P1752 Working Group Meeting

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

Please mark your attendance at:
https://tinyurl.com/yc3oxg6q
(see chat window)

- 26 November 2019

- Teleconference

Attendance

- This document shows attendance from previous calls **https://tinyurl.com/yc3oxg6q** (link in the chat window of join.me). **If you attended the call, please verify that your name is listed**
  - If not, email simona@openmhealth.org
- **Put your name and affiliation in the chat window for attendance today.**
  - If your name is not listed, or if you are joining only via phone, please email simona@openmhealth.org with "P1752 WG call" as subject

- Attendance is important for determining voting rights, so please remember to "check in"

- Voting rights are granted according to the P&P after attending two consecutive calls and by explicit request to the Secretary (Simona)

IEEE Patent Policy

Participants have a duty to inform the IEEE

- **Participants <u>shall</u> inform the IEEE (or cause the IEEE to be informed) of the identity of each holder of any potential Essential Patent Claims of which they are personally aware if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents**

- **Participants <u>should</u> inform the IEEE (or cause the IEEE to be informed) of the identity of any other holders of potential Essential Patent Claims**

Early identification of holders of potential Essential Patent Claims is encouraged

<u>Slide #1</u>

Ways to inform IEEE

- Cause an LOA to be submitted to the IEEE-SA (patcom@ieee.org); or

- Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or

- Speak up now and respond to this Call for Potentially Essential Patents

If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to the WG Chair

Slide #2

Other guidelines for IEEE WG meetings

- **All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.**
  - **Don't discuss the interpretation, validity, or essentiality of patents/patent claims.**
  - **Don't discuss specific license rates, terms, or conditions.**
    - Relative costs of different technical approaches that include relative costs of patent licensing terms may be discussed in standards development meetings.
      - **Technical considerations remain the primary focus**
  - **Don't discuss or engage in the fixing of product prices, allocation of customers, or division of sales markets.**
  - **Don't discuss the status or substance of ongoing or threatened litigation.**
  - **Don't be silent if inappropriate topics are discussed … do formally object.**

**For more details, see *IEEE-SA Standards Board Operations Manual*, clause 5.3.10 and
Antitrust and Competition Policy: What You Need to Know at http://standards.ieee.org/develop/policies/antitrust.pdf**

Slide #3

Patent-related information

The patent policy and the procedures used to execute that policy are documented in the:

- *IEEE-SA Standards Board Bylaws* (http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6)
- *IEEE-SA Standards Board Operations Manual* (http://standards.ieee.org/develop/policies/opman/sect6.html#6.3)

Material about the patent policy is available at
http://standards.ieee.org/about/sasb/patcom/materials.html

If you have questions, contact the IEEE-SA Standards Board Patent Committee Administrator at patcom@ieee.org

Slide #4

Determination of Quorum

https://tinyurl.com/yc3oxg6q

Approval of Agenda

1. Attendance
2. Call for Patents
3. Approval of agenda and of prior minutes (if quorum present)
4. Subgroup update: metadata subgroup
5. Discussion: draft standard document
6. Discussion: physical activity schema + 1st batch of quantitative sleep schemas
7. Presentation: 2nd batch of quantitative sleep schemas
8. Other business

Approval of Prior Minutes

(October 15 and November 5)

Update:
Metadata Subgroup

Metadata Subgroup Update

- Calling for expertise in unique IDs (e.g., UUID, ULID)

- Plan to discuss some new points (i.e., runtime metadata)

- Minimum metadata schema(s) and sample data being drafted

- Slides available on subgroup webpage: http://sites.ieee.org/sagroups-1752/metadata-subgroup/

- Next call, November 26 (today) at 9 am Pacific

- Let Simona (simona@openmhealth.org) know if you are interested in participating

Discussion:
Draft Standard Document

Draft Document Review (Reminder)

- The document describes base principles for schema modeling

- Document will reference the (latest version of the) schemas on the P1752 OS site, not include a copy of the schemas

- The OS site will have more details about the individual schemas and relevant sample data

- Such details are subject to change and will follow a different process: changes to the standard document will need to go through the more structured ballot process

Main comments

- Editorial suggestions to implement IEEE Word Usage (Section 1.3)

- Suggestion to include schema design principles as a separate normative reference since schemas are developed based on those principles

