New concept proposal

Body Mass Index

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Dataset release	2023.1	**Consulted expert**	-

1 Rationale

The Body Mass Index (BMI) correlates with body fat (adipose tissue) and is of high interest when Adipositas is considered as a risk factor, e.g. in assessments such as transthoracic echocardiography (TTE) for the diagnosis of heart diseases. The BMI is a calculated value and could be derived from raw data (weight and height). However, there are use cases where the interest is specifically targeted on BMI without interest in the individual measurement results for body weight and body height. Further, queries for a BMI over or under a certain threshold can be supported by adding this concept.

2 Comparison to other standards/data models

2.1 SNOMED CT

SNOMED CT provides a code related to BMI which identifies the data element of interest: 60621009 |Body mass index (observable entity)| and a code which identifies the finding: 301331008 |Finding of body mass index (finding)|.

2.2 LOINC

In LOINC, there are the following 6 codes related to BMI:

LOINC	Long Common Name
59574-4	Body mass index (BMI) [Percentile]
39156-5	Body mass index (BMI) [Ratio]
59575-1	Body mass index (BMI) [Percentile] Per age
89270-3	Body mass index (BMI) [Ratio] Estimated
59576-9	Body mass index (BMI) [Percentile] Per age and sex
88087-2	Estimated BMI greater than 40

2.3 HL7 FHIR

There is a profile for BMI available in HL7 FHIR: http://hl7.org/fhir/StructureDefinition/bmi which uses LOINC code 39156-5 to fix the meaning of the observation BMI.

2.4 UMLS

In UMLS, there are 7 definitions available for for Body Mass Index (BMI) and two of them are outlined below.

> An indicator of body density as determined by the relationship of BODY WEIGHT to BODY HEIGHT. BMI=weight (kg)/height squared (m2). BMI correlates with body fat (ADIPOSE TISSUE). Their relationship varies with age and gender. For adults, BMI falls into these categories: below 18.5 (underweight); 18.5-24.9 (normal); 25.0-29.9 (overweight); 30.0 and above (obese). (National Center for Health Statistics, Centers for Disease Control and Prevention) **(MSH)**

> An individual's weight in kilograms divided by the square of the height in meters. **(NCI)**

3 Concept information

Concept name	Description	Type	Standard	Value set	Meaning binding
Body Mass Index	body weight in kilograms divided by the square of the body height in meters				SNOMED CT: 60621009 |Body mass index (observable entity)|; LOINC: 39156-5 Body mass index (BMI) [Ratio]
index	value and unit of the body mass index (BMI)	Quantity		Unit: kg/m2	SNOMED CT: 301331008 |Finding of body mass index (finding)|
determination datetime	datetime of determination of the body mass index (BMI)	temporal			

4 Impact on the SPHN Dataset

None.

5 Discussion

The interpretation of BMI, for example as normal BMI, is outside the scope of this concept, as thresholds can vary from country to country or over time.

6 Example

Index:	Value:	16
	Unit:	kg/m2
	Comparator:	<
Determination datetime:	2021-03-01T19:20:30+01:00	