

Using Health Information Technology to Improve Health Care Quality in Primary Care Practices and in Transitions between Care Settings

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Summary: A fundamental feature of a national health care network is the ability to share local health information residing in electronic health records (EHRs) and other databases through health information exchange (HIE) within and between regional health information organizations (RHIOs). A major barrier to RHIO use, however, may be the lack of a convincing value proposition for providers. While investing in information-sharing between health care organizations appears to have a societal net-benefit, the return on investment for individual medical practices—especially smaller practices—is less certain. Medical practices incur most of the costs of adopting new information-sharing technologies, while health insurers and patients receive most of the benefits. Apart from capital expenses and fees, medical practices must adapt their workflow to benefit from HIE technology. Many medical practices lack managers with the necessary implementation skills and experience. There is scant research on which specific features of existing HIEs are most useful in primary care, which new features are needed, and how these features can be incorporated into primary care workflow and care processes.

This project documented, studied, and reported the engagement of six primary care practices that use EHRs that are linked to the Secure Medical Records Transfer Network (SMRTNET) through a local data repository. SMRTNET provides access to a broad range of information—including hospital records, laboratory tests, pharmacy records, and a statewide immunization registry—from a variety of sources. As part of this project, SMRTNET was enhanced with the Web-based Preventive Services Reminder System (PSRS), a comprehensive clinical tool for improving the delivery of patient-centered preventive services through a patient registry, prompt and reminder system, clinical decision support, and quality improvement tool that were accessible through a simple, secure Web interface.

The project tested the usefulness, acceptability, and ability of an HIE to promote data exchange across local and statewide health care systems through a single interface to multiple EHRs. While many aspects of this HIE infrastructure development were specific to the systems being studied, the research team believed that this type of connection between adjacent health care delivery regions was likely to be implemented throughout the United States. Analysis of the results of this implementation yielded generalizable and useful knowledge about best practices for HIE implementation to facilitate patient-centered care in primary care settings. Based on observations and data analyses, the study team produced an implementation guide to provide a blueprint for building a clinical data exchange for transitions between care settings, authored a manuscript reporting their findings, and developed a final report.

Project Objectives:

- Enhance the current features of SMRTNET by including the PSRS preventive services recommendation engine. **(Achieved)**
- Test the usefulness and acceptability of the HIE technology intervention. **(Achieved)**
- Develop an implementation guide that describes the principles and steps required to implement HIE-connections between disparate data systems and documents potential benefits of and barriers to implementation. **(Achieved)**

2012 Activities: The study team supported practice adoption and use of SMRTNET during this period. Post-implementation data were collected and compared to baseline data. The team developed [Regional Health eDecisions: A Guide to Connecting Health Information Exchange in Primary Care](#), an implementation guide that provides the principles and steps involved in implementing HIE-connections.

Impact and Findings: At the beginning of the project different practices adopted PSRS to varying degrees, depending upon the availability of actionable clinical data to drive the decision-support engine. Over the course of the project both the adoption of the clinical decision-support system and measured performance of providers for specific processes of care and medication management improved. Documentation of completed mammograms increased from 22.1 to 57.1 percent; documentation of colonoscopy increased from 31.7 to 53.8 percent; documentation of pneumococcal immunization increased from 39.1 to 50.6 percent; and influenza immunization documentation increased from 22.7 to 41.7 percent. In addition, medication reconciliation improved from 35.3 to 44.9 percent. Medication reconciliation expressed as the ratio of matching patient-reported and clinician-recorded lists of medications also improved significantly, from 35.3 to 44.9 percent. Time-motion studies suggested that 17 percent of the time clinicians and staff spent were redistributed from administration and information seeking to more direct, care-related activities.

Target Population: General

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: Knowledge Creation
