P1752 Working Group Meeting
Sponsored by IEEE Engineering in Medicine & Biology (EMB) Standards Committee

- 6 July 2021
- Teleconference

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

- Attendance is important for determining voting rights, so please remember to “check in”. This document shows attendance of current and previous calls https://tinyurl.com/yc3oxg6q (link in the chat window).

- For today: mark your attendance at https://tinyurl.com/yc3oxg6q with a 0 if you are non-voting or a 1 if you are a voting member, or put your name and affiliation in the chat window to “check in”
  - If your name is not listed in https://tinyurl.com/yc3oxg6q, or if you are joining only via phone, please email simona@openmhealth.org with “P1752 WG call” as subject

- If you attended a previous call and your attendance was not noted, please email simona@openmhealth.org
IEEE Patent Policy
Participants have a duty to inform the IEEE

- Participants shall 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 should 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.
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.
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.

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)
  (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
IEEE SA Copyright Policy
IEEE SA Copyright Policy (November 2019)

• By participating in this activity, you agree to comply with the IEEE Code of Ethics, all applicable laws, and all IEEE policies and procedures including, but not limited to, the IEEE SA Copyright Policy.

• Previously Published material (copyright assertion indicated) shall not be presented/submitted to the Working Group nor incorporated into a Working Group draft unless permission is granted.

• Prior to presentation or submission, you shall notify the Working Group Chair of previously Published material and should assist the Chair in obtaining copyright permission acceptable to IEEE SA.

• For material that is not previously Published, IEEE is automatically granted a license to use any material that is presented or submitted.
IEEE SA Copyright Policy

• The IEEE SA Copyright Policy is described in the IEEE SA Standards Board Bylaws and IEEE SA Standards Board Operations Manual

  - IEEE SA Copyright Policy, see
    Clause 7 of the IEEE SA Standards Board Bylaws
    https://standards.ieee.org/about/policies/bylaws/sect6-7.html#7
    Clause 6.1 of the IEEE SA Standards Board Operations Manual
    https://standards.ieee.org/about/policies/opman/sect6.html

• IEEE SA Copyright Permission
  - https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/permissionltrs.zip

• IEEE SA Copyright FAQs

• IEEE SA Best Practices for IEEE Standards Development

• Distribution of Draft Standards (see 6.1.3 of the SASB Operations Manual)
Policies & Procedures
P1752 Policies & Procedures (P&P)

• No change from P&P for 1752.1 https://tinyurl.com/syp89ce3
• Draft update for EMB Society currently under review
• When finalized P1752 WG will adopt it
P1752 P&P Main Points

- Responsibilities of Chair and Secretary
- Voting membership
  - Voting rights are granted according to the P&P after attending two consecutive calls and by explicit request to the Secretary (Simona)
- Subgroups
  - Established by formal vote of the WG membership
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Determination of Quorum

https://tinyurl.com/rnaacvsz
Approval of Agenda

1. Attendance
2. Call for Patents, Code of Ethics, Copyright Policy
3. Approval of agenda and minutes (if quorum present)
4. Overview of IEEE 1752 family of standards
5. P1752.1: summary of work
6. P1752.2: scope and plans
7. Other business
Approval of Prior Minutes
(June 1, 2021)
Overview of 1752 Family of Standards
Digital Biomarkers

• Digital biomarkers are physiological and behavioral measures collected by means of digital devices such as portables, wearables, implantables or digestibles that characterize, influence or predict health-related outcomes
  • e.g., steps, total sleep time, heart rate variability
Digital Biomarkers: Assumptions

• Many new digital biomarkers will be defined
• From new sensors and new patient-reported outcomes (PROs)
• Continually changing hardware and software
• Increasingly digital biomarkers will combine output from multiple sensors/sources
• Data will flow far and wide to multiple actors for multiple purposes
Standardizing mHealth data and metadata will

Make data exchange and reuse **predictable** and **consistent**
Make data aggregation across multiple sources easier and more accurate
Facilitate development and validation of digital biomarkers
Reduce costs of using mHealth data for care and research
80+ Schemas

Open mHealth schemas [https://github.com/openmhealth/schemas](https://github.com/openmhealth/schemas)
Gaining Traction for Research...

