P1752.2 Metabolic Subgroup Meeting

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

17 May 2022

Teleconference

Agenda

1. Attendance
2. Review of action items
3. Review of tasks
4. Other business

Review of Tasks

Next steps

- Update Open mHealth blood glucose schema as needed

- Draft additional schemas

- Model data elements for possible addition to 1752.1 header schema

- Resources for volunteers
  - Existing IEEE 1752.1 schemas
  - Existing Open mHealth schemas

About iMeet

- iMeet folder for Metabolic subgroup
  https://ieee-sa.imeetcentral.com/omh/folder/WzIwLDE0MDczMTQ1XQ

- iMeet Central IEEE required and supported for collaborative development of standards

- Account required: Secretary sends invitations

- Manages document versioning, comments and archive

- Allows online editing with setup, though not for all file types

- JSON files must be edited in a text editor

Data elements to model (I)

- Glucose (mg/dL)
- Time in range (%) [TIR] http://www.agpreport.org/agp/agpreports
- Time above range [TAR]
- Time below range [TBR]
- Mean glucose (average)±standard deviation

Data elements to model (II)

- Percentage coefficient of variation for glucose (%CV = [(SD of glucose)/(mean glucose)]

- Glucose Management Indicator (GMI)
  tells you the approximate A1C level based on the average glucose level from CGM readings for 14 or more days (eA1C → GMI)
  https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6196826/

- Number of hypo/hyper events / Timestamps of alarms
  [to be defined more precisely]

- Reference ranges (for hypo/hyperglycemia)

Additional measures

- Average daily carbs (g)
- Mean amplitude of glycemic excursions (MAGE): the arithmetic mean of differences between consecutive peaks and nadirs of differences greater than one SD of mean glycemia
- Mean of daily differences (MODD): the mean of absolute differences between glucose values at corresponding time points of consecutive days
- Rate of Increase
- Rate of Decrease

Additional measures (metadata)

- sensor usage (%)

- calibration status

- mean absolute relative difference (MARD) for accuracy (device-specific)

- number of scans (during a time period)

- sensor location, specimen source, sample location

- battery

<u>Suggestion</u>: amend header schema property *modality* value set to have the following items:

  - device generated
  - user reported

Temporal relationships

- Temporal relationship to meal*

- Temporal relationship to sleep*

- Temporal relationship to physical activity
  - e.g., before exercise, after exercise (see related OMH schema)

- Temporal relationship to doses of antihyperglycemic medications
    *These elements are present in the Open mHealth blood glucose schema

    Proposal to have a generic *temporal relationship to event* property requires additional discussion

Summary of Action Items

Next Meeting

Upcoming Meeting

- Metabolic subgroup:
  - Tuesday, ~~June 7~~ May 31 at 8 am Pacific