 08:30

Data type DV_DATE_TIME, e.g. 2021-01-13T08:30

Data type DV_DURATION, e.g. P1DT05H

Data type DV_QUANTITY, e.g. 130 mmHg

Data type DV_TEXT, e.g. "The patient has had pain in his right knee for a week ..."

Data type DV_IDENTIFIER, e.g. 121212-1212

Systolic, DV_QUANTITY,

"Peak systemic arterial blood pressure - measured in systolic or contraction phase of the heart cycle.",

Property: Pressure



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Information model

*Date, Time, Duration, Quantity, Text,
Instance (e.g. of people, organization and place), Context*

What was documented in the patient's health record during 2018?

Mathematical expression

2018-01-01 ≤ DV_DATE ≤ 2018-12-31

2018-03-28

2018-04-12

2018-11-06



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Strengths and weaknesses for ontologies and information models

SNOMED CT

Ontology		What, How and Why
	+++	Disease, Symptom, Sign, Procedure, Body structure, Morphology, Substance, Drug, Equipment, Organism
	++	Semantic constraints, Refinement of concepts (e.g. laterality)
+	+	Context-dependent clinical situations, Present / absent / uncertain, Family history, Previous history, Referred / planned / completed
++		Structural constraints of classes and attributes, Relationships between journal notes
+++		Date, Time, Duration, Quantity, Text, Instance (e.g. of people, organization and place), Context
Information model		Who, When and Where

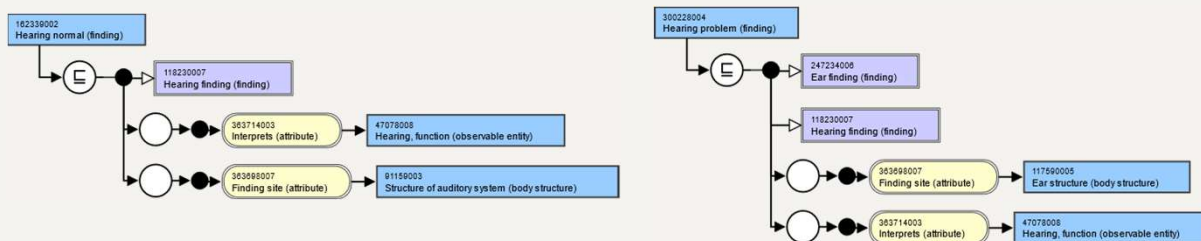
openEHR



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Ontology

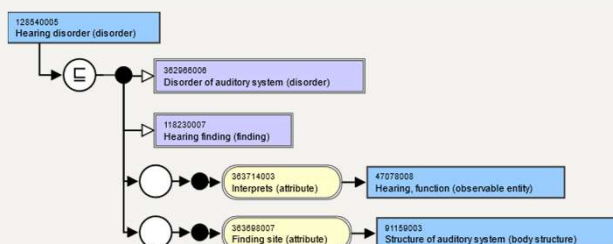
Disease, Symptom, Sign, Procedure, Body structure, Morphology, Substance, Drug, Equipment, Organism



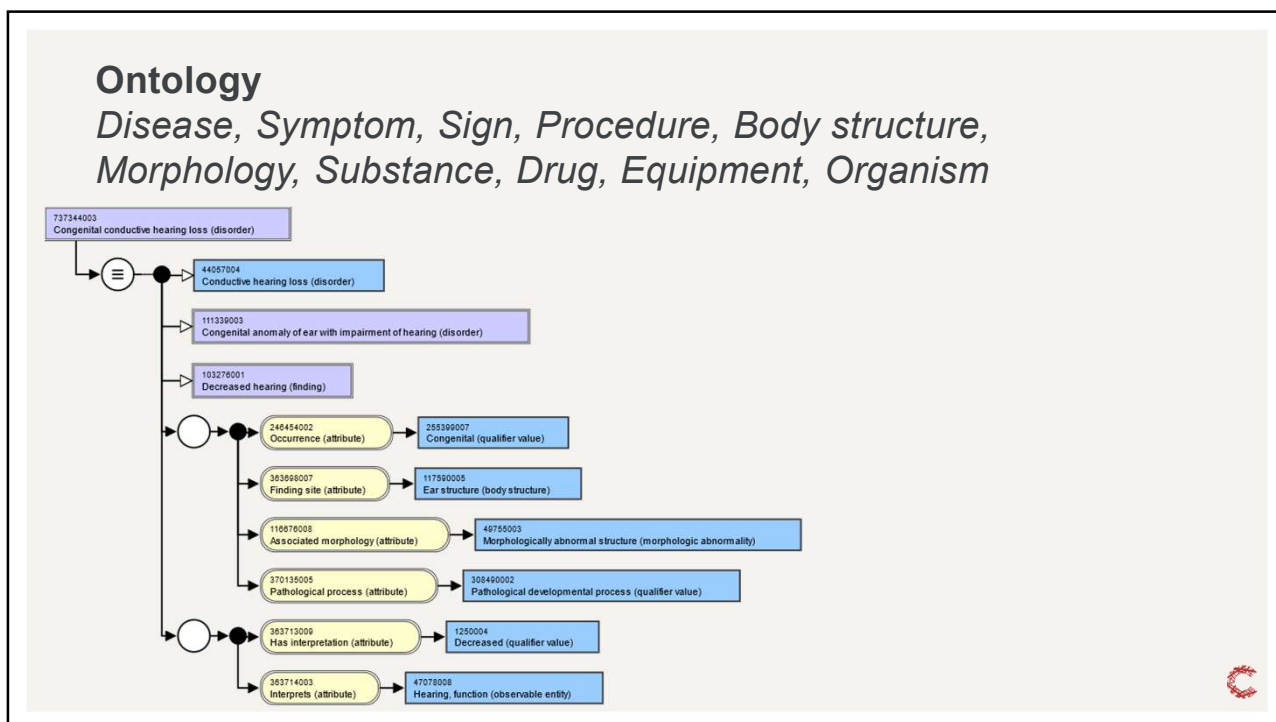
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Ontology

