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The effect of a pharmacist-led multidisciplinary transitions-of-care pilot for patients at high risk of readmission

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ABSTRACT

Objectives: To evaluate the feasibility and effect of a pharmacist-led transitions-of-care (TOC) pilot targeted to patients at high risk of readmission on process measures, hospital readmissions, and emergency department (ED) visits.
Setting: Academic medical center in Colorado.
Practice description: Pharmacists enrolled patients identified as high risk for readmission in a TOC pilot from July 2014 to July 2015. The pilot included medication reconciliation, medication counseling, case management or social work evaluation, a postdischarge telephone call, and an expedited primary care follow-up appointment.
Practice innovation: Implementation and evaluation of the pharmacist-led TOC pilot program with risk score embedded into the electronic health record.
Evaluation: Comparison of TOC-related process measures and clinical outcomes between pilot patients and randomly matched control patients included readmissions or ED visits at 30 and 90 days.
Results: We enrolled 34 pilot patients and randomly matched them to 34 control patients. The intervention took an average of 57.1 minutes for pharmacists to deliver. More pilot patients had a case management or social work note compared with control patients (88% vs. 59%; $P = 0.006$ [statistically significant]). Readmission rates in pilot versus nonpilot patients, respectively, were 18% versus 24% ($P = 0.547$) at 30 days and 27% versus 39% ($P = 0.296$) at 90 days. The composite outcome of a readmission or ED visit in pilot versus nonpilot patients was 24% versus 30% ($P = 0.580$) at 30 days and 36% versus 49% ($P = 0.319$) at 90 days.
Conclusion: A pharmacist-led TOC pilot demonstrates potential for reducing hospital readmissions. The intervention was time intensive and led to creation of a TOC pharmacist role to implement medication-related transitional care.

As initiatives to reduce hospital readmissions continue to advance nationwide, care delivery systems are including multiple stakeholders in efforts to optimize transitions of care (TOC). When clinicians from diverse disciplines (e.g., nursing, pharmacy) are included in the delivery of TOC interventions with multiple components (e.g., discharge planning, follow-up telephone calls), hospital readmissions are more likely to be reduced at 30 days.[1,2]

Because adverse events following hospital discharge are commonly related to medications,[3,4] pharmacists are increasingly included in TOC interventions. In studies of pharmacist-led hospital-based TOC interventions that have reduced readmission rates or ED visits, common intervention components include intensive medication reconciliation at 1

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Key Points

Background:

- As readmission risk scores are increasingly embedded in electronic health records, studies are needed to determine how to incorporate risk scores into pharmacist-led transition of care models.

Findings:

- More pilot patients had case management or social work notes compared to controls. Readmissions were somewhat lower in the pilot group, but this difference was not statistically significant.
- The intervention took nearly 1 hour for pharmacists to deliver.
- Pilot results supported creation of a role for transitional care pharmacists at our institution.

or more transition points (e.g., admission and discharge), patient medication counseling, and telephone follow-up after discharge.[5-13] Within these studies, patients have been selected for inclusion based on older age,[6] number of medications,[9] diagnosis such as heart failure (HF),[11] or a combination of factors.[8,10,12] The results from multiple studies suggest that pharmacist-led TOC interventions can reduce readmissions and emergency department (ED) visits. Yet engaging pharmacists with a multidisciplinary team to improve TOC is often a challenge, because care delivery systems have evolved a wide array of staffing models for clinical pharmacists, making a 1-size-fits-all model difficult to implement.

Over the past several years, risk-prediction models have been developed to estimate risk for readmissions based on clinical and social factors.[14-16] Studies that combine the use of real-time risk-prediction models to target patients for TOC interventions are limited and have found mixed results concerning readmission reduction.[17,18] As readmission risk-prediction models are increasingly embedded in electronic heath records (EHRs), studies of EHR-embedded risk models to identify high-risk patients in real time for pharmacist-led multidisciplinary TOC interventions are needed.

Objective

The team conducting this pilot was awarded an institutional grant with the goal of developing a sustainable pharmacist-led TOC model. Our multidisciplinary team sought to develop a locally tailored intervention to include evidence-based components from successful interventions, including medication reconciliation, medication counseling, and telephone follow-up after discharge. Our goals were to 1) determine the feasibility of using a readmission risk score integrated into our electronic health record to identify patients for a pharmacist-led transitions of care (TOC) intervention, and 2) evaluate the feasibility and effect of the pharmacist-led TOC pilot on process measures and rehospitalization and ED visits at 30 and 90 days.

Setting

The setting for this pilot was a 673-bed academic medical center in Aurora, Colorado. This pilot was conducted from July 2014 to July 2015 to evaluate a pharmacist-led multidisciplinary TOC pilot regarding feasibility and effect on rehospitalization and ED revisits for general medicine and HF patients. The first 2 months were prospectively dedicated to process improvement. Outcome evaluation began in the third month of the pilot. The pilot included 3 hospital units: a general medicine unit, a cardiology unit, and a unit that had both medicine and cardiology patients, which was added in January 2015 to broaden the enrollment sample. Patients from hospital units included in this pilot were cared for by medical teams with an attending physician, resident physicians, advanced practice providers (physician assistants, nurse practitioners), resident pharmacists, and students from multiple disciplines (e.g., medicine, pharmacy). The TOC pharmacists were involved in the development of the TOC intervention, as well as process and outcome measures.

Practice description

We designed a TOC pilot to incorporate pharmacy-initiated medication history on admission, medication reconciliation on admission and discharge, medication counseling at discharge, and a follow-up telephone call from a pharmacist with the goal of completing the call within 3 days of discharge (Figure 1). Phone call scripts included the following: medication reconciliation, review of indication of use for medications, whether a patient was able to fill new medications, assessment of barriers to filling prescriptions or taking medications, and an assessment for medication-related problems (e.g., untreated indication, adverse drug reaction, drug interaction, etc.). TOC pharmacists also notified the case manager and social worker for the unit about the pilot patient for expedited assessment, primary care follow-up, and evaluation for home health care eligibility. Enrollment took place Monday through Friday and was a convenience sample based on availability of pharmacy staff and pharmacists to both enroll patients at that time and complete the components of the program.

Practice innovation

Our primary innovation in this pilot was to identify patients at high risk of readmission with the use of a previously validated readmission risk score from a group of investigators at Parkland Health and Hospital System (Dallas, TX) that had been integrated into our EHR[14] and to then enroll these patients in the TOC pilot. The Parkland risk score had been developed and studied in HF patients[17] and includes variables to assess demographics (age, gender, marital status), laboratory values (albumin, creatinine, troponin, and several others), previous depression or anxiety, socioeconomic variables (number of home address changes, socioeconomic status of census tract), health care utilization (inpatient admissions, timing of presentation to emergency department, missed clinic visits), and several other factors. As a result, a secondary innovation of our project was to use this score to also identify high-risk general medicine patients. Pharmacists reviewed pilot unit census lists on weekdays to identify eligible patients based on pilot unit