- Discussion

Version 2 (still) open for comments

- Comments on / edits to the draft document uploaded on designated folder on iMeet: https://ieee-sa.imeetcentral.com/omh/folder/WzIwLDEyMjg3NDE0XQ

- if you have not yet accessed iMeet and you cannot find an email invitation, email simona@openmhealth.org

Discussion:
Physical Activity Schema

Physical Activity & Mobility (PAM) Sub-group

1. Comments Received
   - Minimal: 3
   - Property:
     - References for moderate intensity
     - Description for MET value
     - Description for Sample data
2. The sub-group will work on this in the coming weeks
3. Any other questions or ways members of WG wish to review the Schemas
   - E.g. Small group sessions

Discussion:
1st batch of Quantitative Sleep-related Schemas

Sleep Schema Subgroup Update

➢ **Status and Next Steps**

Quantitative sleep measure task group:

---Prepared 2nd set of schemas for WG to review

---Summarized the major review comments for 1st set of schemas from WG

Qualitative sleep measure task group:

---Drafted the schemas for these sets of questionnaires

---Prepared for WG to review

➢ **Sleep schema subgroup meeting slides/minutes:**

http://sites.ieee.org/sagroups-1752/sleep-subgroup-meeting-materials/

➢ **Next subgroup meeting: Dec 4, 2019 (Wednesday) 11:30am to 12:30 pm**

➢ **Info on the sleep group: email charlotte.chen@Philips.com or Simona.Carini@UCSF.EDU**

Summarize Major Review Comments (1)

➤ **First Batch of Schemas for WG to Review (Distributed on Oct 31)**

1. The inclusion of time interval of individual events were proposed in some of the schemas. Suggest to discuss further. Example: total sleep time

```
 1  □{
 2      "$schema": "http://json-schema.org/draft-07/schema#",
 3      "type": "object",
 4      "description": "This schema represents total sleep time, i.e. The total sleep time is the interval between initial sleep onset time and final awakening time minus the duration
 5  □    "references": [
 6  □        {
 7              "description": "The SNOMED code represents Duration of sleep (observable entity)",
 8              "url": "http://purl.bioontology.org/ontology/SNOMEDCT/248263006"
 9          }
10      ],
11  □    "definitions": {
12  □        "duration_unit_value": {
13              "$ref": "duration-unit-value-1.x.json"
14          },
15  □        "time_frame": {
16              "$ref": "time-frame-1.x.json"
17          },
18  □        "descriptive_statistic": {
19              "$ref": "descriptive-statistic-1.x.json"
20          },
21  □        "descriptive_statistic_denominator": {
22              "$ref": "descriptive-statistic-denominator-1.x.json"
23          }
24      },
25  □    "properties": {
26  □        "total_sleep_time": {
27              "description": "Total time asleep from bedtime until getting out of bed in the morning or across the 24-h period. This excludes any time that a person is awake after first
28              "$ref": "#/definitions/duration_unit_value"
29          },
30  □        "sleep_events": {
31              "description": "Individual sleep events and their durations to describe at what points throughout the night is the individual is asleep, and when summarized equal the total
32              "type": "array",
33  □            "allOf": [
34  □                {
35                      "$ref": "#/definitions/time_frame"
36                  },
37  □                {
38  □                    "required": [
39                          "time_interval"
40                      ]
41                  }
42              ]
43          },
44  □        "effective_time_frame": {
```

Total Sleep Time (cont'd)

```json
44       "effective_time_frame": {
45         "description": "As a measure of a duration, time asleep should not be associated to a date time time frame. Hence, effective time frame is restricted to be a time interval.
46         "allOf": [
47           {
48             "$ref": "#/definitions/time_frame"
49           },
50           {
51             "required": [
52               "time_interval"
53             ]
54           }
55         ]
56       },
57       "descriptive_statistic": {
58         "$ref": "#/definitions/descriptive_statistic"
59       },
60       "descriptive_statistic_denominator": {
61         "anyOf": [
62           {
63             "$ref": "#/definitions/descriptive_statistic_denominator"
64           },
65           {
66             "description": "If the value needed is a standard unit of duration, select from the duration-unit-value value set.",
67             "type": "string"
68           }
69         ]
70       }
71     },
72     "required": [
73       "total_sleep_time",
74       "effective_time_frame"
75     ]
76 }
```

