



From Steps to Sleep: Integrating Wearables Data for Comprehensive MS Patient Profiles



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Background

- The **shift in healthcare** from personal, community-focused to impersonal, evidence-based models has **eroded personalized care**, especially for complex conditions.
- This study aims to **leverage patient-generated digital tool data** (e.g., Fitbit) to **enhance health profiles**, bringing back traditional care personalization within a modern context.
- **Conditions like Multiple Sclerosis (MS)** have unpredictable progression with diverse symptomology and **highlight the urgent need for continuous, detailed monitoring.**
- **Objective:** Innovate in MS care by leveraging health metrics from wearable devices, **pioneering improved personalized care** for various medical conditions.

Discussion

- Positive clinician feedback highlights health widgets' **transformative potential** in patient care.
- This pilot suggests **readiness for larger-scale** studies.
- **Opportunities for refinement** include enhanced education on Epic integration and simplifying the remote activity widget.
- **Next Steps:**
- Leveraging generative AI for contextual briefings and developing new widgets for advanced trend capture
- Integration of additional metrics like patient fatigue index and EDSS scores aims to empower clinicians and patients.
- The roadmap sets the stage for dynamic wearable technology to drive **personalized healthcare** across specialties and metrics.

Methods: Four Phases of Human-Centered Design

Discover

A multi-disciplinary team (neurologists, PTs, developers, and wearables experts) designed initial mock-ups

Define

Nine clinicians in various phases of training provided feedback on mock-ups

Deliver

Visualizations were built in the BRIDGE precision medicine platform and connected to Fitbit data

