

Patient-Centered Informatics System to Enhance Health Care in Rural Communities

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Organization:	University of Utah
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Target Population: Adults, Chronic Care*, Chronic Obstructive Pulmonary Disease, Diabetes, Heart Disease, Hypertension, Rural Health*

Summary: This is a demonstration project to evaluate whether integrating the functions of an electronic medical record (EMR), personal health record (PHR), and communication system leads to more patient-centered care in rural communities in Utah. This system, the Unified Health Resource (UHR), provides disease information and decision support tools for patient self-management of acute and chronic diseases; supports the reconciliation of medication lists; and enables exchange of information between clinicians and patients through a series of structured, bidirectional communication channels.

The EMR and PHR function independently of each other. The UHR software developer, CaduRx, designed an interface that allows each side to view and import changes to reflect the updates made by the other party. Patients may view items such as physician notes, diagnoses, and diagnostic test results in their PHR. Physicians, who are granted access by the patient, are able to view and import the patient's information from the PHR into their EMR which may include new prescriptions, symptoms, or diseases. In addition, there are several types of structured e-visits patients can use to communicate with clinics and clinicians. Patients may request medication refills online as well as input results of home monitoring tests into their PHR, such as blood sugar levels and blood pressure measurements. Through extensive usability testing, the project team has ensured that the vocabulary used in the PHR is understandable to the patients, clinically significant to the providers, linkable to International Classification of Diseases, Clinical Modification codes, and able to be coded for clinics' record keeping and billing purposes.

To assess the effect of the UHR on patient-centered care, the team is conducting a prospective cohort study among adult patients at one of the clinics that use the UHR. Participants were recruited so 25 percent do not have a chronic disease diagnosis and 75 percent have one or more of the following chronic illnesses: diabetes mellitus, hypertension, chronic heart disease, or chronic obstructive pulmonary disease. Measures of patient activation, involvement in decisionmaking, self-management behaviors, medication management, and preventive practices are obtained at baseline and during followup. The team will also analyze data abstracted from the UHR, and conduct a manual review of the patients' medical records to compare the provider assessment of patient disease management to the patient's self report. A formative evaluation of the UHR is being conducted to assess and improve usability, usefulness, and adoption.

Specific Aims:

- Recruit two rural primary care clinics that use UHR and two primary care clinics that use an alternative, non-UHR EMR system to participate in a 3-year research demonstration project. **(Achieved)**
- Apply formative evaluation methods to assess and improve usability, usefulness, and adoption of the UHR personal health system by patients. **(Ongoing)**
- Enroll patients from the four participating rural clinics into a prospective cohort study to assess the impact of the UHR personal health system on patient-centered care. **(Achieved)**
- Examine patterns of use of the UHR personal health system. **(Ongoing)**
- Increase awareness, confidence, and skills to use PHRs and Internet health resources among rural community residents, leveraging local libraries and health departments. **(Achieved)**

2010 Activities: The team continues to evaluate the level of adoption of the UHR in the study clinics in order to identify and respond to the needs of each clinic. This includes monthly clinic visits as well as training to support integration of the EMR into clinic workflow. The project team also helps clinic staff understand the benefits of the PHR, which has been challenging because this technology is a relatively new concept for them. These efforts to promote integration and educate providers will put the clinics in a better position to promote the UHR among their patients and increase the satisfaction and adoption among those patients who use the UHR. The team also continues to promote patient engagement with the UHR by emailing patients about features of the system and encouraging providers to discuss the system with patients as well as placing materials in the clinics to remind patients of the tool and its features.

The data collection phase of the study is complete. A two-part patient survey was administered to users of the UHR to determine experiences with the system as well as communication with their provider. A survey for minimal and nonusers was developed and administered. Thirty completed surveys were collected from each of the clinics using the UHR. The team continues to work on determining what constitutes an effective or ideal pattern of use for the PHR and EMR, as well as an inefficient pattern of use. This determination will be helpful in identifying factors that lead to adoption of the tool. Along these lines, the research team is working with the Consumer Assessment of Healthcare Providers and System Program to develop benchmark data and assess their data against national standards.

The team planned a community-wide outreach, including health education classes, involving local health departments and public libraries, on using the PHR. The local departments of health and public libraries were less receptive than anticipated; therefore, the project team focused efforts on patient outreach within the participating clinics. Patient education included information about their health and medical conditions.

Grantee's Most Recent Self-Reported Quarterly Status (as of December 2010): Progress is mostly on track and project spending is on target. The research team continues to evaluate the level of adoption of the UHR in the study clinics and to encourage patient engagement in the system.

Preliminary Impact and Findings: An analysis of patient usage and rating of UHR components seeks to identify the components of the system that were ranked most favorably and may have ultimately driven patient adoption of the system. Preliminary analysis indicates that the medication refill, reconciliation functions, the drug safety, and adverse event components were the most frequently accessed and most favorably reviewed. The e-visit component of the system, however, was not favorably reviewed. Through recruitment of patients from the participating clinics for the usability testing, the team has discovered,

anecdotally, that patients are very interested in the idea of a PHR linked with their health care provider and to their clinic records. The challenge is to make sure patients are aware of how the tool is integrated with the clinic and understand how to use it successfully. Clinic staff, including providers, need to be well informed about the UHR and understand its utility and potential to produce increased office efficiency and improved patient outcomes.

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

* *AHRQ Priority Population*