Total Sleep Time (TST) Data (1)

```
===============================================================
total sleep time sample data: instance #1
===============================================================
{
  "total_sleep_time": {
        "value": 5.5,
        "unit": "h"
  },
  "effective_time_frame": {
    "time_interval": {
      "start_date_time": "2019-02-19T22:30:00Z",
      "end_date_time": "2019-02-20T04:50:00Z"
    }
  }
}
---------------------------------------------------------------
```

Total Sleep Time Data (2)

```json
{
  "total_sleep_time": {
      "value": 330
      "unit": "min"
  },
  "sleep_events": [
    "time_interval": {
        "start_date_time": "2019-02-19T22:30:00Z",
        "end_date_time": "2019-02-19T23:50:00Z"
    },
    "time_interval": {
        "start_date_time": "2019-02-20T00:15:00Z",
        "end_date_time": "2019-02-20T02:15:00Z"
    },
    "time_interval": {
        "start_date_time": "2019-02-20T02:30:00Z",
        "end_date_time": "2019-02-20T04:00:00Z"
    },
    "time_interval": {
        "start_date_time": "2019-02-20T04:10:00Z",
        "end_date_time": "2019-02-20T04:50:00Z"
    }
  ]
  "effective_time_frame": {
    "time_interval": {
      "start_date_time": "2019-02-19T22:30:00Z",
      "end_date_time": "2019-02-20T04:50:00Z"
    }
  }
}
```

Summarize Major Review Comments (2)

1. The inclusion of individual events were proposed in some of the schemas
   - If yes for TST, then for which other schemas?
   - Impact on draft standard document
2. Fix missing keyword (e.g. "item" for array) for some schema
4. Make sure to use the valid units of duration in sample data (e.g. h, wk)
5. Editorial comments (e.g. description, etc.)

Presentation:
2nd Batch of Quantitative Sleep Schemas

Introduction of 2nd Batch Quantitative Sleep Schemas (1)

➢ **Second Batch of Schemas for WG to Review (Distributed on Nov 21)**

1. List of schemas for review

---apnea-hypopnea-index

---arousal-index

---sleep-body-movement

---sleep-episode

---sleep-stages

---snore-index

---wake-after-sleep-onset

Introduction of 2nd Batch Quantitative Sleep Schemas (2)

➤ **Suggested Review Approach (Ref. Simona's email on Nov 21)**

1. Download sample data, schema and spreadsheet

2. Download and use tool (e.g. notepad++) to open sample data file to see how the data looks when modeled using the schema

3. Open and review the schema

4. Enter you comments into the spreadsheet (make sure to fill out column A,B,C,D)

5. Upload the modified spreadsheet to the iMeet (same location)

https://ieee-sa.imeetcentral.com/omh/folder/WzIwLDEyMzg3MTU3XQ

Commenting on Schemas

2. Review Schema (Reference to Simona's email on Oct 31/Nov 1)

---Use the notepad++ or other tools (could show line numbers) to open the schema for review

---Download schema and review sheet (sample data would help you understand the schema)

---Capture review comments by filling columns A, B, C, D (see below)

---Upload review sheet to iMeet (or send it to Charlotte.Chen@Philips.com for merging in)

Discussion: Schema Review

What Worked and What Didn't?

- A number of people provided a lot of great comments on the draft standard document
- Paucity of comments submitted for the schemas
- Discussion

