

## Electronic Prescribing and Decision Support to Improve Rural Primary Care Quality

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<b>Organization:</b>	Avera Health
<b>Mechanism:</b>	RFA: HS07-006: Ambulatory Safety and Quality Program: Improving Quality Through Clinician Use of Health Information Technology (IQHIT)
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<b>Project Period:</b>	September 2007 – August 2011, Including No-Cost Extension
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<b>Summary Status as of:</b>	December 2010

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**Target Population:** Adults, Chronic Care\*, Hypertension, Rural Health\*

**Summary:** For many chronic conditions, poor patient compliance with prescribed medications can adversely affect treatment outcomes. It is estimated that the compliance rate for patients receiving long-term treatment for chronic conditions, such as hypertension, can be as low as 50 percent. The introduction of electronic prescribing (e-prescribing) systems has the potential to greatly improve the accuracy and efficiency of pharmaceutical treatments. The purpose of this project is to examine whether, in rural ambulatory care settings, the use of an e-prescribing system with clinical decision support related to medication management increases patient prescription adherence, improves the medication management process, and improves health outcomes in hypertensive patients. As part of its overall Avera HealtheCARE™ Initiative, the South Dakota-based health system is working with 28 hospitals and 116 clinics to implement a regional electronic medical record (EMR). The technology package will include advanced e-prescribing software (DrFirst Rcopia) that provides physicians the capability to track the fill status of prescribed medications, and provides 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 for patients with hypertension in nine rural or frontier primary care facilities. The project will focus on the following health information technology (IT) systems:

- DrFirst Rcopia electronic prescription management system as a stand-alone product.
- DrFirst Rcopia integrated within the Meditech/LSS Data Systems Medical EMR and Practice Management Suite, the EMR system being implemented by Avera Health in the ambulatory setting. This EMR includes Zynx Health decision support technology and is Certification Commission for Health Information Technology-certified.

The project takes advantage of a staged implementation, first gathering baseline measures and then tracking clinics that are using e-prescribing as a stand-alone tool before moving to an EMR, and clinics that are moving directly to an 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 higher than 140/90.

This study is based on the observation of a “natural” process of disseminating and implementing a set of health IT innovations. As such, the experiment can be characterized as a quasi-experimental design with

opportunistic, nonrandom assignment of clinics to the experimental condition.

### Specific Aims:

- Improve the rate of adherence to prescribed medications among patients with hypertension in rural communities. **(Ongoing)**
- Improve adherence to prescribed medications among patients with hypertension through use of e-prescribing tools in rural care settings. **(Ongoing)**
- Improve health outcomes for patients with hypertension 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)**

**2010 Activities:** Data collection characterizes the main work of the study team during this period. The project team is collecting data, and the program evaluator and biostatistician have begun analysis. The team will be administering the second round of provider satisfaction interviews and patient satisfaction with care surveys for both the Avera United Medical Clinic and Avera Hand County Medical Clinic just prior to the clinics transitioning from DrFirst Rcopia stand-alone e-prescribing to e-prescribing integrated within the LSS EMR in the first quarter of 2011. Five clinics now use e-prescribing through the LSS EMR.

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**Grantee's Most Recent Self-Reported Quarterly Status (as of December 2010):** Project progress is mostly on track, meeting most milestones on time. Project spending is roughly on target. The current focus of the project is on sustaining the intervention, and collecting and analyzing data.

**Preliminary Impact and Findings:** A significant degree of variation exists across pharmacy software systems relative to e-prescribing capability and processing. The more sophisticated systems typically found in large chain pharmacies are capable of systematically processing prescription data entry with limited manual entry. Some older, more antiquated systems found in small independent pharmacies offer little automation, requiring the pharmacist to enter nearly all elements of the prescription. The receiving pharmacists most often use SureScripts. Upon further investigation, the project director discovered that the pharmacy certification process essentially certifies that pharmacy software is capable of receiving electronic prescriptions from SureScripts in a standard format. SureScripts certification does not address how the pharmacy software processes electronic prescriptions after receipt. As such, the pharmacists who are required to perform minimal prescription data entry perceive a greater efficiency gain than those required to perform more data entry when processing new electronic prescriptions.

All pharmacists reported the greatest workflow efficiency gains are associated with processing provider responses to pharmacy-initiated renewal requests and a decrease in telephone and facsimile interruptions. Pharmacy-initiated prescription renewal requests are sent electronically to e-prescribing providers with the prescription data elements as they exist in the pharmacy software. Therefore, the responses that come back to the pharmacies are easily accepted by the pharmacy software, requiring limited data entry. Also, telephone calls and facsimile interruptions have decreased as more prescriptions are delivered to the pharmacies by electronic transmission. Pharmacists believe the decrease in interruptions allows them to spend more time providing better quality service to their patients.

Finally, pharmacists were asked to rate their level of satisfaction with e-prescribing on a scale of 1 to 10,

with 10 being the most satisfied. Eight of the nine pharmacists reported a satisfaction level of 7, while one pharmacist reported an 8. In general, it appears as though the pharmacist community is relatively satisfied with electronic prescribing.

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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 and the electronic exchange of health information to improve quality of care.

**Business Goal:** Implementation and Use

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\* *AHRQ Priority Population*