eHealth Blood Pressure Control Program

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Summary: Researchers at Memorial Hospital of Rhode Island designed a two-phase study of the feasibility and acceptability of an e-health model for the treatment of hypertension. The study, the eHealth Blood Pressure (eBP) Control Program, integrated electronic medical records (EMRs) and personal health records (PHRs) with monitoring devices through a Web portal that connected patients to their medical team. The goal of the project was to obtain the necessary pilot data for a randomized clinical trial of the eBP Control Program.

The program strived to improve patients' blood pressure (BP) control by increasing medication adherence and reducing clinical inertia. It also sought to improve patient education, collaborative self-management support, and care coordination. In Phase 1 of the study, the research team developed and field-tested a PHR, a BP self-management Web portal, and training materials for a patient navigator. Additionally, the team integrated a home BP monitoring (HBPM) device into the PHR. During Phase 2, the team enrolled patients with uncontrolled BP to test the program. For the first 3 months of Phase 2, all patients used a single component of the intervention program: HBPM. After 3 months, the participants were randomized to the three-component program (HBPM + PHR + Web portal) or the three-component program plus a patient navigator.

Specific Aims:

- Develop and refine a Web-based patient-centered decision support system for BP control using an iterative, user-centered design process so that it meets standards of feasibility and acceptability for patient navigators and participants. **(Achieved)**
- Determine the appropriate and acceptable patient motivators (i.e., engaging content, social media, and incentives) leading to use of the eHealth BP control program (BP device, PHR, Web portal, patient navigator). **(Achieved)**
- Develop and begin to field-test a patient navigator training program, a manual of procedures for the patient navigators, and a measure of patient navigator adherence to the training manual. **(Achieved)**
- Test the functionality, security, and fidelity of the secure data exchange between the HBPM device, PHR, Web-based portal, and EMR interface engine in both test and live (enterprise) environments. **(Achieved)**
- Determine the degree of adoption by participants of the four intervention components (HBPM, PHR, Web portal, patient navigator). **(Achieved)**

- Estimate the effect sizes of the four-component program relative to the three-component program with regard to patient activation, self-care activities, medication adherence, reduced clinical inertia, and improved BP control with implementation of the eBP control program. **(Achieved)**

2012 Activities: A total of 28 participants were recruited through letters sent to the homes of potentially eligible patients. Additionally, a 'pop-up' alert in the EMR flagged potentially eligible patients. Thirteen patients were randomized to the patient navigator arm; 12 to the no patient-navigator arm; and three dropped out before randomization. Of patients who were randomized, 20 completed the study and five dropped out after randomization. Reasons for drop-out included loss to followup and technical issues with the BP cuff. In some instances, the BP cuff did not properly fit patients, which led to an error message. The investigators discussed this issue with the BP cuff vendor, who is receptive to making modifications to future versions of the cuff. As patients progressed through the study, the research team assisted them with any technical issues. The patient navigators were trained in motivational interviewing and met in-person or by phone with patients on a monthly basis. Fidelity assessment was based upon regular meetings with a behavioral psychologist reviewing audio recordings from the navigators' meetings with patients and discussing how to handle new or difficult situations. The meetings also offered an opportunity to ensure conformity to the study protocol, including ensuring that peer navigators continued proper communication with the patients' care team, offered instrumental support in the use of the system, and provided emotional support to patients while being careful not to suggest clinical advice. Finally, after all patients completed the study, the research team analyzed the data collected during the study.

Due to initial challenges with participant recruitment, Dr. Eaton used a 1-year no-cost extension. As last reported in the AHRQ Research Reporting System, project progress was on track and budget spending was on target. This project was completed in September 2012.

Impact and Findings: The team prepared for the quantitative analysis by maintaining a study database and cleaning the data throughout the data collection process. An analysis plan was developed to compare the BP of patients randomized to the peer navigator and Web site study arm to patients with Web site access only. The key finding from that analysis was that BP control increased over time. The percent of patients with controlled BP increased from 46.4 percent at the start of the study to 65.0 percent at the end of the study, for an overall 18.6 percent improvement. The results of this feasibility study will be used to inform a randomized controlled trial, including the sample-size calculations, barriers and facilitators of adoption, and the features that had the strongest impact on improving BP control among patients with hypertension.

The results of the patient exit interviews indicated that study participants believe this was an important study, liked meeting with the patient navigator, and would recommend the eBP Control Program to a friend or family member. Participants reported frequent use of the BP tracking feature of the PHR. While participants were aware of the other resources on the Web site, they did not access them frequently. The positive results for patient experience suggest that the eBP control program is acceptable and feasible.

Target Population: Adults, Hypertension, Low Literacy, Medically Underserved, Safety Net

Strategic Goal: Develop and disseminate health IT evidence and evidence-based tools to support patient-centered care, the coordination of care across transitions in care settings, and the use of electronic exchange of health information to improve quality of care.

Business Goal: Knowledge Creation