

Designing Technology for Patients with Discordant Chronic Comorbidities

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Discordant Chronic Comorbidities, or the simultaneous presence of multiple chronic conditions with differing treatment instructions, is becoming increasingly prevalent in patients. Currently one in every four American adults has two or more chronic conditions, and by 2020 an estimated 81 million Americans will have multiple chronic conditions. Despite the growing prevalence of chronic conditions, virtually no research has been done on patients with multiple chronic conditions, and no technology has been developed specifically to help patients with multiple chronic conditions manage the unique challenges associated with having multiple conditions.

Gabrielle Cantor, a sophomore studying Intelligent Systems Engineering at Indiana University, and Sergio Ramirez Martin, a senior studying Computer Science, Math, and Physics at Transylvania University, spent ten weeks studying patients with Discordant Chronic Comorbidities as part of the Indiana University ProHealth Research Experience for Undergraduates. Sponsored by the National Science Foundation, they worked with PhD student Tom Ongwere and faculty members James Clawson, Patrick C. Shih, and Kay Connelly to conduct a study looking at how to design technology specifically for patients with discordant chronic comorbidities.

After conducting Photo-Elicitation Exercises (PEI) and interviews with 16 patients who had Type 2 Diabetes and at least 1 other chronic condition, the researchers analyzed the collected data and determined the major barriers patients face when trying to manage their treatment, as well as some of the major solutions they use to help overcome those barriers. Using those themes as guides, the team began developing wireframe mock ups of a mobile application which patients could use to help manage their conditions and treatments.

Within the app, users have the ability to view their medications by time taken, manage their medication refills, track side effects and other health measurements, create goals and track their journey to accomplishing them, share information from the app with their social and medical networks, and more. The app was designed to bring all of the tools a patient may need into one easy to use platform in order to empower patients with discordant chronic comorbidities to take control of managing their conditions and treatments.

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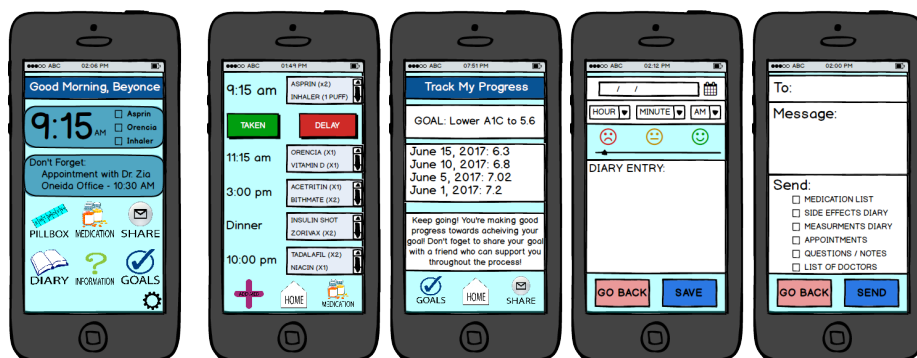


Figure 1: Screens of the mobile application.

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