

**Project Title:** Electronic Prescribing and Decision Support to Improve Rural Primary Care Quality

**Principal Investigator:** Veline, James, M.S., M.A.

**Organization:** Avera Health

**Mechanism:** RFA: HS07-006: Ambulatory Safety and Quality Program: Improving Quality through Clinician Use of Health IT (IQHIT)

**Grant Number:** R18 HS 017149

**Project Period:** 09/07 – 08/10

**AHRQ Funding Amount:** \$1,181,866

**Summary Status as of:** December 2008

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**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

**Summary:** This project was initiated in September 2007 and has completed the first third of the grant period. The purpose of Avera Health’s Improving Quality Through the Use of Electronic Prescribing with Electronic Decision Support project is to examine whether, in rural ambulatory care settings, the use of an electronic prescribing (e-prescribing) system with clinical decision support related to medication management increases patient prescription adherence, improves health outcomes in hypertensive patients, and improves the medication management process. As part of its overall Avera HealthCARE™ Initiative, the health system is working with twenty-eight hospitals and one hundred sixteen clinics to implement a regional electronic medical record (EMR). The technology package will include advanced e-prescribing software that provides physicians the capacity to track the fill status of prescribed medications, as well as provide interaction alerts, formulary listings, dosing options, patient medication history, and printed wallet-size medication lists. The study examines the impact of the technology on the medication management of hypertensive patients in nine rural/frontier primary care facilities. The project will focus on the following health information technology (health IT) systems:

- DrFirst Rcopia electronic prescription management system as a stand-alone product
- DrFirst Rcopia integrated within the Meditech/LSS Medical EMR and Practice Management (MPM) Suite, the electronic health record (EHR) system being implemented by Avera Health in the ambulatory setting. The Meditech/LSS EHR Includes Zynx Health decision support technology and is certified by the Certification Commission for Healthcare Information Technology (CCHIT).

The project takes advantage of a staged implementation, first gathering baseline measures, then tracking clinics using e-prescribing as a stand-alone tool before moving to an EMR, and those clinics moving directly to the EMR with integrated e-prescribing. To examine whether patient prescription adherence improves, medical claims data and the e-prescribing patient-fill histories will be used. Improved outcomes will be measured in blood pressure levels and changes in treatment for patients with blood pressure over 140/90. Patients and providers in rural communities face unique challenges with medication management. The long-term goal is to determine if and how health IT helps overcome these obstacles. This study is based on the observation of a “natural” process of disseminating and implementing a set of health IT innovations to rural clinics in the Avera Health system. As such, the experiment can be characterized as a quasi-experimental design with opportunistic, non-random assignment of clinics to the experimental condition.

## Specific Aims

- Improve the rate of patient adherence to prescribed medications among hypertensive patients in rural communities. **(Ongoing)**
- Impact adherence to prescribed medications among hypertensive patients through use of e-prescribing tools in rural care settings. **(Ongoing)**
- Impact health outcomes for hypertensive patients in rural communities through the use of e-prescribing and associated clinical decision support tools. **(Ongoing)**
- Enhance patient and provider satisfaction with the e-prescribing tool. **(Ongoing)**
- Overcome barriers to successful adoption of e-prescribing. **(Ongoing)**

**2008 Activities:** During 2008, one-way interfaces were created to transmit patient demographic information from the Mysis, LSS, and ASPC practice management systems to DrFirst, an e-prescribing tool. Therefore, as new patients are added or as existing patients are updated in the practice management systems the information will automatically be added/updated in DrFirst. The interfaces help facilitate an efficient workflow, as office staff are not required to add/update information in both the clinics' practice management systems and DrFirst.

In addition, the project team has successfully implemented DrFirst Rcopia e-prescribing in all participating clinics. First, the project team created numerous test scenarios, which will run through the DrFirst test engine and compare actual calculated metrics to expected outcomes. The project completed user acceptance testing, is enabling the enhancements for a few pilot providers in production, and will monitor results. Additionally, the project receives weekly files containing prescriptions with matched claims data. The project team has several test scripts written to ensure all of the business requirements relative to the data have been met. The next step is for the trainers to train the clinics on how to use the compliance and adherence enhancements messages to improve the quality of care they provide.

Finally, the project team has successfully completed collecting baseline patient and provider satisfaction data. To date the response rate to the Patient Satisfaction Survey is 46 percent, significantly more than we expected. Baseline data collection will begin soon on the remaining metrics.

**Preliminary Impact and Findings:** The project team has collected information from the participating pharmacies. First, pharmacies have reported a number of errors being transmitted. Most of the errors reported are due to incorrect product selection or improper use of text fields by the clinics. The project team continues to work with the clinics to ensure proper use of the system, but many errors are introduced simply by slight of hand, as it can be difficult to use a mouse and select the correct product, strength, etc., from small drop down boxes. E-prescribing is thought to improve quality and reduce dispensing errors. There appear to be fewer data entry errors by pharmacies. However, if the potential for error has shifted to a different step in the process, the real impact e-prescribing has on quality remains in question. Additionally, pharmacies are reporting a lack of interoperability. In an ideal e-prescribing transaction, the dispensing pharmacist should be required to perform little to no data entry. However, pharmacists are often required to enter much of the prescription data, as e-prescribed data is not matching data in the pharmacy dispensing software. Finally, although e-prescribing transactions are typically delivered to the dispensing pharmacy in a matter of minutes, pharmacies have experienced transmissions taking in excess of 45 minutes. This can be especially problematic in rural areas. In fact, it is conceivable that a patient may arrive at the pharmacy before the e-prescription in a rural community if the pharmacy is located near the clinic and the prescription arrives just 10 minutes after transmission.

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## Selected Outputs

Baseline Patient Satisfaction Survey Report: Evaluators reported on the results of the baseline Patient Satisfaction Survey.

## Local Reports

- AHRQ metric reference: crosswalk of AHRQ measures being calculated by grantee.
- Avera Total eRx per week: Total eRx issues per week across all clinics.
- Avera Compliance Blueprint: The business requirements for the study data and compliance and adherence enhancements.
- Avera C&A User Guide: Most current draft of training material for compliance and adherence enhancements.
- Average Rx per provider per week: Average eRx per provider per week across all clinics.
- eRx Style of Use: A graphical display of how DrFirst is being used.

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**Grantee's Most Recent Self-Reported Quarterly Status:** The project is meeting 100 percent of its milestones; the project is on time on all tasks.

**Milestones:** Progress is completely on track.

**Budget:** Spending is roughly on target.