

Challenges in Evaluating Three Assistive Health Applications

Katie A. Siek, Stephen E. Ross, Kay H. Connelly, Janet L. Welch, Danish Ullah Khan, and Beenish Chaudry

The Wellness Innovation and Interaction (WII) Lab designs, implements, and evaluates mobile applications that can improve a population's health and wellness. Our research motivations are two fold - we want to provide people with easier solutions to improve their health and wellness while assisting researchers in other disciplines study new, technical interventions. We address our first motivation with a user-centered design approach where we use ethnographic methods (e.g., interviews and observations) and more traditional human-computer interaction (HCI) methods (e.g., cognitive walkthrough, usability studies, experience sampling) to arrive at a holistic view of how our user population may or may not incorporate technology into their lives. We address our second motivation by collaborating with researchers in medical and social science disciplines to assess the needs of a specific population, showing how technology can possibly help, and studying best practices for interdisciplinary and transdisciplinary research. In this abstract, we discuss three health and wellness related projects that we have worked on and the approaches used for evaluation.

The Dietary Intake Monitoring Application (DIMA) helps an inner-city, low-literacy population with Chronic Kidney Disease (CKD) monitor and manage their diet. Patients with CKD have lost most, if not all, kidney function, requiring them to undergo dialysis three times per week to remove fluid and toxins from their blood. If patients do not strictly adhere to dietary limits (e.g., sodium and potassium) they can have life-threatening complications [1, 10]. Unfortunately, many patients lack the cognitive processes (literacy, memory and/or computational skills) to monitor their diet [7, 8]. The DIMA project uses mobile technology (i.e., a Personal Digital Assistant - PDA) to assist patients in computing their nutrient consumption and provide feedback about how their consumption relates to prescribed diets [9].

The Colorado Care Tablet (CCT) is a Personal Health Record (PHR) Tablet PC application that helps older adults, during transitions of care, coordinate their care among multiple providers and caregivers, and learn about the medication they are consuming. Medication errors are prevalent among older adults who are in transition between the hospital, home, or assisted living community [5]. CCT empowers older adults to learn about about medications and updates caregivers and medical professionals about the medications they take. This intervention was informed by the highly successful paper-based transition of care PHR designed by Eric Coleman [4].

Health Bridge will assist low-income, single parent caregivers plan, coordinate via social networking, create, and monitor nutritional meals for their family. Health Bridge addresses the needs of caregivers by aggressively tracking all facets of family nutrition from shelf to table to PHR. Health Bridge interfaces with and enhances PHRs by providing caregivers with a bridge to access and update their PHRs with additional data health professionals need for personalized nutritional health feedback. A recent study showed that almost 90% of preschoolers in the population we work with are exposed to at least one modifiable chronic disease risk factor - such as obesity and high blood pressure [3]. Since caregiver are the "gatekeepers" to family and community health [2], our focus is in designing the intervention for primary caregivers of young children.

Acknowledgements

During the initial design of DIMA, Katie A. Siek was supported in part by the NPSC and SNL/CA. DIMA was supported by NSF grant EIA-0202048, a grant from the Lilly Endowment, and Grant R21EB007083 from the National Institute of Biomedical Imaging and Bioengineering to J.L. Welch. Colorado Care Tablet was supported by RWJF ID 59880 (Project HealthDesign: Assisting Older Adults in Transitions of Care) PI Steve E. Ross and the California HealthCare Foundation. Health Bridge was partially funded by the University of Colorado at Boulder Engineering New Professor Award and currently funded by the National Science Foundation under Grant No. 0846024.

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