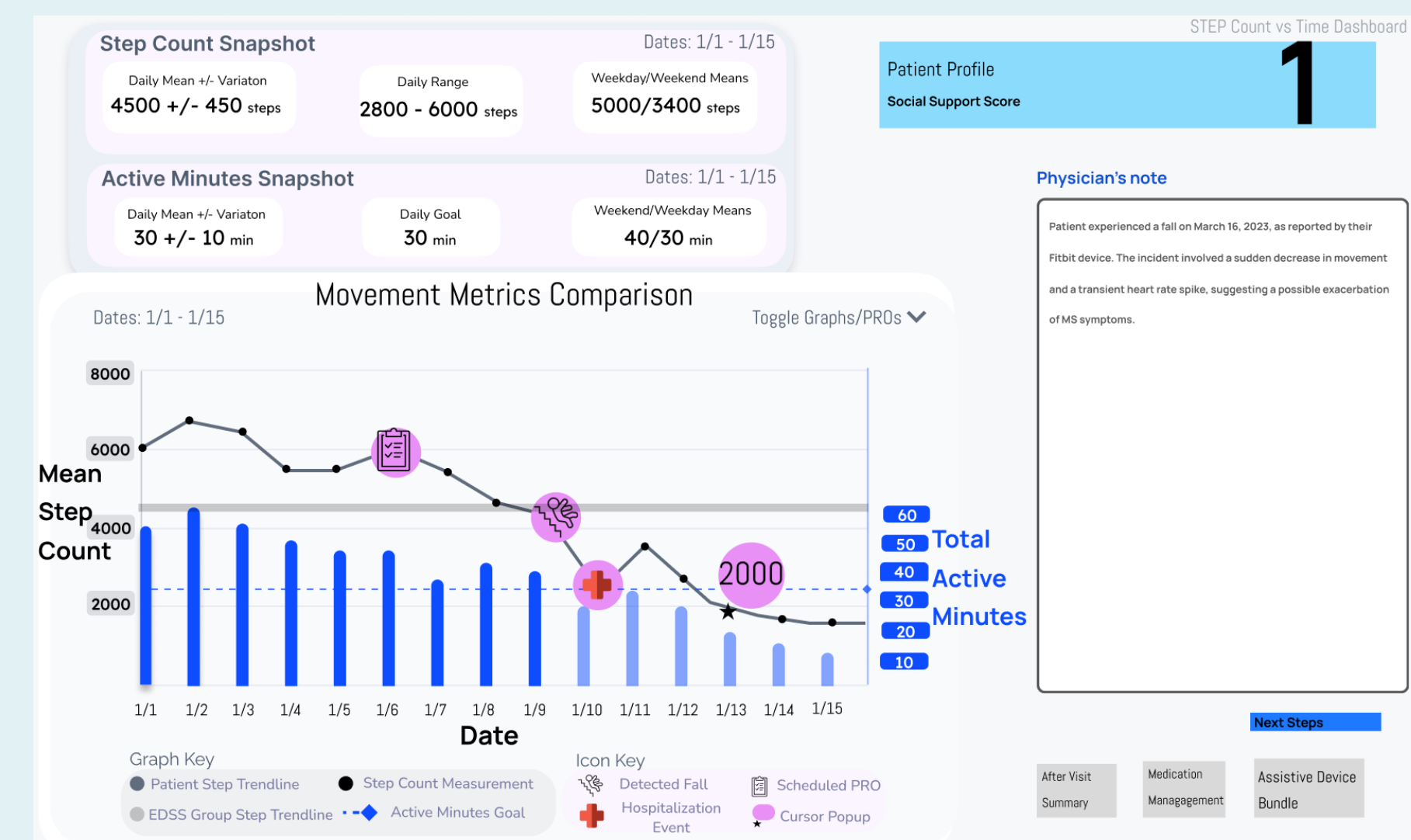
Measure

Nine different clinicians provided detailed qualitative and quantitative feedback on live visualizations; Visualizations were scored using Health-ITUES framework

