IEEE STANDARDS ASSOCIATION

IEEE

P1752 Sleep Schema Subgroup Meeting

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

- 10 July 2018
- Teleconference

Attendance

- **Put your name and affiliation in the chat window for attendance today.**
- If you are joining only via phone, please email charlotte.chen@philips.com with "P1752 Sleep Schema Subgroup call" as subject
- The document shows attendance is under https://ieee-sa.imeetcentral.com/omh/folder/WzIwLDEwMjY4MDg1XQ/ .
  --If you attended the call, please verify that your name is listed
  --If you name is not listed, either edit the document above or email charlotte.chen@philips.com

Agenda

1. Attendance
2. Review deliverables and timeline for stage1
3. Update from task group leads (Antoni, Josh and Ray)
4. Discussion on stage2 preparation
5. Next Steps
6. Q&A

Sleep Schema Subgroup Deliverables

- **Clinically important sleep attributes**
- **Common sleep attributes of the existing relevant devices and apps**
- **Standard Comparison Report (Review and mapping)**
- Proposed sleep schemas (modified and new) and use cases

  (1) Macrostructure

  (2) Microstructure

  (3) Subjective sleep experience

  (4) Other sleep related phenomena

Revised Timeline for Stage1

May 9, 2018

Start working on:
-clinically important sleep attributes
-common sleep attributes from devices & apps
-standard comparisons

June 12, 2018

Review (mid point):
-clinically important sleep attributes
-common sleep attributes from existing devices & apps
-standard comparisons

July 21, 2018 (Report Due)

Report draft due on July 14, 2018
-clinically important sleep attributes
-common sleep attributes from existing devices & apps
-standard comparisons

July 23, 2018

Start working on Sleep Schemas and use cases

Proposed Timeline for Stage2

July 23, 2018
Kick Off

Oct 22, 2018 **Review** on Sleep Schemas and use cases

Nov 9, 2018
-Propose Sleep Schemas and use cases
-All the deliverables are ready

Sleep Schema Subgroup
Clinically Important Sleep Attributes Task Team

Clinically Important Sleep Attributes Task Group

- Lead: **Antoni Grzanka** a.grzanka@ieee.org Medical University of Warsaw, Faculty of Public Health
- **Agusti Solanas** agusti.solanas@urv.cat Universitat Rovira i Virgili
- **Anna T.** laikingt@gmail.com
- **Giorgio Quer** gquer@scripps.edu Scripps Translational Science Institute
- **Ida Sim** ida@openmhealth.org UCSF and Co-Founder, Open mHealth
- **Rob Samuel** SamuelR@aetna.com IT University of Copenhagen
- **Leonard Njeru Njiru** leonjeru@gmail.com University of Nairobi

Suggested Next Steps

- Find and **map** the sleep attributes to their clinical relevance based on the following references:

  -References found by this group

  -New references encountered

  -References from other task groups

  -Sleep attributes references from the other two task groups

- Continue to fill in empty columns in the table on the spreadsheet.
- Complete a report with the mapping

Sleep Schema Subgroup
Mobile and App Common Sleep Attributes Task Team

Sleep – Task Group 2 - Common Sleep Attributes from Existing Devices and Apps

- For Task 2, we have continued collecting available mobile applications and their available data types based on information either on screen or through their APIS, and known devices.
- The output of this is being captured in a report which has been circulated to the task group 2 last month and is starting to wrap up this week.
- Both of these are captured in Google sheets document and uploaded with PDF output to iMeet
  - Google Doc (requires permission) report: https://docs.google.com/document/d/1vcSRR4IYfh-OCESyOIGxZmDa_2cgpaA2OCXDrgDPZ94/edit?usp=sharing
  - Google Doc (requires permission) sheets at: https://docs.google.com/spreadsheets/d/1OVTnwqlnXkecVwsLx3wZ2j1u92o_j1MjFtvYbyyI8Qo/edit.
  - iMeet PDF Output: https://ieee-sa.imeetcentral.com/omh/folder/WzIwLDEwMjY4MDc2XQ/
  - iMeet PDF References: https://ieee-sa.imeetcentral.com/omh/folder/WzIwLDEwMzc5MTczXQ/