PA Sample data

```json
{
    "activity_name": "Running",
    "effective_time_frame": {
        "time_interval": {
            "start_date_time": "2019-03-29T08:26:03Z",
            "end_date_time": "2019-03-29T09:14:41Z"
        }
    },
    "distance": {
        "value": 7.45,
        "unit": "km"
    },
    "duration": {
        "value": 45.5,
        "unit": "min"
    },
    "kcal_burned": {
        "value": 383,
        "unit": "kcal"
    },
    "average_cadence": {
        "value": 184,
        "unit": "steps/min"
    },
    "cumulative_elevation_gain": {
        "value": 108,
        "unit": "m"
    },
    "duration_moderate_activity": {
        "value": 41.5,
        "unit": "min"
    },
    "duration_vigorous_activity": {
        "value": 4,
        "unit": "min"
    }
}
```

```json
{
    "$schema": "http://json-schema.org/draft-07/schema#",

    "description": "This schema represents episode(s) of physical activity.",
    "type": "object",

    "definitions": {...},

    "properties": {
        "activity_name": {
            "description": "Name of the activity. This can be sedentary.",
            "$ref": "#/definitions/activity_name"
        },
        "base_movement_quantity": {
            "description": "Number of repetitions of the activity base movement, if applicable (e.g., if activity is walking, base_movement_quantity would be
            "allOf": [
                {
                    "$ref": "#/definitions/unit_value"
                },
                {
                    "properties": {
                        "unit": {
                            "anyOf": [
                                {
                                    "enum": [
                                        "steps",
                                        "laps",
                                        "skips",
                                        "movements",
                                        "strokes"
                                    ]
                                },
                                {
                                    "type": "string"
                                }
                            ]
                        }
                    }
                }
            ]
        },
        "effective_time_frame": {
            "description": "As a measure of a duration, physical activity should not be associated to a date-time time frame. Hence, effective time frame is
            "allOf": [
                {
                    "$ref": "#/definitions/time_frame"
                },
                {
                    "required": [
                        "time_interval"
                    ]
                }
            ]
        },
```

```
        },
        "distance": {
            "description": "The distance covered, if applicable.",
            "$ref": "#/definitions/length_unit_value"
        },
        "cumulative_elevation_gain": {
            "description": "The total ascent, if applicable.",
            "$ref": "#/definitions/length_unit_value"
        },
        "duration": {
            "description": "The net duration of the activity, if applicable.",
            "$ref": "#/definitions/duration_unit_value"
        },
        "duration_moderate_activity": {
            "description": "The duration of moderate-intensity physical activity, if applicable.",
            "$ref": "#/definitions/duration_unit_value"
        },
        "duration_vigorous_activity": {
            "description": "The duration of vigorous-intensity physical activity, if applicable.",
            "$ref": "#/definitions/duration_unit_value"
        },
        "average_cadence": {
            "description": "The average rate at which the activity was performed. If none of the units listed applies, the string alternative will allow
            "allOf": [
                {
                    "$ref": "#/definitions/unit_value"
                },
                {
                    "properties": {
                        "unit": {
                            "anyOf": [
                                {
                                    "enum": [
                                        "steps/min",
                                        "strokes/min",
                                        "skips/min",
                                        "laps/min",
                                        "movements/min",
                                        "strokes/lap"
                                    ]
                                },
                                {
                                    "type": "string"
                                }
                            ]
                        }
                    }
                }
            ]
        },
```

```json
        },
        "kcal_burned": {
            "description": "The calories burned during the activity.",
            "$ref": "#/definitions/kcal_unit_value"
        },
        "reported_activity_intensity": {
            "description": "Self-reported intensity of the activity performed.",
            "type": "string",
            "enum": [
                "light",
                "moderate",
                "vigorous"
            ]
        },
        "met_value": {
            "description": "Average Metabolic Equivalent of Task value for the activity",
            "type": "number"
        },
        "light_activity_percentage": {
            "description": "Percentage of the activity duration that was of light intensity.",
            "allOf": [
                {
                    "$ref": "#/definitions/unit_value"
                },
                {
                    "properties": {
                        "unit": {
                            "enum": [
                                "%"
                            ]
                        }
                    }
                }
            ]
        },
        "descriptive_statistic": {
            "$ref": "#/definitions/descriptive_statistic"
        },
        "descriptive_statistic_denominator": {
            "anyOf": [
                {
                    "$ref": "#/definitions/descriptive_statistic_denominator"
                },
                {
                    "description": "If none of the units listed applies, the string alternative will allow validation of the unlisted unit. If the value need
                    "type": "string"
                }
            ]
        }
    },
    "required": [
        "activity_name",
        "effective_time_frame"
    ]
}
```

Comment Spreadsheet

Schema Line or Line Range	Comments	Date (initial comment)	Email Address of the person who made comments

property: reported_activity_intensity	add references to document choice of values "references": [
	    {
	        "description": "WHO: What is Moderate-intensity and Vigorous-intensity Physical Activity?",
	        "url": "https://www.who.int/dietphysicalactivity/physical_activity_intensity/en/"
	    },
	    {
	        "description": "US Office of Disease Prevention and Health Promotion: Top 10 Things to Know About the Second Edition of the Physical Activity Guidelines for Americans",
	        "url": "https://health.gov/paguidelines/second-edition/10things/"
	    },
	],
		11/15/19	simona.carini@ucsf.edu

property: met_value	append the following toexisting "description": One MET is defined as the energy cost of sitting quietly and is equivalent to a caloric consumption of 1kcal/kg/hour.	11/15/19	simona.carini@ucsf.edu
sample data	add a "description" at the top of the sample data files where the meaning of the data in not readily clear, for ex., in running stats: "description": "the average weekly running distance between August 24, 2019 and September 20, 2019 was of 16.2 km",	11/15/19	simona.carini@ucsf.edu

Review of Schemas

Want to be sure to get input from full WG

What would be helpful to getting input?
- Talk through schemas in main WG?
- Small groups?
- ??