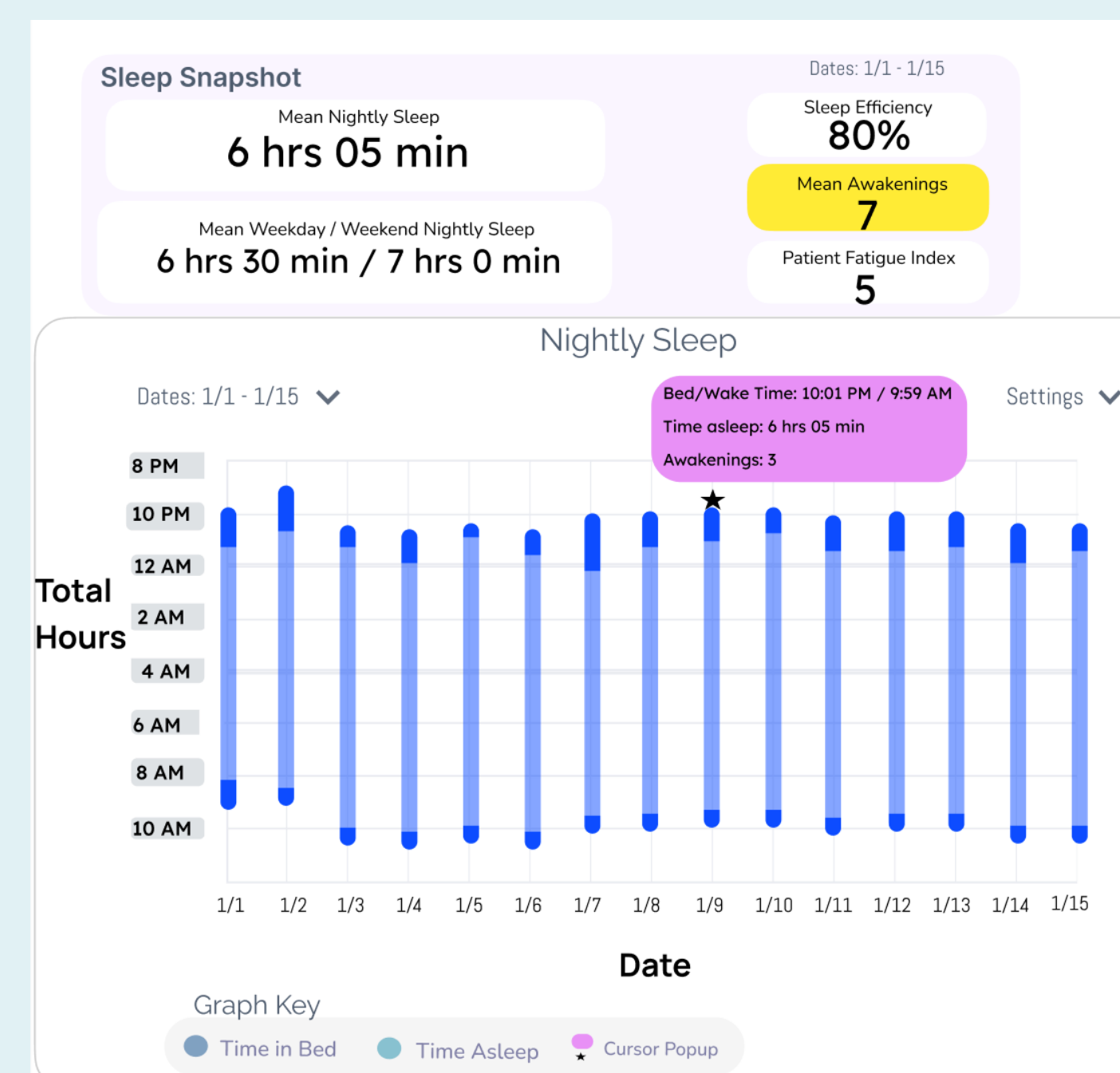
Results

Mockups

Remote Activity

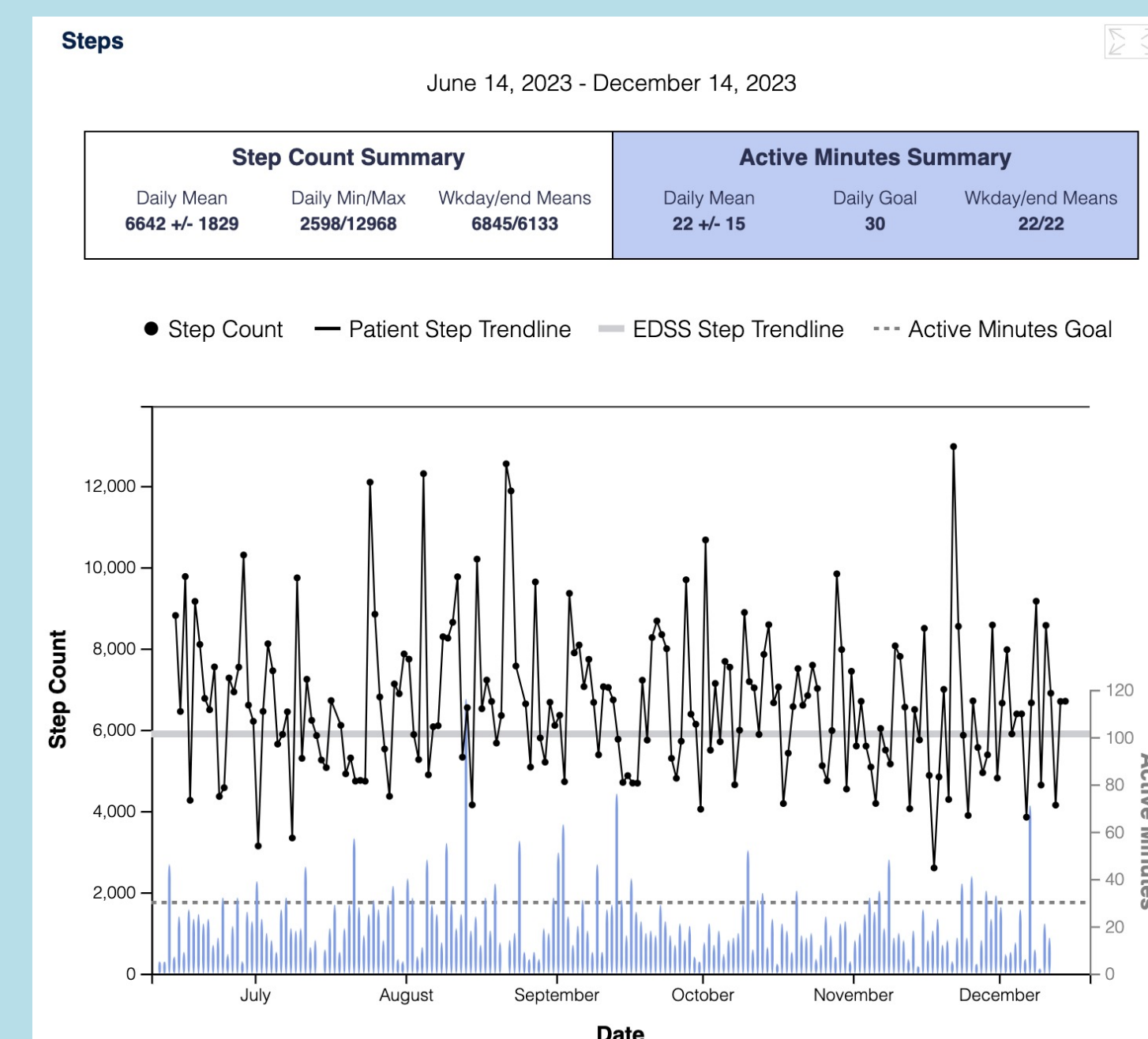


Sleep

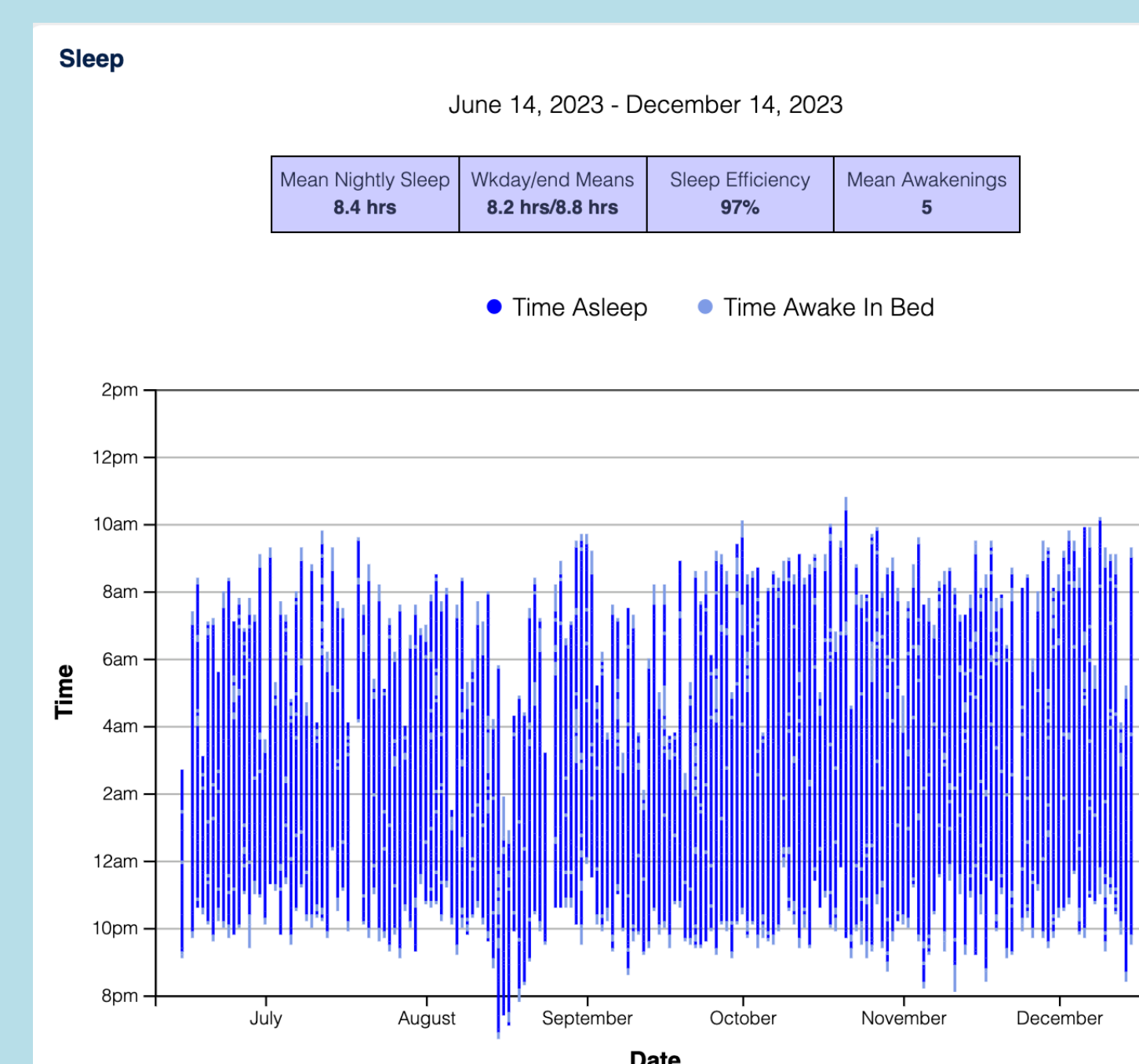


“Live” Widgets

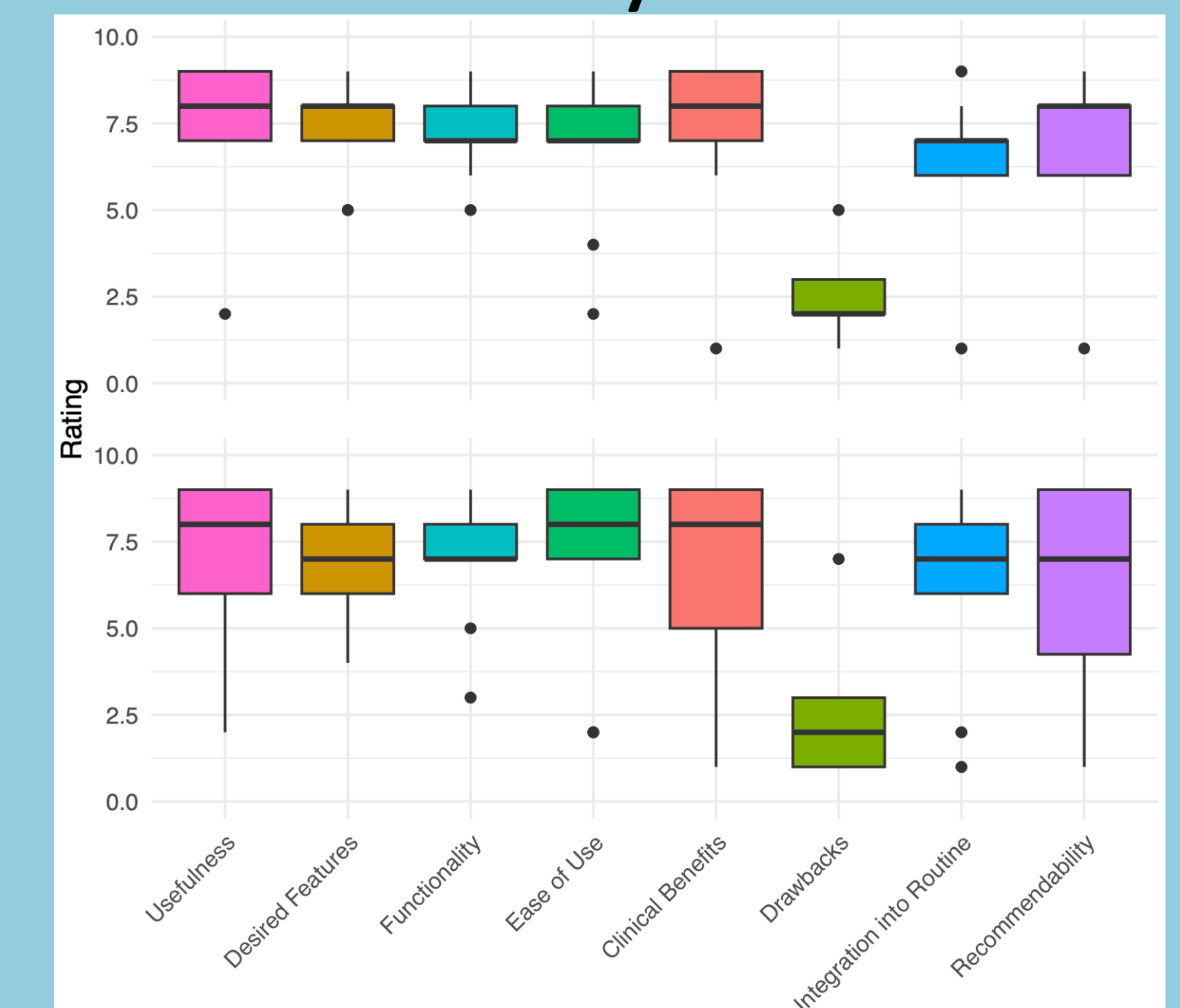
Remote Activity



Sleep



Usability Scores



Remote activity

Sleep

Qualitative feedback

“This is the most exciting development I’ve seen on BRIDGE!”

“I want more information on how these health metrics are calculated”

“Could we incorporate AI-generated reports on metrics of interest?”

“The widgets are great! But I think we need action items associated with each widget”

“I love the simplicity of the sleep widget”

“What happens if the wearable device dies? How can that be represented in the visualizations?”

Acknowledgments

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