

Using an Electronic Personal Health Record to Empower Patients With Hypertension

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| Organization: | Georgia Health Sciences University |
| Mechanism: | RFA: HS07-007: Ambulatory Safety and Quality Program: Enabling Patient-Centered Care through Health Information Technology (PCC) |
| Grant Number: | R18 HS 017234 |
| Project Period: | September 2007 – August 2011 |
| AHRQ Funding Amount: | \$1,181,369 |

Summary: Patient- and family-centered care (PFCC) represents a new paradigm for health care delivery, in which patients and their families take an active role in their health care management and decisionmaking. Evidence shows that PFCC improves outcomes by reducing medication errors, increasing compliance, and improving disease management. However, implementation of patient-centered care in the ambulatory setting remains elusive for most clinical practices in the United States. An electronic personal health record (ePHR) can help overcome barriers to adoption of PFCC by maximizing patient-clinical collaboration, self-management, and related health outcomes.

The project examined the feasibility, acceptability, and impact of an ePHR for patients with hypertension. The project used Cerner Health's ePHR, My HealthLink through the Medical College of Georgia (MCG). To foster personal wellness and chronic condition management, My HealthLink allowed consumers to log entries into their ePHR, track progress against their customized care plan, complete health assessments, communicate securely with providers, access health education content, and check for interactions between medications.

The project team worked with Cerner to customize My HealthLink by incorporating the experiences, perspectives, and insights of patients and their families in the design of the ePHR. Patients from the MCG Medical Center were enrolled and researchers conducted two iterative pilot beta tests to evaluate the modified ePHR. Each beta test session had participants use the ePHR for 2 weeks. Subsequent acceptability interviews were conducted and analyzed to identify common themes. Once the modifications suggested by the beta test participants were fully incorporated, a clustered randomized controlled trial was conducted to compare a group using My HealthLink with those receiving usual care. The effectiveness of My HealthLink was evaluated through questionnaires and biological measurements, including patient activation and perception of care; biological markers, specifically blood pressure, body mass index, and lipid levels; collaborative patient-physician communication; congruence of medication treatment with guidelines; and frequency-of-use of medical services. The team also evaluated, via surveys and in-depth interviews, physician and staff perceptions of the ePHR and attitudes towards patient- and family-centered practices.

Specific Aims:

- Improve the application of PFCC elements in an existing ePHR system. **(Achieved)**
- Implement and test the effectiveness of the revised ePHR (My HealthLink) with patients who are being treated for hypertension by a team of physicians, mid-level practitioners, nurse clinicians, and support

staff in two ambulatory settings. **(Achieved)**

- Monitor the shift in provider and support staff awareness and incorporation of PFCC concepts as a result of the implementation of the ePHR. **(Achieved)**

2011 Activities: Data collection and analysis were the major focus during the remainder of the project's no-cost extension period. Post-trial interviews with participating physicians and staff were completed. A total of 13 physicians completed the post-study structured interview and patient empowerment scale (PES). Four focus groups involving a total of 14 staff and nurses were conducted. Two members of the team focused on identification of themes within all post-trial interviews and they completed analysis of the post-trial PES data. The results from this analysis were prepared for dissemination and the project staff developed and submitted a manuscript that addressed differences among qualitative themes of providers and patients, pre-ePHR use and post-ePHR changes in patients on the PES scale, and PES differences between providers and patients. All these differences affect perceptions of patient empowerment as a result of ePHR use. Information from the chart audits was analyzed for use in the final data comparisons and dissemination of results.

All patient-physician recordings were transcribed. Qualitative analysis was conducted on patient-physician transcriptions and email communications. The 2005, 2008, and 2010 PFCC Institutional Survey results were analyzed and prepared for dissemination.

As last self-reported in the AHRQ Research Reporting System, project progress and activities were on track and project spending was on track. The project was completed in August 2011 at the completion of the 12-month no-cost extension.

Impact and Findings: The project staff observed no impact of the ePHR on blood pressure, patient activation, patient perceived quality, or medical utilization in the intention-to-treat analysis. Sub-analysis of intervention patients who self-identified as active ePHR users showed a 5.25-point reduction in diastolic blood pressure. Younger age, greater computer skills, and more positive provider communication ratings were associated with increased frequency of ePHR use. Institutional culture improved over time and was highly correlated with increasing use of patient advisors throughout the health care system. Simply providing an ePHR has limited impact on patient blood pressure, empowerment, satisfaction with care, or use of health services.

Inclusion of patients and patient and family advisors in the development of an existing ePHR did improve certain elements of acceptability, but ePHR use remained low overall with those enrolled in the ePHR arm of the randomized trial. Overall, minimal differences between patients in the intervention group and those in the control group were found. Weight, body mass index, waist circumference, high-density lipid levels, PES total empowerment scores, consumer assessment of health care providers and systems (CAHPS) global doctor rating, composite doctor communication rating, and CAHPS composite office staff rating were significant but none of the raw effect sizes were of sufficient magnitude to imply clinically meaningful differences between groups.

Both patients and providers reflected positively on the ePHR in terms of patient empowerment, pre-visit preparation, recognizing medical errors, adherence, and sense of personal control. Providers expressed concern about patient worry, confusion, and the potential for offense by documentation comments. Results from the PFCC Institutional Survey support an increase in positive attitudes and awareness toward PFCC practices from 2005 to 2008 to 2010. These results corresponded to increasing PFCC implementation throughout the health care system, though this cannot be attributed to the ePHR project alone since it is only a minor part of the system.

Target Population: Adults, Chronic Care*, Hypertension

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: Implementation and Use

** This target population is one of AHRQ's priority populations.*