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
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
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]
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 21-28 at 8 am Pacific