Mobile phones and devices, with their constant presence, data connectivity, and multiple embedded sensors, are producing tremendous amounts of data that can provide fine-grained moment-by-moment views of physiologic, environmental, and behavioral features of health and disease states. Such mobile health (mHealth) data are particularly valuable for understanding complex multifactorial diseases, but only if the mHealth data can be combined with electronic health record (EHR), genomic and other data for discovery and health improvement. mHealth data interoperability through data and metadata standards is thus a necessity.

With the wearables market projected to triple in size by 2021 and with NIH projects on "mobile health" skyrocketing, now is the time for the mHealth ecosystem to adopt a common data standard. **Open mHealth** is the only existing open mHealth data standard. It fills the standards gap for sensor and personally-generated mHealth data by complementing lower-level device standards (e.g., IEEE 11703) and EHR data standards (e.g., HL7 Fast Healthcare Interoperability Resources (FHIR)). Open mHealth is being used by companies and research consortia such as BD2K and PCORnet, and has a global user community of ~6000 people. **The goal of this project is to drive Open mHealth adoption past the tipping point to become the dominant mHealth data standard and increase the value of mHealth for research and care.** We will drive a feedback loop of adoption by data producers (e.g., developers, device makers) and data consumers (e.g., health systems) by adding provenance metadata to Open mHealth, and by officially engaging with the main standards organizations for these groups: IEEE for data producers and HL7 for data consumers. Our Specific Aims are:

Aim 1: Increase Open mHealth's scientific value by expanding engagement with researchers We will extend Open mHealth schemas and tools, and support the mProv provenance metadata approach. **Aim 2: Secure IEEE certification through extensive engagement with the developer community** following the IEEE Standards Development process. **Aim 3: Develop an official HL7 FHIR mHealth Implementation Guide and test it via an open testbed** through deep engagement with health IT and clinical communities. **Aim 4: Promote and ensure discoverability and adoption by all user communities** by placing our standards into relevant data and metadata standards repositories and conducting ongoing outreach, engagement and promotion to new and evolving communities. **Aim 5: Ensure sustainability of the standard through the Open mHealth non-profit organization** by developing representative community governance, and expanding corporate sponsorships and partnerships. All software produced will be open sourced.

Achievement of our Aims will catalyze broad Open mHealth adoption by mHealth data producers and consumers across the health ecosystem, which through network effects of data interoperability will maximize the value of mHealth data to speed discovery and enable more continuous, integrated, and personalized care.