

<b>Project Title:</b>	RxSafe: Shared Medication Management and Decision Support for Rural Clinicians
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<b>Organization:</b>	Oregon Health & Science University
<b>Mechanism:</b>	RFA: HS07-006: Ambulatory Safety and Quality Program: Improving Quality through Clinician Use of Health IT (IQHIT)
<b>Grant Number:</b>	R18 HS 017102
<b>Project Period:</b>	09/07 – 08/10
<b>AHRQ Funding Amount:</b>	\$1,200,000
<b>Summary Status as of:</b>	December 2008

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**Strategic Goal:** Develop and disseminate health IT evidence and evidence-based tools to improve the quality and safety of medication management via the integration and utilization of medication management systems and technologies.

**Business Goal:** Implementation and Use

**Summary:** This project was initiated in September 2007 and has completed the first third of the grant period. This project will provide important results about how to integrate decision support into clinical practices to improve the quality and safety of medication management for persons with chronic illnesses. This project investigates the feasibility and impact of novel approaches to clinician decision support in multidisciplinary ambulatory care, emphasizing high-risk transitions of care. The project has developed technology to support shared medication management for persons with chronic conditions. This health information technology will be used to facilitate clinician decisionmaking and improve outcomes for patients and providers in the management of chronic conditions.

The project aims to show improvements in medication management by 1) providing the means to effectively share medication information, 2) sharing the benefit of corrections or improvements to the regimen made by any team member but visible to all the others, and 3) providing clinicians using the system with access to evidence-based information at the time and place it is needed.

This project is a continuation of a successful collaboration between community-based nurses and physicians providing ambulatory services in an Oregon coastal community, a multidisciplinary team of university-based investigators with expertise in medicine, nursing, medical informatics, and computer science; and the Oregon Rural Practice-based Research Network (ORPRN), which provides the infrastructure, coordination, and support. Clinical settings for the project are independent clinic practices in two coastal communities, local home health services, and transitions in care into and out of the single community hospital and its emergency room. The patient focus is on community-dwelling persons with chronic conditions on multiple medications. The choice of these specific innovations is informed by experience with development and early deployment of RxSafe, a system that consolidates medication lists of patients in long-term care to integrate information for providers involved in prescribing, dispensing, administering, or monitoring medications.

### Specific Aims

- Enhance clinician cognitive performance in medication management tasks by exploiting the underlying semantics of medication lists to improve the organization and presentation of medication list information. **(Ongoing)**

- Implement medication list management tools that are integrated into clinician-specific and task-specific workflows to support medication reconciliation at high-risk transitions, as well as in ongoing ambulatory care. **(Ongoing)**
- Increase the effectiveness of medication management activities of clinicians in multiple roles by improving their coordination and communication using shared medication management tools. **(Upcoming)**
- Employ evolving standards and architectures to link external, machine-actionable, evidence-based clinical information in context-appropriate and user-appropriate ways to support shared medication management by clinicians practicing in ambulatory settings. **(Upcoming)**

**2008 Activities:** In aim one, to provide meaningful presentation, the project team investigated the differing categories used by different clinicians such as pharmacists, nurses, and physicians, and then examined the impact of medication list order on the task performance and cognitive performance of physicians in a medication reconciliation task. For aims two and three, observations of clinicians performing medication management tasks were conducted and will be used to create task models that form the basis for technology interventions. For aim four, to employ evolving standards and architectures to link information, the FDA-structured product labels were examined as a source of Web-based decision support and build mock-ups of Web services that would employ this and other resources.

**Preliminary Impact and Findings:** The project team found that nurses, pharmacists, and physicians used different categorization schemes when thinking about medications. The project found that physicians, in a pilot study, form sophisticated initial mental models of the patient when performing a simple medication reconciliation task, and that these models reinforce cognitive performance. In addition, it was found that pharmacists and nurses performing medication management tasks identify and correct discrepancies in the medication regimens of their patients, but this work is more complex than “medication reconciliation” as commonly defined and performed, and is embedded in other tasks relating to the total care of the patient. Finally, no publicly available standard for classifying medications is in use, and this is a major barrier to effective multidisciplinary distributed decision support.

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### Selected Outputs

None Available

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**Grantee’s Most Recent Self-Reported Quarterly Status:** As of the cut-off for this report, the grantee had yet to report via the quarterly reporting system, AHRQ’s Research Reporting System (ARRS) 2008. However, through other reporting mechanisms a summary of the grant’s general status as of the end of 2008 is provided. Due to delays, the project has a revised plan, which includes postponing much of the planned clinician involvement. The milestones were revised based on the revised project plan. First-year expenses were significantly under budget while the senior software architect was on sabbatical. There is a plan in place to ramp up activities and bring in an additional research assistant to achieve our goals. The project requested to carryover funds from Year 1 to Years 2 and 3 due to unanticipated changes in key personnel, which led to substantially reduced expenditures and required adjustments to the project plan.

**Milestones:** Grantee did not provide self-assessment.

**Budget:** Grantee did not provide self-assessment.