New Partnership with Clemson University to Assess Diabetic Home Monitoring Usability

TATRC mHIC has partnered with Clemson University School of Public Health to pilot a home monitoring assessment for diabetics under case management care at both Joint Base Lewis McCord (JBLM) and Nellis Air Force Base (AFB). The goal of this research project is to determine the impact of home monitoring on patient activation and practical implications of this form of virtual health monitoring in the Patient Centered Medical Home (PCMH) environment.

“Both the mobile application and the web-based portal allow for home monitoring data to be viewed as a 7 day summary, comparing blood glucose, blood pressure, activity and weight. In addition, each data type can be viewed as a single day, a 7 day or a 30 day view. Patients can add notes to the readings they take in their homes, and providers can roll over the data points on the graphical views to see the notes, or view them in a text-based summary below the individual graphs. Both patients and providers can sort the graphs by turning on and off data elements, so they can quickly see trends such as blood glucose levels before and after meals, in isolation, or in a comparison manner. “A safety mechanism is embedded into the application, which alerts patients to either treat incidences of dangerously low or high blood glucose levels, or seek medical assistance with sustained high blood pressure readings,” said Amanda Schmeltz, one of TATRC’s mHIC Research Project Managers.

The first phase of this two-phase project, which received funding from Joint Program Committee -1, involves a usability assessment of the mobile and provider interfaces for the diabetic home monitoring interfaces within the Mobile Health Care Environment Research (MHCE-R) system. The patients will engage with enhancements to the MHCE-R system and its secure mobile application, mCare. Providers, specifically PCMH Case Managers, will be able to review each patient’s progress at home using the MHCE-R secure portal interface.

To prepare for the launch of this Phase 1 effort, TATRC’s mHIC team was onsite at Clemson University on 21 October conducting the final quality review of the mobile application interface and secure provider portal features with the facility from the School of Public Health who will be conducting the usability assessments at Nellis AFB on November 17th and 18th. Additional usability assessments will be conducted at JBLM on December 1st and 2nd.

“The TATRC mHIC team has been working diligently with the subject matter experts at Clemson University School of Public Health, and the embedded research associates at JBL and Nellis AFB for the past 6 months, and we are excited to finalize the technology solutions for use in the Phase 2 effort. The lessons learned from Phase 1 will allow us to provide the most effective solutions to both patients and providers in the spring of 2017” said Jeannette Little, TATRC mHIC Lab Manager.

During the usability assessments, consented patients and providers will be introduced to the mobile/portal software features, and the patients will also review the Food and Drug Administration-approved home monitoring devices themselves. Both groups will be systematically asked to complete specific tasks with the applications, and the results of these targeted assessments will be the basis for any adjustments prior to the launch of the Phase 2, randomized controlled research trial in the spring of 2017.

Two posters were selected for presentation at the 2016 AMSUS Annual Continuing Education Meeting featuring the TATRC’s Diabetic Home Monitoring Research Project funded by JPC-1. The event took place in National Harbor, Maryland, 29 November - 2 December 2016. Both posters are a collaborative submission between Clemson University School of Public Health and TATRC mHIC, and showcase their joint efforts and contributions.

The first poster is entitled “Enhancing mHealth technology in the DoD’s PCMH environment to activate type-2 diabetes patients” and the second is “New Type-2 diabetes patient tools for the DoD’s Mobile Health Care Environment.”
Screen captures of the current mobile version of the patient monitoring application