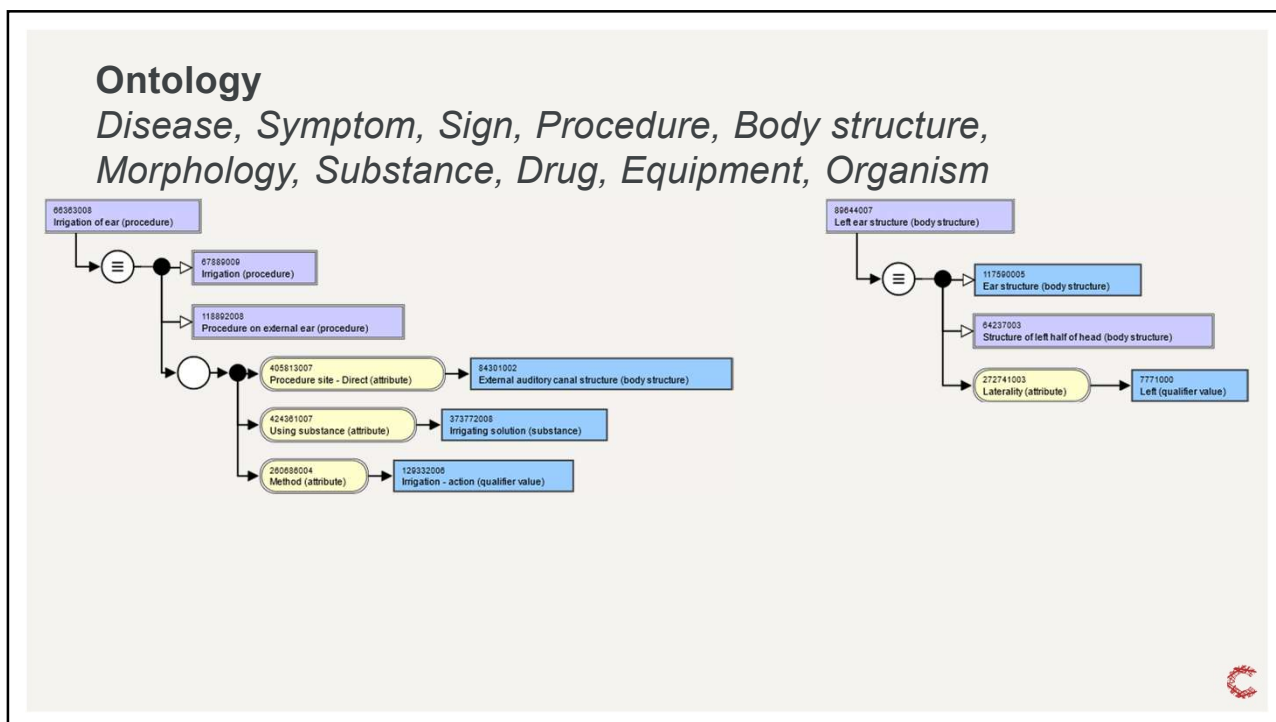
Disease, Symptom, Sign, Procedure, Body structure, Morphology, Substance, Drug, Equipment, Organism



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Ontology

Disease, Symptom, Sign, Procedure, Body structure, Morphology, Substance, Drug, Equipment, Organism

What is documented in the patient's health record related to the hearing functions?

Expression Constraint Language

<< 118230007 | Hearing finding (finding) |

Perception of hearing loss (finding)

Subjective tinnitus of right ear (finding)

Hearing loss of right ear caused by noise (disorder)

Hyperacusis of right ear (disorder)

Subjective tinnitus of left ear (finding)

Hearing loss of left ear caused by noise (disorder)

Hyperacusis of left ear (disorder)

...



