

Usability testing of smartphone app for Diabetes care



Project Overview

Apps designed to interface with insulin-delivery pumps and continuous glucose monitors (CGMs) are intended to help patients with diabetes monitor glucose levels and manage insulin administration. However, they must be rigorously tested to ensure **safe, intuitive user interaction**.

Scope of the Challenge

Uncover **safety risks or usability barriers** that may compromise the app's ability to support safe, effective, and error-free use in real-world contexts.

Research Approach

Conducted a **moderated usability study** with **simulated-use scenarios**, targeting representative users —patients actively managing diabetes. Sessions focused on identifying interaction breakdowns, confusion points, and potential safety risks in key workflows.

Research Methodology & Contributions

Conducted a **formative observational study** simulating how diabetic patients use a mobile app to monitor insulin delivery and blood glucose levels.

Participants also completed **knowledge-based assessments** to evaluate their intuitive understanding of UI elements and health-critical information.

CONTRIBUTIONS

- Moderated simulated-use sessions, conducted structured interviews, and performed root-cause analysis to uncover why specific features contributed to user errors and identify UI elements that supported successful use
- Analyzed both safety-critical and non-critical usability issues, including interaction breakdowns, comprehension gaps, and workflow inefficiencies
- Delivered key outputs including FDA-compliant data sheets and study reports, translating user feedback into actionable design recommendations for the client

Results/key takeaways

- ~40% struggled to locate or understand key info about their insulin delivery devices on the app
- ~20% of users expressed interest in additional features that would enhance the app's usability

Data-driven insights

- App widgets/content need to be restructured/repositioned to facilitate easy localization and comprehension
- Additional features would significantly increase the app's applicability and usage