Participan Technology Systems Center

All of Us

NIH National Institutes of Health

Research Opportunity Announcement
OTA-21-015A
Post-Acute Sequelae of SARS-CoV-2 Infection Initiative:
Clinical Science Core, Data Resource Core, and PASC Biorepository Core

- The Data Resource Coordinating Center is strongly encouraged to use OMOP models (https://www.ohdsi.org/data-standardization/the-common-data-model/) and Open mHealth schemas (https://www.openmhealth.org/documentation/#/schema-docs/schema-library) when applicable.
...and for clinical care integration

Mapped to FHIR via the Open mHealth to FHIR Implementation Guide
https://github.com/openmhealth/OMH-on-FHIR

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<thead>
<tr>
<th>API</th>
<th>Percentage</th>
<th>Change</th>
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<td>-3%</td>
</tr>
<tr>
<td>Orange HealthKit</td>
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<td>-1%</td>
</tr>
</tbody>
</table>

Which API aggregation services do you use?

©Research2Guidance 2018
Source: Research2Guidance - mHealth App Developer Economics study 2017/2018 - n = 2,400
IEEE 1752 Family of Standards

- Started as P1752, for a broad scope of schemas
  - Completed schemas for sleep and physical activity
- Gaining traction, IEEE standardization needed for additional data types
- IEEE 1752 is umbrella for Open mHealth-related Working Groups on mHealth schemas

Ida Sim, MD, PhD
Chair, P1752
Co-Founder Open mHealth
Professor of Medicine, UCSF

Simona Carini
Secretary, P1752
Data Scientist, Open mHealth
Research Scientist, UCSF
P1752.1: Summary of Work
P1752.1 Scope

• Scope: This standard will define specifications for standardized representations of mobile health data for a set of health measures pertaining to sleep and physical activity measures and a minimum set of metadata. Mobile health data encompasses personal health data collected from sensors and mobile applications.

• Stakeholders: Wearable device makers, medical device makers, health data aggregators, health information technology systems managers, health information infrastructure providers, mobile health app developers, biomedical researchers, clinicians, data scientists, government.
P1752.1 Timeline

• PAR approved Feb 17, 2017
• First Working Group meeting: Feb 5, 2018
• Subgroups
  • Sleep: Chaired by Charlotte Chen, Philips
  • Physical Activity: Chaired by Shiv Hiremath, Temple U.
  • Metadata: Chaired by Ida Sim, UCSF
• Draft standard https://tinyurl.com/me8t2y7c approved on June 16, 2021
Current Status

• Approved standard currently under editing prior to official publication
• Schemas in repository to be renumbered 0.1 → 1.0
• Upcoming tasks:
  • Make all the changes in branch (including updates/additions of documents)
  • Establish site governance to triage and manage future updates
  • Share with WG for review
  • WG Vote
P1752.2 Scope & Plans
P1752.2 Standard for Mobile Health Data: Representation of Cardiovascular, Respiratory, and Metabolic Measures

• Scope: This standard defines specifications for standardized representations for mobile health data and metadata for a set of health measures, pertaining to cardiovascular, respiratory, and metabolic measures. Mobile health data encompasses personal health data collected from sensors and mobile applications.

• Purpose: The purpose is to provide standard semantics to enable meaningful description, exchange, sharing, and use of mobile health data pertaining to cardiovascular, respiratory, and metabolic health measures. Data and associated metadata need to be sufficiently clear and complete to support analysis for a set of consumer health, biomedical research, and clinical care needs.

https://standards.ieee.org/project/1752_2.html
P1752.2 Scope: why?

- Poll of 1752.1 WG member interest in 2018
- Subgroups launched for Sleep and Physical Activity
- P1752.2 to address cardiovascular, respiratory and metabolic measures, and metadata
5.0 Subgroups of the Working Group

The Working Group may, from time to time, form subgroups for the conduct of its business. Voting Membership in the subgroup is granted to any participant of the Working Group. Such formation shall be explicitly noted in the meeting minutes. At the time of formation, the Working Group shall determine the scope and duties delegated to the subgroup and may decide to allow participation of persons who are not Working Group members and specify the terms and conditions under which they participate in the subgroup. Any changes to its scope and duties will require the approval of the Working Group. Any resolution of a subgroup shall be subject to confirmation by the Working Group.
Subgroups Details

• Seeking volunteer subgroup chairs for
  • Cardiovascular measures (e.g., BP, HR, HRV)
  • Respiratory measures (e.g., respiratory rate, O2 sat)
  • Metabolic measures (e.g., blood glucose, weight)

