Think-aloud evaluation of mobile information technology for older adults with chronic heart failure

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Chronic heart failure (CHF) is a complex disease that often requires continuous medical attention. CHF is globally prevalent, especially among older adults. With more healthcare taking place in homes, controlling and managing the symptoms and progression of CHF depends critically on self-care behaviors such as medication taking and nutrition management by elderly patients.

Based on Human Factors analysis of data gathered from interviews, surveys and in-home observations, our team designed Engage, a mobile, health information technology (HIT) tool customized for use by older adults with CHF. Engage is primarily envisioned to provide support for self-care and includes functionality designed and evaluated such as the: (1) logging daily values; (2) setting and monitoring daily self-management goals related to food intake and physical activities; (3) learning more information on self-care topics such as nutrition; and (4) visualizing collected information.

Our team conducted an initial exploratory evaluation of Engage used think-aloud testing (in a controlled lab setting) with 5 older patients with CHF. Evaluation sessions involved patients using Engage's functionalities based on hypothetical scenarios. Patients completed tasks guided by scripted instructions with each evaluation session being video recorded to capture user expectations and Engage's usability. Results revealed design recommendations that will be tested in subsequent iterations of Engage. Our initial evaluation also pointed to the patients' perceived benefits and barriers in using Engage over a 30-day period.