Improving Medication Management Practices and Care Transitions Through Technology

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Organization: Visiting Nurse Service of New York
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Summary: The overall aims of this project are to examine the relative effectiveness and cost-effectiveness of a health information technology (IT) intervention designed to facilitate high-quality care transitions to home health care. The project developed a medication management system intended to improve clinician practice and enhance patient engagements by identifying patients with complex medication regimens, providing electronic decision support for clinicians, and providing supplementary information to patients. The intervention being tested uses an automated algorithm to identify high-risk patients and send an email alert to the home health nurse shortly after the patient's admission to home care. It also provides the nurse with medication decisionmaking support, including high-risk medication management recommendations that are integrated into the clinician's visit documentation system and the patient's electronic health record. The patient receives educational materials as part of the intervention. The health IT system will be evaluated by comparing the intervention arm to the usual care group in a randomized controlled trial. This project is an extension of the existing Visiting Nurse Service of New York health IT system and uses many of the features that the home health nurses regularly use.

Specific Aims:

- Examine the relative effect of the intervention on workflow and medication management practices of home health care nurses. **(Ongoing)**
- Examine the relative effect of the intervention on the outcomes and service use of patients in the respective intervention groups. **(Ongoing)**
- Estimate the costs associated with the intervention and subsequent care and compare these costs relative to usual care. **(Ongoing)**

2011 Activities: Implementation of the intervention began in February 2010. In 2011, an automated process was set up to calculate a medication regimen complexity index score using electronic medication information that is collected as part of usual care. The nurses of eligible patients were randomized to the usual care group and intervention group on a rolling basis at a two-to-one ratio. Once randomized, the study arm assignment did not change, and all eligible patients of a particular nurse were included in the same study arm as the nurse's randomization assignment. A subsample of eligible patients whose nurses were randomized into the study was recruited to complete in-home surveys that provided additional information on process of care and outcomes.

The analysis team focused on obtaining data, data cleaning, and data analysis. Two sets of analyses were planned. The first analysis, which has been completed, used the full sample size of all of the patients who were randomized. This analysis looked at whether the intervention: 1) changed the complexity score of the medication regimen; 2) reduced the number of hospitalizations; and 3) reduced the number of emergency room visits. The second analysis, which is currently in progress, is looking at the same endpoints as the first analysis; however, sample size is limited to the patients that participated in an interview. This second analysis will incorporate user data with the interview data.

As last self-reported in the AHRQ Research Reporting System, project progress and activities are on track and project spending is roughly on target. Due to changes in staffing and the complexity of the analyses, the team is using a 1-year no-cost extension to complete the data analyses.

Preliminary Impact and Findings: Five-hundred nurses were enrolled in the study. Of these, 165 (33 percent) were randomized to the intervention arm. A total of 7,960 patients were included in the study, with 2,562 (32 percent) in the intervention arm. Patient outcome interviews were conducted among a randomly-selected subset of patients on a one-to-one basis, approximately 60 days after home care admission. The final survey group included 826 patients, 423 (51 percent) of which were selected from the intervention arm.

Descriptive statistics indicated that the demographic characteristics of nurses and patients were evenly distributed across the two study arms. Analysis of the intervention nurses' use of the electronic decision support tool and the effect of the intervention on patient outcomes is in progress.

Target Population: Adults, Chronic Care*

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.*