Schemas Distributed

- Physical Activity Schema and sample data available at
  https://ieee-sa.imeetcentral.com/omh/folder/WzIwLDEyMjUyNTc4XQ
- 1st batch of Quantitative Sleep Schemas
  https://ieee-sa.imeetcentral.com/omh/folder/WzIwLDEyMzYzNDA1XQ
- 2nd batch of Quantitative Sleep Schemas
  https://ieee-sa.imeetcentral.com/omh/folder/WzIwLDEyMzg3MTU3XQ

Future Work

Timeline for Draft Review – to be revised

- October 15 WG call
  - INTRO: draft standard document; beginning of review period, comments due Oct 31st in iMeet Central
    - *By Oct 31: distribute 1st batch of sleep schemas and the PA schema via iMeet; with comments from WG members due in iMeet Nov 19*

- November 5 WG call
  - DISCUSSION: draft standard document
  - INTRO: Quantitative sleep schemas (7-8) + physical activity schema, beginning of review period, **comments due Nov 19**
    - *By Nov 14: distribute 2nd version of draft standard document*
    - *By Nov 21: distribute 2nd batch of quantitative sleep schemas via iMeet; comments from WG members due in iMeet Dec 13[TBD]*

- November 26 WG call
  - DISCUSSION: 2nd version of draft standard
  - DISCUSSSION: 1st batch of quantitative sleep schemas (7-8) + physical activity schema
  - INTRO: 2ND batch of quantitative sleep schemas ~~+ qualitative sleep schemas, beginning of review period, comments due Dec 13~~
    - *By Dec 6: distribute 2nd version of quantitative sleep schemas (7-8) + physical activity schema*
    - *By Dec 12: distribute metadata schema via iMeet; comments from WG members due in iMeet Jan 7*
    - *By Dec 13: "final" draft standard document ready*

Timeline Proposal for Draft Review (2)

- December 17 WG call
  - DISCUSSION: 2nd version quantitative sleep schemas (7-8) + physical activity schema
  - DISCUSSION: second batch of quantitative sleep schemas + qualitative sleep schemas
  - INTRO: minimum metadata schemas, beginning of review period, comments due Jan 7
    - *By ~Jan 7: "final" version of quantitative sleep schemas (7-8) + physical activity schema*
    - *By Jan 7: distribute 2nd version of 2nd batch of quantitative sleep schemas + qualitative sleep schemas*

- January 14 WG call
  - DISCUSSION: 2nd version of 2nd batch of quantitative sleep schemas + qualitative sleep schemas
  - DISCUSSION: Metadata schemas
    - *By Jan 21: "final" version of 2nd batch of quantitative sleep schemas + qualitative sleep schemas*
    - *By Jan 21: distribute 2nd version metadata schemas*

- January 28 WG call
  - DISCUSSION: 2nd version metadata schemas
  - PRESENTATION/DISCUSSION: rest of draft ballot, processes for review, GitLab readiness, etc.
  - Voting rolls and procedures
    - *By Feb 4: distribute "final" entire ballot*

- Presentation of full draft ballot and voting, after IEEE editorial review and approval to move to ballot

P1752 WG Steps

- Access documents and submit comments to iMeet Central
  - Contact simona@openmhealth.org if you need assistance getting onto iMeet
- Sign CLAs and provide them to IEEE
- Let Simona know you have obtained CLA number (<u>do not share the #</u>)
- For <u>entity</u> CLAs, let me know the name of the people covered by it
- As CLAs are signed, IEEE/GitLab site manager will provide access to site

Summary of Action Items

Future Meetings

Upcoming Meetings

- Main WG
  - December 10 or 17?, 2019: 8 AM (Pacific)

- Sleep subgroup
  - December 4, 2019 8:30 am to 9:30 am (Pacific)

- PA&M subgroup
  - December 12, 2019 11 to 11:45 am (Eastern)

- Metadata subgroup
  - November 26, 2019: 9 AM (Pacific)

Adjournment