Sleep – Task Group 2 - Communication

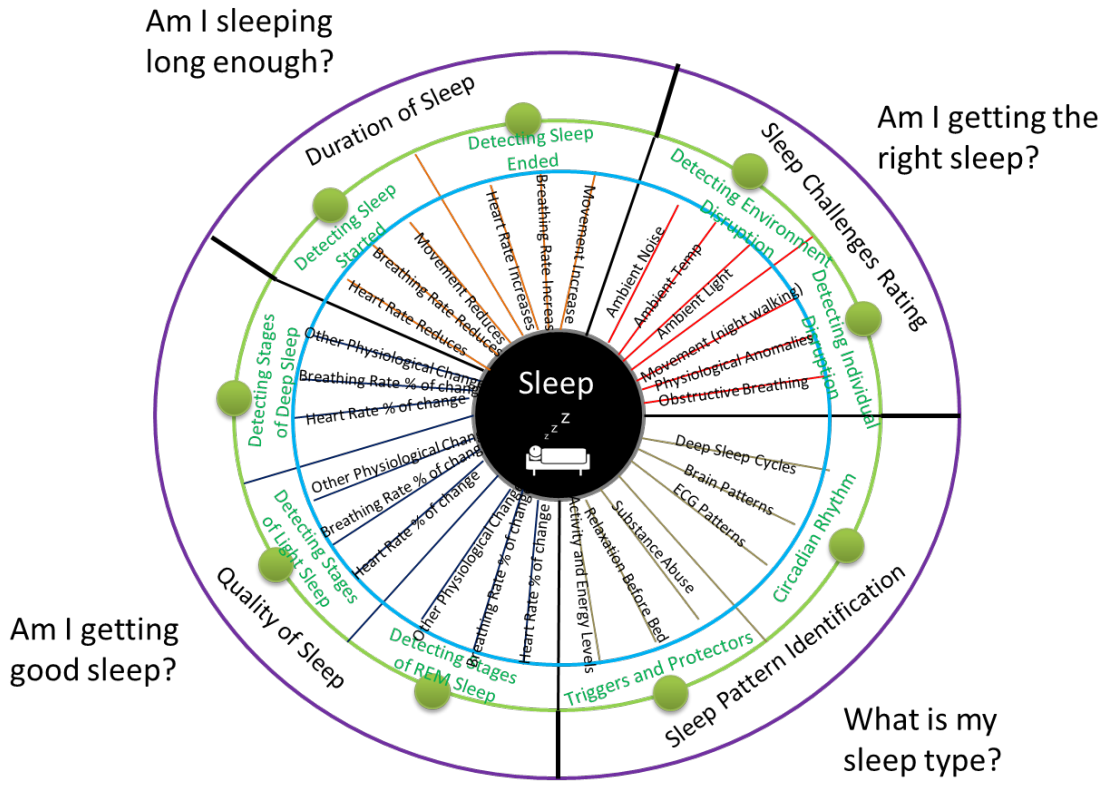
- Communication is occurring over Slack using p1752.slack.com and Task 2 individuals have signed up and we have a channel specific to conversations as #sleep_mobile
- Slack is a private invite for now since there are a lot of different email providers.
- If others are interested in Slack, this can be used for the main working group or other subgroups/task groups as needed. Please email Josh Schilling and he can add others if desired.

Sleep – Task Group 2 – Next Steps

- Final report draft is planned to wrap up this week for the internal task group. We can open to comments from the larger sleep sub-group and close out over the next week or so depending on feedback received.
- If you want to use Adobe for comments and upload to imeet, or I can add the remainder of people to google docs – please let me know your google docs ID for this or request access using the link: https://docs.google.com/document/d/1vcSRR4IYfh-OCESyOIGxZmDa_2cgpaA2OCXDrgDPZ94/edit?usp=sharing
- A slide deck and read-out is in progress to follow this during this month. This will be uploaded to imeet and can be followed up in a future WG meeting or Sub-group meeting.

