

## eHealth Blood Pressure Control Program

---

<b>Principal Investigator:</b>	Eaton, Charles B., M.D., D.A.B.F.P., M.S.
<b>Organization:</b>	Memorial Hospital of Rhode Island
<b>Mechanism:</b>	RFA: HS08-269: Exploratory and Developmental Grant to Improve Health Care Quality Through Health Information Technology (R21)
<b>Grant Number:</b>	R21 HS 018238
<b>Project Period:</b>	December 2009 – September 2012
<b>AHRQ Funding Amount:</b>	\$299,967

---

**Summary:** Researchers at Memorial Hospital of Rhode Island have 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, integrates electronic medical records (EMRs) and personal health records (PHRs) with monitoring devices through a Web portal that connects patients to their medical team. The goal of the project is to obtain the necessary pilot data for a randomized clinical trial of the eBP Control Program.

The program strives to improve patients' blood pressure (BP) control by increasing medication adherence and reducing clinical inertia. It also seeks to improve patient education, collaborative self-management support, and care coordination. In phase one 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 blood pressure monitoring (HBPM) device into the PHR. During phase two, the team will enroll 30 patients with uncontrolled BP. For the first 3 months of phase two, all 30 patients will use a single component of the intervention program: HBPM. After 3 months, the participants will be 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). **(Ongoing)**
- 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). **(Ongoing)**
- 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. **(Upcoming)**

**2011 Activities:** The open trial of the eBP Control Program was underway. Beginning in 2010, 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. By December 2011, 28 patients had been enrolled. 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, 13 completed the study, seven continue to participate in the study, and five dropped out after randomization. Reasons for drop out included loss to follow-up and technical issues with the BP cuff. In some instances, the BP cuff did not properly fit patients, which led to an error message. Dr. Eaton discussed this issue with the BP cuff vendor, who is receptive to making modifications to future versions of the cuff. As patients progress through the study, the research team assists them with any technical issues. A few patients, for example, did not have the technical literacy to setup the required software, so the research team helped guide them through the process.

The patient navigators continue to meet regularly with a clinical psychologist to discuss questions and concerns related to patient interactions. During these meetings, the peer navigators and the clinical psychologist review the audio recordings from the navigators’ meetings with patients and discuss how to handle new or difficult situations. The meetings also offer an opportunity to ensure fidelity to the study protocol, including ensuring that the peer navigators provide emotional support while being careful not to offer clinical advice.

As last self-reported in the AHRQ Research Reporting System, project progress and activities are on track and project spending is roughly on target.

**Preliminary Impact and Findings:** Preliminary results from patient exit interviews indicate that study participants believe this is an important study, that participants liked meeting with the patient navigator, and that they 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, those did not access them frequently. Dr. Eaton is writing a manuscript that summarizes these results.

---

**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

---