

DESIGNING A PERSONAL DIGITAL ASSISTANT (PDA) APPLICATION TO SELF-MONITOR DIET & FLUID INTAKE

Janet L. Welch,¹ Kay Connelly,² Katie Siek,³ Josette Jones,⁴ Susan M Perkins,⁵ Beenish Chaudry,² Laurie Trevino⁶ ¹Indiana University School of Nursing, Indianapolis, IN. ²Indiana University Department of Computer Science, Bloomington, IN. ³University of Colorado Department of Computer Science, Boulder, CO. ⁴Indiana University, School of Informatics, Indianapolis, IN. ⁵Indiana University School of Medicine, Division of Biostatistics, Indianapolis, IN. ⁶Clarian Health Partners, Department of Nutrition & Dietetics, Indianapolis, IN.

Hemodialysis patients must be able to implement complex and restrictive diet and fluid regimens. The purpose of this project is to develop a PDA application that patients will use to monitor diet and fluid intake. The application was designed integrating the USDA food database with a Universal Product Code database that would provide real-time feedback about intake compared to the diet prescription. Patients would be able to enter intake data using icons or a barcode scanner. Development of the application used a participatory design approach with a total of 40 urban hemodialysis patients who had varying degrees of computer experience, literacy skills, manual dexterity, and visual acuity. We assessed PDA usability by older and younger patients, type of interface design needed to be congruent with how patients cognitively organized food and fluid, interpretation of consumption level icons, input of food and fluid intake using icons and bar code scanning, and use of 2 mobile applications. We found that that all age groups could perform traditional (press buttons, view icons, read messages) and nontraditional (scan barcodes) PDA tasks. Hemodialysis patients organized foods in similar ways and desired a combination of interface designs when searching for food items. They accurately interpreted some consumption-level icons. Patients could input food and fluid intake using icons and the barcode scanner when given time to learn the application. There was no clear-cut preference for either of 2 mobile applications. Patients thought that using a PDA would be helpful for daily self-management of diet and fluid intake. The final step in development of the application will assess the navigation design needed for patient use. A pilot study with 40 hemodialysis patients will immediately follow development.