

Medication Safety in Primary Care Practice—Translating Research into Practice

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Organization:	Medical University of South Carolina
Mechanism:	RFA: HS07-006: Ambulatory Safety and Quality Program: Improving Quality Through Clinician Use of Health Information Technology (IQHIT)
Grant Number:	R18 HS 017037
Project Period:	September 2007 – September 2010
AHRQ Funding Amount:	\$1,183,549
Summary Status as of:	September 2010, Completion of Grant

Target Population: General

Summary: The Practice Partner Research Network (PPRNet) is a practice-based research network among primary health care providers in 42 States who use a common electronic medical record (EMR). PPRNet, has developed the Practice Partner Research Network - Translating Research into Practice (PPRNet-TRIP), a quality improvement model that translates research into primary care practice. The Medication Safety - Translating Research into Practice (MS-TRIP) study is a demonstration project being conducted among 20 PPRNet practices. The project developed a set of medication safety measures relevant for primary care, which were incorporated into the quarterly practice performance reports that were sent to participating practices.

The 2-year intervention included the development and dissemination of performance reports, network meetings, and practice site visits to help practices systematize their use of the medication safety clinical decision support features in their EMR system, McKesson Practice Partner, which is certified by the Certification Commission on Health Information Technology. The EMR features warnings for drug allergies, drug-drug, and drug-disease interactions, incorrect dosages, drug ineffectiveness, and prompts for therapeutic monitoring to prevent adverse drug events. A theoretical model for primary care practice improvement was used to foster team-based approaches to prioritizing performance, system redesign, better use of EMR tools, and patient activation. The intervention included network meetings, site visits, and performance reports. Improvement plans were qualitatively evaluated from field notes and organized to present a comprehensive approach to improving medication safety in primary care using EMRs. An assessment was made on the impact of the intervention on the incidence of preventable prescribing and monitoring errors.

Specific Aims:

- Develop a set of PPRNet medication safety indicators based on literature and refined to reflect cumulative expertise of members. **(Achieved)**
- Incorporate PPRNet medication safety indicators in quarterly practice reports distributed to 20 participating practices. **(Achieved)**
- Assess the impact of the PPRNet-TRIP quality improvement (QI) model on medication safety indicators in participating practices. **(Achieved)**

2010 Activities: Second site visits were conducted to the participating practices revealing that sites made minor adjustments in their improvement plans based on their experiences during the first year of the intervention. Practices refined their medication reconciliation processes with emphasis on “check-out” procedures. Check-out procedures refer to printing medication lists to encourage adherence, printing orders for medication monitoring for patients who go to outside laboratories, and providing reminders to bring medications to follow-up visits. In addition to the site visits, the project team continued to prepare and distribute quarterly medication safety reports to the participating practices.

The final network meeting was held in September 2010, in Charleston, South Carolina. The audience for this dissemination meeting was expanded to include all interested PPRNet members, not just those participating in the project. Agenda items included findings and lesson learned from the MS-TRIP project.

Findings were also disseminated through various publications and presentations. A paper titled, [“Medication Prescribing and Monitoring Errors in Primary Care: A Report from the Practice Partner Research Network”](#) was published in the BMJ Quality and Safety Journal. A manuscript titled, [“Improving Medication Safety in Primary Care Using Electronic Health Records”](#) was published in the Journal of Patient Safety and describes improvement plans made by the participating practices. A poster presentation titled, “Primary Care Practice Strategies to Improve Medication Safety Using Electronic Medical Records” was held at the Academy Health Research Meeting in June 2010.

Grantee’s Most Recent Self-Reported Quarterly Status (as of December 2010): The project met all aims and milestones and was completed on time.

Impact and Findings: The consensus development process was successful in selecting a broad set of primary care medication safety quality indicators. Thirty medication safety indicators were selected.

Change in avoidance of errors from July 1, 2008 to July 1, 2010 was analyzed as the primary outcome. A total of 49,047 patients over the age of 18 years were eligible for at least one of the medication safety indicators across the two-year intervention. Median practice performance on three indicator categories significantly improved: avoiding potentially inappropriate therapy from 70 percent to 82.7 percent; avoiding potential drug-disease interactions from 87.2 percent to 89.4 percent; and monitoring or prevention of potential adverse events from 74.3 percent to 79.8 percent. Avoidance of potentially inappropriate dosages (88 percent to 90.5 percent) and potential drug-drug interactions (98.8 percent to 98.6 percent) did not significantly change over time.

Through dissemination of quarterly audit and feedback reports, annual practice site visits for quality improvement planning and network meetings for best practice sharing, practices selected and implemented a variety of improvement strategies. Broad efforts, such as enhanced medication reconciliation, formalized refill protocols, and implementation of standing orders for laboratory monitoring, necessitated the involvement of the entire team in local practice redesign. More specific strategies were prioritized in response to audit and feedback results and involved greater use of EMR monitoring tools, use of interaction and dosing tools at the point of care as well as patient activation and outreach activities.

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