This work aims to enable patient-centric, personalized disease and pain management by developing individually tailored predictive models of health from *behavioral biomarkers*; provide data on patient-specific behavioral symptoms at a resolution not previously available or affordable outside the clinical settings; and develop mobile health methods and tools to evaluate and act upon those data. The project consists of three complimentary arms:

**Behavioral Biomarkers**

Make sense of noisy, voluminous mobile data streams:

*LifeStreams* is v2 of our open-source, modular framework for processing, correlating, and extracting information from raw, real-world data streams. With it we are developing techniques to derive clinically relevant Behavioral Biomarkers from passively collected and self-reported data streams.

**Contextual Recall**

Minimize self-report burden without sacrificing response quality:

We are developing methods for utilizing sensed user experience to collect richer, less obtrusive, and more accurate self-report data. We are also creating better, more intuitive methods for reporting pain and other key indices.

**Participatory Design: Derive & Present Actionable Information**

We are using an iterative design process involving both patients and clinicians to determine which data are actionable and how to present them to clinicians. We are developing and evaluating with the goal of adapting these tools to new diseases by systematizing this approach.

Funding provided by NSF-SCH GRANT #1344587