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/WzlwLDEwMjY4MDg1XQ/.
  --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 Stage 1

- **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](mailto:a.grzanka@ieee.org) Medical University of Warsaw, Faculty of Public Health
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- **Leonard Njeru Njiru** [leonjeru@gmail.com](mailto: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/1OVTnwqLnxkecVwsLx3w3Z2j1u92o_j1MjFtvYbyyl8Qo/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-OCESyOIgXmDa_2cgpaA2OCDrgDPZ94/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/schema/omh/sleep-duration-2.0.json)
  
  [http://www.openmhealth.org/documentation/#/schema-docs/schema-library/schemas/omh_sleep-episode](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 stage 2 work
Future Meetings

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