• Each subgroup will have
  • a page on the website, dedicated mailing list, named space on iMeet Central for sharing documents

• The subgroup can organize itself to work as deemed best by members

• At each main WG call, the subgroup chair will report back to the WG about progress, ask questions, solicit comments, etc.
P1752.2 Cardiovascular Subgroup

• **Scope:** The P1752.2 Cardiovascular (CV) Subgroup will review Open mHealth schemas related to CV measures and propose updates and additional schemas as needed. The scope includes but is not restricted to the following measures of CV health: blood pressure, heart rate, heart rate variability, RR interval. The focus of this Subgroup’s work is on modeling data pertaining to CV function, not on current or future individual devices or apps that measure various aspects of CV health.

• **Duties:** By reviewing the clinical aspects of cardiovascular health and existing relevant devices and apps, the Subgroup shall deliver a list of common attributes as well as a list of clinically important attributes in the cardiovascular domain as scoped above. The Subgroup shall propose modified and new schemas relating to CV health, including examples as informed by use cases and the list of common and clinically important attributes. Finally, the Subgroup shall deliver a review of mappings and/or relationships to non-Open mHealth CV schemas.

• **Chair:** TBD
Respiratory Subgroup: Scope

- **Scope:** The P1752.2 Respiratory Subgroup will review Open mHealth schemas related to Respiratory measures and propose updates and additional schemas as needed. The scope **includes but is not restricted to the following aspects of respiratory health:** respiratory rate, O2 saturation. The focus of this Subgroup’s work is on modeling data pertaining to respiratory function, and not on current or future individual devices or apps that measure various aspects of respiration.

- **Duties:** By reviewing the clinical aspects of respiratory health and existing relevant devices and apps, the Subgroup shall deliver a list of common attributes as well as a list of clinically important attributes in the respiratory health domain as scoped above. The Subgroup shall propose modified and new schemas relating to respiratory health, including examples as informed by use cases and the list of common and clinically important attributes. Finally, the Subgroup shall deliver a review of mappings and/or relationships to non-Open mHealth respiratory schemas.

- **Chair:** TBD
Metabolic Subgroup: Scope

• **Scope:** The P1752.2 Metabolic Subgroup will review Open mHealth schemas related to Metabolic measures and propose updates and additional schemas as needed. The scope includes but is not restricted to the following aspects of metabolic health: blood glucose, body weight. The focus of this Subgroup’s work is on modeling data pertaining to metabolic functions, and not on current or future individual devices or apps that measure various aspects of metabolism.

• **Duties:** By reviewing the clinical aspects of metabolic health and existing relevant devices and apps, the Subgroup shall deliver a list of common attributes as well as a list of clinically important attributes in the metabolic health domain as scoped above. The Subgroup shall propose modified and new schemas relating to metabolic health, including examples as informed by use cases and the list of common and clinically important attributes. Finally, the Subgroup shall deliver a review of mappings and/or relationships to non-Open mHealth metabolic measure schemas.

• **Chair:** TBD
Resources for Subgroup Work

• WG has “been there, done that” – institutional experience
• Open mHealth modeling principles
• 1752 Open-source site includes schemas and sample data
• Relevant Open mHealth schemas, e.g.,
  • https://www.openmhealth.org/documentation/#/schema-docs/schema-library/schemas/omh_heart-rate
  • https://www.openmhealth.org/documentation/#/schema-docs/schema-library/schemas/omh_respiratory-rate
Call for Subgroup Chairs

• Seeking volunteers:
  • opportunity to lead and help define mHealth data standards in high-priority clinical domains
  • subgroup meetings typically every 2-4 weeks, for 6-12 months
  • iMeet Central tools for subgroup work
  • support (and gratitude!) from WG Chair Ida Sim, WG Secretary Simona Carini, IEEE Program Manager Tom Thompson, and EBMS Standards Committee Chair Carole Carey

Questions? email WG Secretary simona@openmhealth.org
Interested to volunteer? email WG Chair ida@openmhealth.org
Summary of Action Items
Action Items

• Update Gitlab site, propose OS site governance model for WG review and vote
• Volunteer to be a subgroup chair!
Future Meetings
Upcoming Meetings

• P1752.2 WG call
  • July 20, 8 am Pacific

Meetings will be announced no later than 2 weeks beforehand via P1752 listserv
Adjournment