

New concept proposal

Measurement

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1 Rationale

Measurement is a class that exists in the RDF Schema since 2021 in order to group different kinds of measurement classes (e.g., Body Height, Oxygen Saturation) under the same parent. However, a concept Measurement does not exist in the SPHN Dataset.

It is useful to include the concept Measurement in the SPHN Dataset to provide the meaning of measurement and the common composedOfs for all measurement concepts, which will allow to control their semantics and links when new specific measurement concepts are added to the SPHN Dataset in the future.

2 Comparison to other standards/data models

2.1 SNOMED CT

In SNOMED CT, the following concepts are present for measurement in general:

272391002 |Measurement technique (qualifier value)|

122869004 |Measurement procedure (procedure)|. Under the hierarchy of observable entity, there are only specific measurement codes available but there is no code for measurement in general (other than referring to the procedure or technique).

2.2 UMLS

In UMLS, the following definitions are available for the concept Measurement with the Concept Unique Identifier (CUI) C0242485:

An observation, by some objective method, of amount, number, quantity, size, level, extent, or magnitude, resulting in an ordinal or quantitative value (**SNOMEDCT_US**)

Annotation used to indicate the size or magnitude of something that was determined by comparison to a standard. (**NCI**)

3 Concept information

Concept or concept compositions or inherited	General concept name	General description	Contextualized concept name	Contextualized description	Type	Standard	Value set or subset	Meaning binding
Concept	Measurement	annotation used to indicate the size or magnitude of something that was determined by comparison to a standard	Measurement	annotation used to indicate the size or magnitude of something that was determined by comparison to a standard				
composedOf	quantity	value and unit of the concept	quantity	value and unit of the measurement result	Quantity			
composedOf	measurement datetime	datetime of measurement	measurement datetime	datetime of measurement	temporal			

4 Impact on the SPHN Dataset

All concepts with at least composedOfs of 'quantity' and 'measurement datetime' would be of type 'Measurement'. Currently, these are the following concepts:

- Inhaled Oxygen Concentration
- Body Temperature
- Heart Rate
- Body Height
- Oxygen Saturation
- Body Weight
- Cardiac Output
- Circumference Measure
- Blood Pressure.

5 Discussion

LOINC and SNOMED CT do not provide a code suitable for meaning binding. The concept is not used for instantiation, but provides the semantic elements common to all measurements that inherit from the measurement concept, such as body temperature and circumference measure. One further composedOf has been discussed: measurement method. However, this composedOf needs further clarification first, e.g., regarding the relationship to the procedure hierarchy in SNOMED CT and the existing Procedure concept in the SPHN Dataset.