Sleep Schemas – Organizing Attributes

- There are many applications that have a different viewpoint on sleep - is it sleep quality? is it duration? how do I derive insights? Etc.
- One way to think about the macrostructure, microstructure and subjective needs, is to organize some of these features into a wheel like the following drawing.



Sleep Schema Subgroup Standards Comparison Task Team

Standards Comparison Task Team: Status (7/10)

- Lead: Ray Krasinski (Philips Healthcare)
  - Team consists of 7 members
- Update to the draft sleep related standards document produced
  - Posted on IEEE Central Desktop site for access by IEEE 1752
  - Detailed sleep nomenclature information added for several standards
    - IEEE
    - CTA
  - Is this level of detail acceptable?
- Discussion via e-mail amongst the team on draft document
  - Open mHealth schemas

Standards Comparison; Initial Findings

- IEEE 11073 family of standards
  - Terminology from Sleep Apnea device specialization
  - Terminology from EEG/EOG and EMG device usage
  - Clinical in nature
  - Data types and ranges
- CTA
  - Standards developed for “consumer grade” devices
  - Attempt to define common sleep terms for consumer presentation
  - Definitions more than data schemas
  - Terms not rigorously defined from a data representation point of view

Standards Comparison Task Team: Next Steps

- Produce a new version of the document
  - Incorporate Open mHealth schema information
  - Add any additional information provided by the group
- Continue solicitation for existing sleep standards
- Update draft document and post to IEEE Central Desktop

Discussion on Stage2 Preparation

- Tasks overview
- Stage 2 work characteristics
- Divide and conquer approach

Stage 2 Tasks Overview

➢**Open mHealth Schemas**

- Review/Understand the design principles:

http://www.openmhealth.org/documentation/#/schema-docs/schema-design-principles

- Review the existing templates for various schemas:

http://www.openmhealth.org/documentation/#/schema-docs/write-a-schema

-quantitative schema

-unit-value schema

-time-frame schema

-descriptive-statistic schema

Stage 2 Tasks Overview

➢Sleep Schemas

- Review the existing sleep schemas:

http://www.openmhealth.org/schema/omh/sleep-duration-2.0.json

http://www.openmhealth.org/documentation/#/schema-docs/schema-library/schemas/omh_sleep-episode

- Propose modified/new sleep schemas:

  - Based on stage1 outputs, select the sleep attributes (in four areas)

  - For each selected sleep attribute, create/modify a schema to include the necessary sections:

    -schema header (“reference” section: SNOMED, LOINC, RxNORM, or UCUM)

    -”definitions”

    -”properties”

    -”required”

➢Use Cases (leverage internal and external clinical knowledge)

Stage2 Work Characteristics

- **Four different areas of sleep are related (objective and subjective aspects)**
- **Schema design principle and templates are similar (technical knowledge)**
- **Schema use cases requires clinical knowledge**

Therefore, it requires:

- **More collaboration among the task teams**
- **More frequent communication among the task leads**
- **If possible, some workshops might be helpful (e.g. topics on sleep, schemas)**

Stage 2 Divide and Conquer Approach

- **Total** number of people in the subgroup: **21**
- Proposed sleep schemas (modified and new) and use cases

  (1) Macrostructure

  (2) Microstructure

  (3) Subjective sleep experience

  (4) Other sleep related phenomena
- **Pro: Smaller team, each covers one area, work simultaneously**
- **Con: Require regrouping, leads searching and collaboration among groups**

Action Items

- Complete the stage 1 work by July 21,2018
- Review/Comment on the reports after July 14,2018
- Stage 2 Preparation:
  ---Make decision on the task groups
  ---Complete leads search
  ---Detailed planning (each task group)
- Kick off stage2 work

Future Meetings

- Continue with Tuesdays at 8:30 AM Pacific / 11:30 AM Eastern
- Upcoming meetings
  - Aug 14, 2018
  - Sept 11, 2018

Adjournment