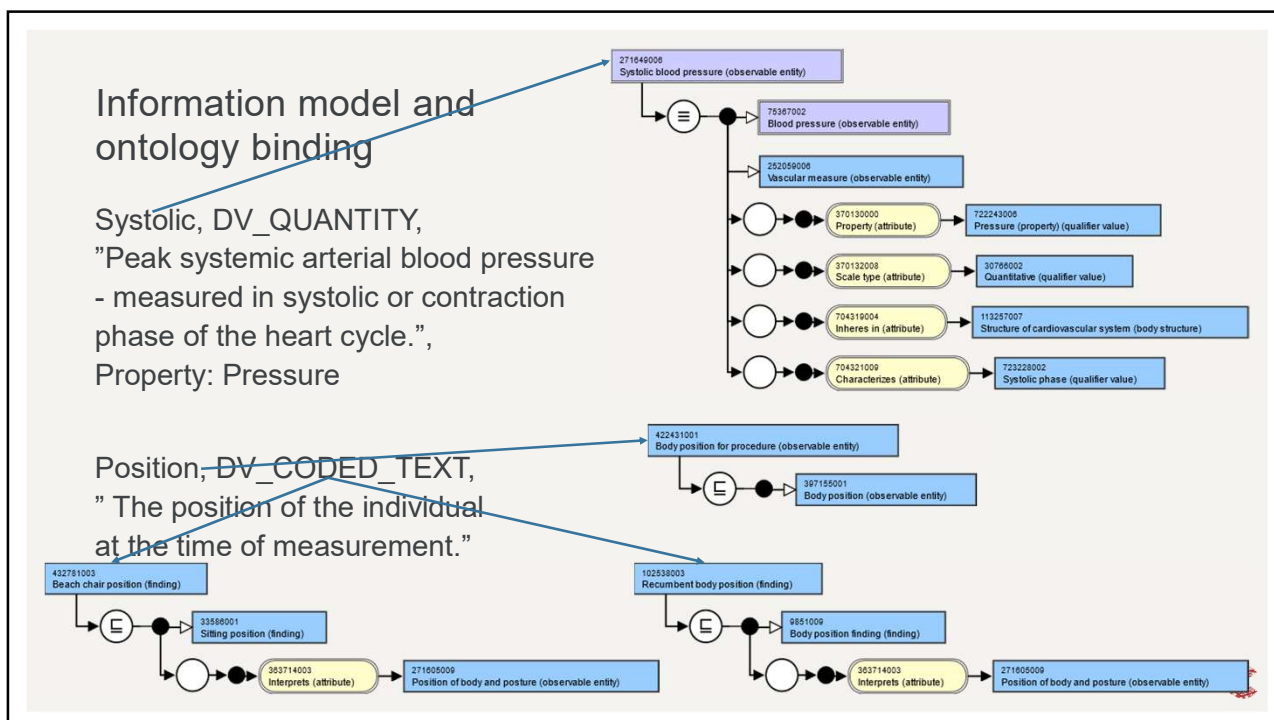
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Information model and ontology binding

INTERNAL



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Strengths and weaknesses for ontologies and information models

SNOMED CT

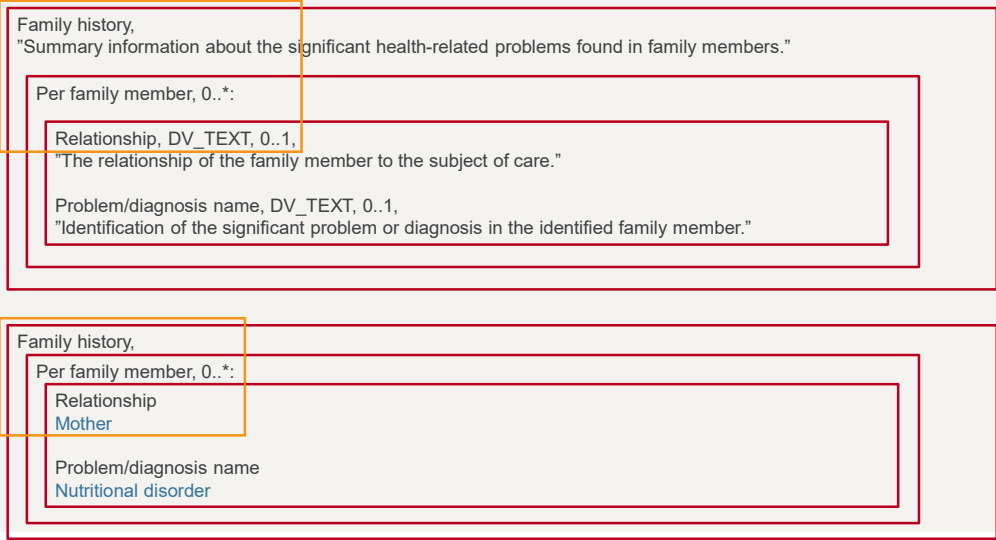
Ontology	What, How and Why
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+++	Date, Time, Duration, Quantity, Text, Instance (e.g. of people, organization and place), Context
Information model	Who, When and Where

