

Telemonitoring Medication Adherence to Prevent Heart Failure Readmissions: A Pilot Study
NYP Translational Grant Program
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This pilot study examines the feasibility of conducting a randomized clinical trial involving telemonitoring of medication adherence as a novel approach to improving adherence to heart failure medications and reducing hospital readmissions among recently hospitalized heart failure patients.

With 1 in 4 heart failure patients readmitted within 30 days of discharge and financial incentives for hospitals to reduce heart failure readmissions, reducing heart failure readmissions has become a major target for quality improvement at U.S. hospitals including New York-Presbyterian Hospital (NYP). Approximately 50% of heart failure patients are nonadherent to their heart failure medications, and medication nonadherence is major reason for preventable readmissions. **Nevertheless, there remains no gold-standard intervention for improving medication adherence among heart failure patients.** Remote electronic adherence monitoring with telephone feedback to nonadherent patients and heart failure providers (i.e., adherence telemonitoring) is a promising approach to improving adherence. Remote, real-time monitoring can facilitate the identification of nonadherence in the early days after discharge and thus may provide an opportunity for clinicians, patients, and caregivers to intervene before missed doses accumulate to produce a volume-overloaded state requiring readmission. Providing patients with feedback on their objectively-measured adherence may also promote more effective adherence counseling.

To assess the feasibility of conducting a trial involving adherence telemonitoring, we will enroll 40 patients who are hospitalized with a primary diagnosis of heart failure at NYP and will randomize them to telemonitoring of adherence to diuretic medications or usual care for 30 days after discharge. All patients will have their adherence electronically measured by a wireless pillcap, but only patients in the telemonitoring group will have adherence reviewed in real-time by a study nurse who proactively contacts nonadherent patients to provide adherence counseling. Key outcomes assessed at 30-days will include adherence to diuretics, hospital readmissions, heart failure-specific quality of life, heart failure symptoms, and self-efficacy. As this is a pilot study, rather than assessing effect sizes, the primary objective will be to determine the feasibility of recruitment, randomization, retention, assessment procedures, and implementation of the novel adherence telemonitoring intervention. If we demonstrate the feasibility of our approach, we will apply for federal funding from PCORI (Pragmatic Clinical Studies and Large Simple Trials to Evaluate Patient-Centered Outcomes) and NIH (PA11-211: mHealth Tools to Promote Effective Patient-Provider Communication, Adherence to Treatment and Self Management of Chronic Diseases In Underserved Populations) to conduct a large scale clinical effectiveness trial.

This project is part of a larger program of research being conducted by the Center for Behavioral Cardiovascular Health at Columbia University Medical Center in which we are examining approaches to remotely monitor health behaviors and physiologic indicators using mHealth technology as a means of improving patient outcomes in a cost-effective manner.