

P1752.2 Metabolic Subgroup Meeting

Working Group Sponsored by IEEE Engineering in
Medicine & Biology (EMB) Standards Committee

23 April 2024

Teleconference

Agenda

1. Attendance
2. Review of tasks
3. Other business

Review of Tasks

Action Items (I)

Investigate [bio buttons](#) for temperature: “Tracks and captures 1,440 vital sign measurements per day, including clinically relevant parameters of **skin temperature**, respiratory rate at rest, and heart rate at rest”

iHealth thermometers

Different models have different measurement location, including:

- forehead,
- orally, rectally, or under arm (axillary)
- ear

Same API, which has no information about the model, so no information about the measurement location

Withings thermometer

Temporal thermometer, “measures from the temporal artery”

API

- 12: Temperature C
- 71: Body temperature C
- 73: Skin temperature C

Action Items (II)

Some solutions provide to user temperature difference (deviation) rather than absolute temperature. E.g.,

Oura ring

[Focus on temperature changes](#)

[API](#) lists `body_temperature`, `temperature_deviation` and `temperature_trend_deviation` as part of the concept or readiness

Apple Watch (series 8, 9)

[Wrist](#) temperature, also focus on delta, displayed as “change from baseline, an average of recent measurements taken during sleep”

Measures listed in HealthKit: [bodyTemperature](#) and [basalBodyTemperature](#)

List of [sensor locations](#) for temperature (HKBodyTemperatureSensorLocation)

Separate list of [locations](#) for heart rate (HKHeartRateSensorLocation)

Proposal to unify body location across all schemas

Measurement location schema

Action item: merge into a value-set schema to be used as needed

Discussion points (also from WG call)

- choice of vocabulary/ontology (e.g., SNOMED Anatomical or acquired body structure)
- list won't be exhaustive
- pre- vs. post-coordination
- single sensor, bipolar signal
- actual location, inside/outside/over

Measurement location

From SNOMED CT and LOINC (body temperature schema property)

```
"enum": [  
  "axillary", → axilla  
  "finger",  
  "forehead",  
  "oral", → mouth  
  "rectal", → rectum  
  "temporal artery",  
  "toe",  
  "tympanic", → ear drum / tympanic membrane  
  "wrist",  
  "vagina"  
]
```

From SNOMED CT: Anatomical or acquired body structure

```
"enum": [  
  "left ankle",  
  "right ankle",  
  "left hip",  
  "right hip",  
  "left thigh",  
  "right thigh",  
  "left thorax",  
  "middle left thorax",  
  "left upper arm",  
  "right upper arm",  
  "left wrist",  
  "right wrist"  
]
```

From CardioRespiratory subgroup

SNOMED CT Anatomical or acquired body structure [442083009, same as in OMH [body location schema](#)]

Parents

- ▶ Anatomical or acquired body structure (body structure)
- ▲ Anatomical structure (body structure)
- ▲ Entire physical anatomical entity (body structure)
- ▲ Material anatomical entity (body structure)

Material anatomical point (body structure) ☆ ↗

SCTID: 698969006

698969006 | Material anatomical point (body structure) |

en Material anatomical point (body structure)

en Material anatomical point

Children (2)

- ▼ Body surface point (body structure)
- ▶ Acupuncture point (body structure)
- ▶ Electrocardiograph lead site (body structure)

Body temperature schema: properties

```
"body_temperature": {
  "$ref": "#/definitions/temperature_unit_value"
},
"effective_time_frame": {
  "$ref": "#/definitions/time_frame"
},
"descriptive_statistic": {
  "$ref": "#/definitions/descriptive_statistic"
},
"measurement_location": {
  "description": "The value set is taken from SNOMED CT and LOINC. For common temperature locations, the adjective is used rather than the actual location name (e.g., axillary rather than armpit). Forehead indicates the use of a disposable strip.",
  "type": "string",
  "enum": [
    "axillary",
    "finger",
    "forehead",
    "oral",
    "rectal",
    "temporal artery",
    "toe",
    "tympanic",
    "wrist",
    "vagina"
  ]
},
"temporal_relationship_to_sleep": {
  "$ref": "#/definitions/temporal_relationship_to_sleep"
}
```

Summary of Action Items

Next Meeting

Upcoming Meeting

- Metabolic subgroup:
 - Tuesday, May ~~24~~ 28 at 8 am Pacific