openEHR

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Information model

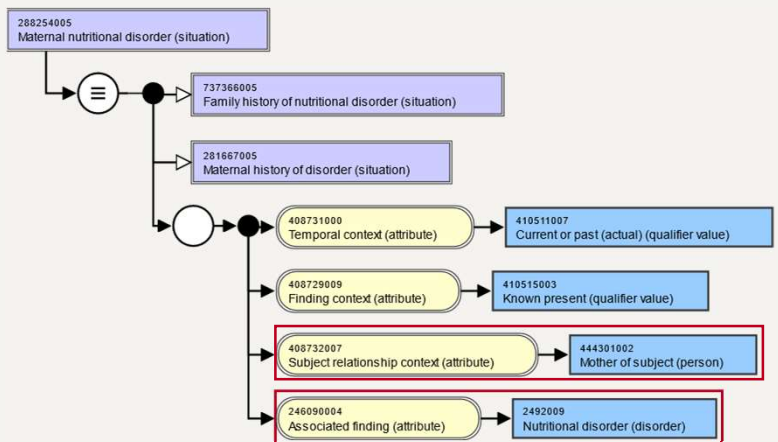
Context-dependent clinical situations, Present / absent / uncertain, Family history, Previous history, Referred / planned / completed



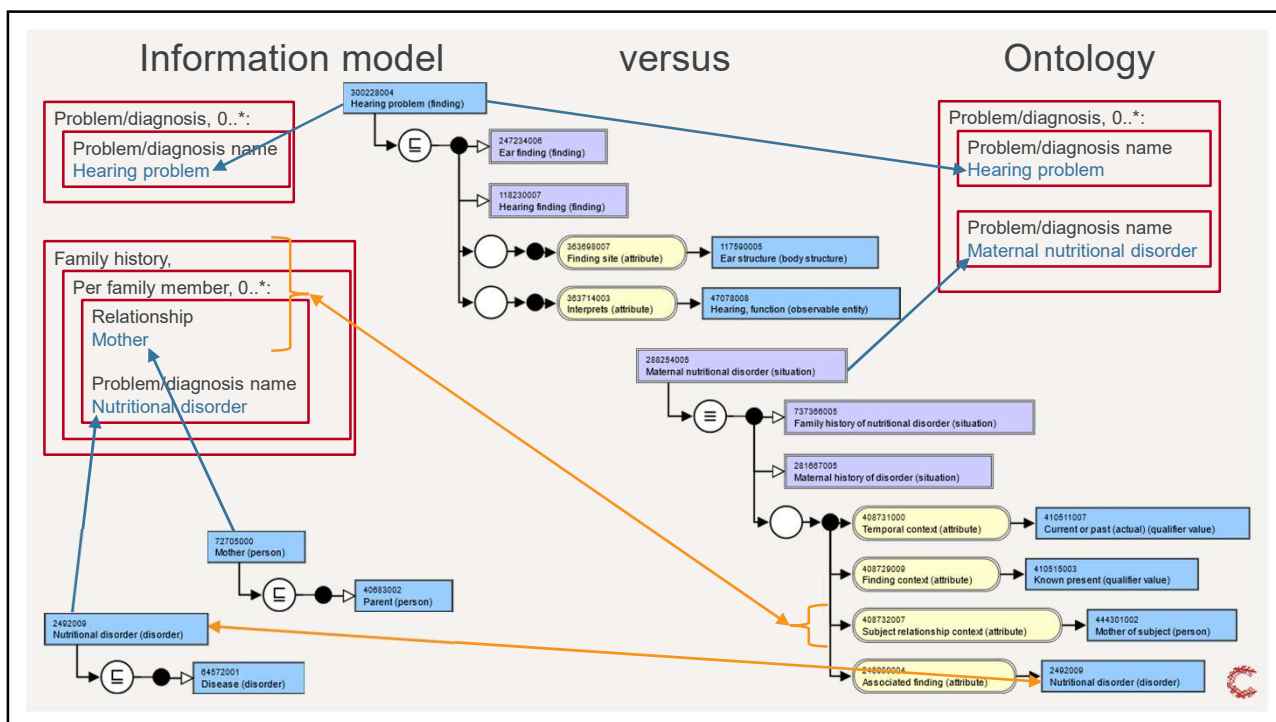
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Ontology

Context-dependent clinical situations, Present / absent / uncertain, Family history, Previous history, Referred / planned / completed



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