Assessing Secondary Dependencies

- Autonomic Tone & Modulation
- Maladaption & Pathophysiology
- Physical Activity & Mobility
- Externalities

Other relevant schemas:
- Altitude
- Temperature
- Humidity

CONTEXTUALITY
P1752 Open mHealth Purpose:

The purpose of this Working Group is to provide standard semantics to enable meaningful description, exchange, sharing, and use of mobile health data across a wide spectrum of use cases addressing consumer health, biomedical research, and clinical care needs. These standard semantics will be in the form of common data and metadata schemas…

Summary Addendum: Promotion of personalized healthcare
OmH Cardiorespiratory Schema

Proposed Schema Structure

Cardiac Depolarization Events

- Pulse Dynamics
- Rhythm

Blood Pressure
- Systolic, diastolic
- Cardiodynamics

Respiratory
- Ventilatory dynamics
- Gas Exchange
- Anomalies
Respiratory Schema

Build - Initial Steps

Respiratory
- Ventilatory dynamics
- Gas Exchange
- Anomalies

Dependencies?
Extensibility intent?
“Measure twice, cut once”

Atomicity
80/20 Rule
Modeling of Time
... and all the other schema design principals

Participants for Respiratory Schema Writing Subgroup?
Cardiorespiratory Schema

Proposed Structure

- Electrical Systoles
  - Pulse
    - Pulse Dynamics
      - Rhythm
    - Blood Pressure
      - Systolic, diastolic
      - Cardiodynamics
  - Respiratory
    - Ventilatory dynamics
    - Gas Exchange
    - Anomalies
Blood Pressure Measurement: Conventional

a) Intra-arterial (direct)

b) Auscultation **

c) Cuff Pressure w/ Oscillimetry **

d) Volume Clamping w/ Oscillimetry

e) Tonometry

Blood Pressure Measurement: Cuffless Methods

- Photoplethysmography
- Ballistocardiography
- Seismocardiography
- Electrical bioimpedance/impedance cardiography
- Ultrasound

# Blood Pressure Measurement: Cuffless Methods

<table>
<thead>
<tr>
<th>Category</th>
<th>Method</th>
<th>Advantages</th>
<th>Disadvantages</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calibrated</td>
<td>PTT</td>
<td>Continuous or passive</td>
<td>Supporting theory</td>
<td>Periodic cuff calibrations or demographics calibration</td>
</tr>
<tr>
<td></td>
<td>PWA (PPG)</td>
<td>Seamless</td>
<td>Single sensor</td>
<td>Two measurement sites</td>
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<tr>
<td></td>
<td>Facial video processing</td>
<td>Ubiquitous device</td>
<td>Ubiquitous calibration</td>
<td>Little theory</td>
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<td></td>
<td></td>
<td></td>
<td>Low waveform quality</td>
<td>Limited published data on intraindividual BP change tracking</td>
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<tr>
<td>Uncalibrated</td>
<td>Cuffless oscillometry</td>
<td>Calibration-free</td>
<td>Potentially ubiquitous device</td>
<td>User activity</td>
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<tr>
<td></td>
<td>(finger pressing)</td>
<td>Solid theory</td>
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<td></td>
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<tr>
<td></td>
<td>Ultrasound</td>
<td>Central PP measurement</td>
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<td>Difficult probe placement</td>
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<td>(area-blood velocity)</td>
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</tr>
<tr>
<td></td>
<td>Volume control</td>
<td>Continuous</td>
<td></td>
<td>Disruptive (finger numbness)</td>
</tr>
</tbody>
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