



Ontology of tachycardia

As related to Cytokine Release Syndrome (CRS)

Tachycardia is a common feature of CRS that provides clinically relevant information for patient care.

DE-RISKING CYTOKINE
RELEASE SYNDROME



Digital Measures Development



*Digital Health Measurement
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by



Ontology of **tachycardia**

Tachycardia

Also known as rapid or increased heart rate



Definition

A rise in heart rate above the personal normal baseline and above an acceptable threshold independent of activity

Measure

Change in heart rate from baseline heart rate until reaching the threshold heart rate

Concepts

Summary statistics

Heart rate (HR)

Measurement interval

Metadata

Properties

Rise in HR

Baseline; normal range

Current

Threshold

Interval between HR

Time post-treatment

Start/end

Minimum number of HR recordings

Individual-specific variables

Environmental variables

Context-of-use dependent

Measurement modality

Values (or nested properties)

HR (bpm) over time (hours, minutes, seconds), time frame (hours, minutes, seconds)

Beats/min

Days, hours, minutes, seconds

Initiation timestamp/termination, minimum and maximum duration of monitoring

Number of recordings

Age, BMI, baseline health status (disease history, disease burden, etc)

Location, indoor or outdoor, transition of indoor to outdoor (or vice versa), weather, etc.

Pre-treatment, immunotherapy type, condition or therapeutic area (if relevant), therapeutic interventions

Technology type and model, evaluation method/algorithm, sensor placement

Examples

Heart rate (HR)

Baseline; normal range

Baseline: HR at pre-infusion time; HR over last 2 days.

Definition: HR over a specified time frame used as a comparator for future HR recordings.

Defining the parameters of baseline HR is critical for establishing safety parameters specific to the patient.

Heart rate (HR)

Threshold

Threshold: >100 bpm not attributed to physical activity; rapid, prolonged increase from baseline.

Definition: The point at which the measurement signals reach a critical transition.

Measurement interval

Interval between measures: Every four hours (standard of care); continuous monitoring.

Duration: 14 days (recommended observation period for CRS).

Measure considerations and assumptions:

- Baseline HR can vary from individual to individual. Establishing safe and meaningful thresholds will benefit from a personalized approach.
- Context is key; [HR can be influenced](#) by emotions, physical activity, medications, environmental conditions, body position, and body size.
- Sensor placement (e.g., wear location) and confounding disease states (e.g., atrial fibrillation) can influence the measurement of HR.

More more CRS resources are available to support you.

Full ontology of early warning signs of CRS



Ontology of fever generation



Ontology of tachycardia



Ontology of hypotension



Ontology of hypoxia



Visit the project page

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