Feasibility Study to Evaluate the Utility and Usage Frequency of a Digital Health Coach for Multiple Sclerosis (MS) Patients

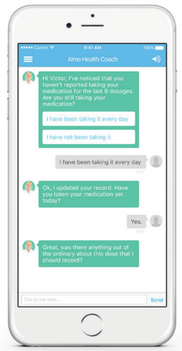
Steve Pugh, MD[1] – Yashma Patel, MD[2] – Thomas Morrow, MD

[1]Providence MS Center, Spokane, WA
[2]Rockwood MS Center, Spokane, WA

OBJECTIVE

The primary objective of this study is to test acceptance and interaction with a digital health coach (DHC) on multiple sclerosis (MS) patients.

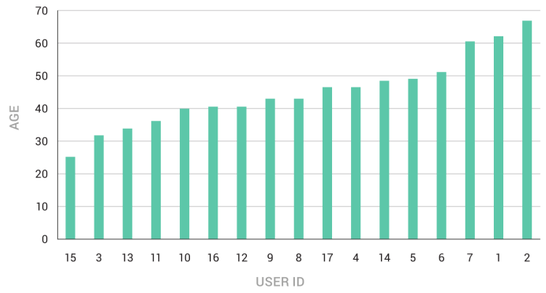
METHODS



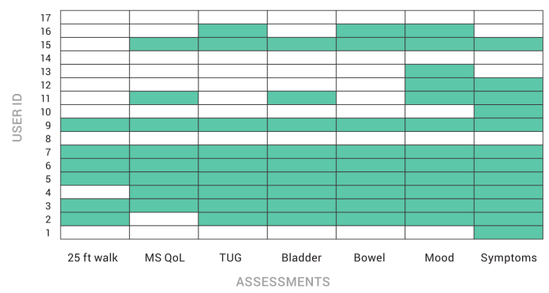
Built using artificial intelligence, a DHC is designed to emulate a human, build a relationship and ultimately help change behavior. The DHC was given a name, Sara. The DHC's primary goal was to track and confirm patient adherence to prescribed daily medication. The DHC also obtained patient-reported data—administering several common clinical assessments used in clinical practice to monitor MS progression including: bowel and bladder assessments, Timed Up and Go test (TUG test), the 25-foot timed walk and the MS Quality of Life questionnaire (MSQoL 54). The DHC recorded symptoms and adverse events on the patients. The DHC also answered common questions concerning daily MS symptoms and problems.

This is a multi-center, open label, single cohort, observational study, involving 17 subjects over 90 days. Patients were eligible for participation if they had been taking a daily administered FDA approved disease modifying treatment (DMT) for at least three months and had demonstrated stability, tolerability and compliance consistent with the standard of care.

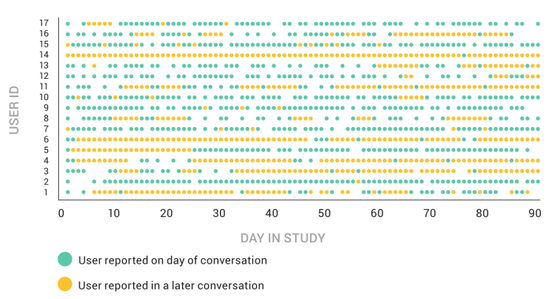
User Demographic



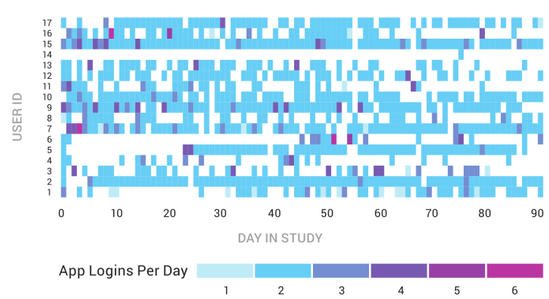
Assessments Completed During Study



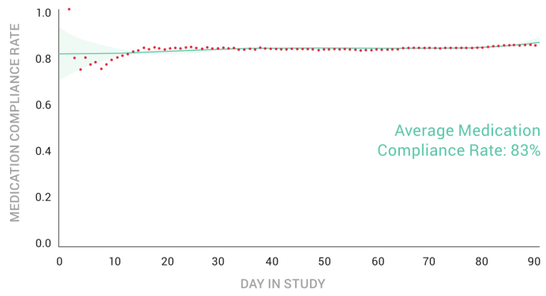
Quantified Medication Tracking



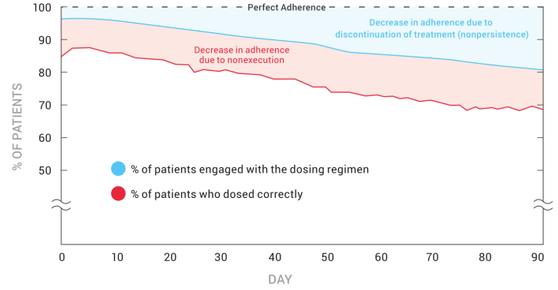
App Login Frequency and Behavior



Medication Adherence of Study Participants



Medication Adherence Data from Available Literature



Blaschke, T. F., Osterberg, L., Vrijens, B., & Urquhart, J. (2012). Adherence to medications: insights arising from studies on the unreliable link between prescribed and actual drug dosing histories. *Annu Rev Pharmacol Toxicol*, 52, 275-301. http://www.annualreviews.org/doi/10.1146/annurev-pharmtox-011711-113247

RESULTS

There were approximately 5,500 unique interactions with the DHC. Most users interacted with her on a daily basis. The preferred interaction method was to type questions or answers with 72% of all inputs typed. The second most common method was to click on a link or answer with 22% of all inputs using this method. Only 6% of all interactions were the result of people using their voice. Adherence was recorded by most participants during the study. Overall adherence was 83%, measured as logged doses of prescribed medication.

CONCLUSION

The use of the DHC to communicate with MS patients was accepted by trial participants. The DHC was beneficial in maintaining adherence and gathering data on various clinical assessments and adverse events. Patients were comfortable discussing intimate concerns and symptoms with the DHC. Study participants interacted with the DHC in a natural, personal manner which evolved over the course of the study, demonstrating patient acceptance of this technology. A larger, more extensive trial is justified to investigate ongoing compliance and adherence maintained by the use of this technology, and the potential for a DHC to demonstrate stability, worsening or improvement in disease state metrics as measured by the clinical patient-reported outcomes.