

New concept proposal

Cardiac Index

Author	Kristin Gnodtke	Date last updated	22.12.2022
Project	PSSS	Contact person	Rita Achermann
Dataset release	2023.1	Consulted expert	-

1 Rationale

The cardiac index is the cardiac output normalized for body surface area (BSA) and is expressed as a volume rate per area (L/min/m²). The cardiac index formula is: cardiac index = cardiac output / BSA. It is a parameter for assessing the performance of the heart and especially important for therapy of critically ill patients. Cardiac Index is a concept of interest in anesthesia and in intensive care settings, and should be added to the SPHN Dataset.

2 Comparison to other standards/data models

2.1 SNOMED CT

In SNOMED CT, cardiac index is represented by the concept 54993008 |Cardiac index (observable entity)| under the parent concept 250907009 |Left ventricular function (observable entity)|.

2.2 LOINC

There are several LOINC codes related to cardiac index where the system axis of LOINC defines the exact body site, e.g.

- 75919-1 Left ventricular Cardiac index,
- 8750-2 Left ventricular Cardiac index by Fick method.

2.3 UMLS

In UMLS, two definitions are available for the concept *Cardiac Index* under the UMLS Concept Unique Identifier (CUI) C0428776:

The measure of an individual's cardiac output as divided by their body surface area ($CI = CO/BSA$). This calculation is a useful function to determine an individual's cardiac performance in relation to their body size, providing an overview of global cardiovascular function. **(NCI)**

The measure of an individual's cardiac output divided by the individual's body surface area ($CI = CO/BSA$). **(NCI)**

3 Concept information

Concept name	Description	Type	Standard	Value set or subset	Meaning binding
Cardiac Index	cardiac output in relation to the body surface area (BSA)				SNOMED CT: 54993008 Cardiac index (observable entity)
index	value and unit of the cardiac index	Quantity		Unit: L/min/m2	
method	method of monitoring the cardiac index	Code	SNOMED CT	descendant of: 63075001 Monitoring of cardiac output/cardiac index (regime/therapy)	
determination datetime	datetime of the cardiac index determination	temporal			

4 Impact on the SPHN Dataset

None.

5 Discussion

Compared to *Cardiac Output*, the concept *Cardiac Index* allows better comparability of heart performance across individual patients with their individual BSA, and is therefore beneficial for research projects in addition or as an alternative to the information about the cardiac output.

6 Example

Index: Value: 3
Unit: L/min/m²
Method: 70803005 |Monitoring of cardiac output by thermodilution indicator (regime/therapy)|
Determination datetime: 2021-09-30T19:20:30+01:00