Using Health Information Technology to Improve Transitions of Complex Elderly Patients from Skilled Nursing Facilities to Home

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Organization: University of Massachusetts Medical School
Mechanism: RFA: HS08-002: Ambulatory Safety and Quality Program: Improving Management of Individuals with Complex Healthcare Needs Through Health Information Technology (MCP)
Grant Number: R18 HS 017817
Project Period: September 2008 – September 2012
AHRQ Funding Amount: $1,188,157

Summary: The purpose of this project was to develop and evaluate a medication reconciliation intervention for medication monitoring and followup of elderly patients discharged from a skilled nursing facility (SNF), with a goal of reducing the incidence of drug-induced injury. The research team evaluated the intervention through a time-series assessment to measure the efficacy of communicating key health information and alerts to outpatient primary care physicians and visiting nurses. Therapeutic monitoring guidelines were developed and integrated into the ambulatory electronic medical record (EMR) used at the Fallon Clinic. Dr. Field and her team measured a range of outcomes to determine whether the intervention facilitates high-quality transitions, including the rate of followup office visits, the rate of appropriate monitoring for high-risk medications, the rate of hospital readmission and emergency department (ED) visits, and the incidence of adverse drug events (ADEs). In addition an analysis was completed on the development and implementation costs.

Specific Aims:

• Evaluate the impact of automated scheduling alerts on the rate of followup office visits with an outpatient physician within 21 days of discharge from sub-acute care. (Achieved)
• Evaluate the impact of automated monitoring alerts on the rate of appropriate monitoring for selected high-risk medications within 30 days of discharge from sub-acute care. (Achieved)
• Evaluate the impact of a health information technology-based transitional care intervention on the incidence of ADEs within 45 days after discharge from sub-acute care. (Achieved)
• Evaluate the impact of a health information technology-based transitional care intervention on the incidence of hospital readmission and emergency department visits within 30 days of discharge from sub-acute care. (Achieved)

2012 Activities: Due to earlier delays of programming, refinement, and testing of the clinical alerts and messages in the EMR, the intervention was initiated in July 2011 and ended in July 2012. Because the team was identifying an average of only 10 discharges per month, they were concerned that they would not have time to accumulate a large enough sample size to run statistical analyses. As a result, the study team modified their implementation to remove randomization and provide the information and alerts for all discharges. Outcomes were analyzed with a time-series assessment using 2 years of data from the period prior to the intervention as the comparison period.
A manuscript describing the process, required resources, and personnel costs of developing and implementing the transition intervention was published in *Informatics in Primary Care: Technological resources and personnel costs required to implement an automated alert system for ambulatory physicians when patients are discharged from hospitals to home*. In addition, Dr. Field presented at the AHRQ Annual Conference in September 2012.

Due to the significant time and resources necessary to develop, program, and refine the alerts and messages and program them into the EMR system, Dr. Field used a 1-year no-cost extension to complete the study, data collection, and the subsequent analyses. As last reported in the AHRQ Research Reporting System, project progress was on track and budget spending was on target. The project ended in September 2012.

**Impact and Findings:** The study team did not find significant improvements in visits to outpatient providers following discharge from an SNF, laboratory monitoring in response to alerts, ADE rates, or rehospitalization rates relating to the intervention. However, emergency department visits were significantly lower during the intervention period. The development costs for establishing the automated system were estimated at $76,314 with the major costs and time contributions from physicians to develop content, provide overall project management, and review alerts during the test period.

The study identified several additional important issues, including that older adults discharged from SNFs to home are a highly vulnerable population. They have high rates of medical conditions, including traditionally considered comorbidities as well as serious depression and sensory impairments. Many of them were transferred to a SNF for continued in-patient care after a hospitalization triggered by an ED visit, frequently involving trauma. Thirty percent were re-hospitalized within 30 days of the SNF discharge and 30 percent had an ADE within 45 days.

For this vulnerable group, there was a lack of information in the EMR for two-thirds of the discharges identified in the claims data. This suggests the possibility of a serious lack of information flowing to primary care physicians. This is reinforced by the low rates of office visits to primary care physicians, even among this better documented group. Although there were high rates of office visits to other providers, the potential lack of continuity of care would be a source of further medical difficulties for this group of patients.

**Target Population:** Elderly*

**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

*This target population is one of AHRQ’s priority populations.*