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ADVANCES IN PHARMACY PRACTICE

Inpatient pharmacists' patient referrals to a transitions-of-care pharmacist: Evaluation of an automated referral process

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ABSTRACT

Objectives: To evaluate the impact of a pharmacist screening and automated referral process that identifies patients at risk for readmission due to medication-related problems (MRPs).
Setting: University of Wisconsin (UW) Hospital is 505-bed flagship hospital that is part of UW Health, an academic health system.
Practice description: The integrated pharmacy practice model at UW Health has inpatient pharmacists who perform discharge medication reconciliation. Before enhancing the screening and referral process, a transitions-of-care (TOC) pharmacist identified patients with the use of a low yield report and performed a second postdischarge medication reconciliation on selected patients.
Practice innovation: A screening process was developed to identify patients at risk for readmission due to MRPs and allow for direct referral from inpatient pharmacists to a TOC pharmacist for postdischarge follow-up.
Evaluation: Patient characteristics, readmission risk, and readmission rate were compared between inpatient only (before referral) and inpatient plus second medication reconciliation (after referral). MRPs identified during medication reconciliation were quantified and categorized as provider or patient-associated.
Results: Before process improvement, 9 patients (5%) received a second medication reconciliation out of 175 patients who received standard-of-care inpatient medication reconcilation. After implementation, 45 patients (24%) received a second medication reconcilation out of 188 referrals. Patients referred for postdischarge follow-up with the TOC pharmacist had an average of 3.2 more medications and 2.7 more chronic conditions than before process implementation ($P < 0.01$). Both inpatient and TOC pharmacists identified at least 1 MRP in about two-thirds of patients ($P = 0.60$). Provider-associated MRPs were more commonly identified in both inpatient and postdischarge settings.
Conclusion: Inpatient pharmacist screening is an effective method for identifying patients for referral to a TOC pharmacist to receive postdischarge follow-up. Despite the robustness of the inpatient medication reconciliation process in identifying provider-associated MRPs, patient-associated MRPs still emerged after discharge that warranted additional pharmacist intervention.

As health systems strive to improve the quality of patient care and reduce costs, their focus has shifted to improving transitions-of-care (TOC) services to reduce readmission risk and avoid reimbursement penalties.[1,2] More than 60% of hospital readmissions occur as a result of medication-related problems (MRPs) that are unresolved at hospital discharge.[3] An MRP is an event or situation involving medication therapy that interferes with an optimum outcome for a specific patient.[4] Provider-associated MRPs are due to suboptimal medication therapy, such as inappropriate doses, omitted or unnecessary medication therapies, and drug–drug interactions.[5,6]

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Key Points

Background:

- Many hospital readmissions occur as a result of medication-related problems (MRPs) that are unresolved or not identified before hospital discharge.
- Pharmacists' interventions have been shown to reduce MRPs.
- Algorithmic risk-prediction tools have historically been the main method for identification of patients who would benefit most from pharmacist services related to hospitalizations.
- UW Health has implemented a model that goes beyond using risk-prediction tools in which inpatient pharmacists screen and refer patients at risk for readmission due to MRPs to a transitions-of-care (TOC) pharmacist who conducts a second post-discharge medication reconciliation and helps to resolve medication-related barriers.

Findings:

- The screening process used to identify patients at risk for MRPs and the automated referral from inpatient pharmacists to a TOC pharmacist was a practical method for improving the quality of care during transition from hospital to home.
- Medication reconciliation by both inpatient pharmacists and a TOC pharmacist for patients with varying levels of readmission risk resulted in identification of at least 1 medication-related problem in two-thirds of patients.
- Despite robust pharmacist discharge medication reconciliation services, the TOC pharmacist identified additional medication-related problems in referred patients after discharge.

Patient-associated MRPs include nonadherence to medications, improper use of medication devices, such as inhalers or injections, and medication discrepancies caused by confusion surrounding medication changes.[7,8] Patient-associated MRPs are often exacerbated by fragmentation in care.[9,10]

Sharing of information from the electronic health record (EHR), such as discharge summaries and planned appointments, between inpatient providers and providers in the outpatient setting has been shown to reduce gaps in communication.[11] Pharmacist involvement in care transitions reduces MRPs and improves patient outcomes; however, few studies have evaluated the impact of expanding pharmacist services to reduce MRPs after hospitalization.[12-14] A study by Gilmore et al. showed favorable medication-related outcomes with increased pharmacist presence spanning the inpatient and outpatient settings, but the service required major expansion of pharmacist coverage and relied on student pharmacist availability.[15] Therefore, pharmacy departments continue to seek creative methods to identify patients at high risk for readmission due to MRPs and design workflow processes to reduce care fragmentation after leaving the inpatient setting.

As readmission penalties become more prevalent in health care, health care organizations have searched for tools that predict which patients are at high risk for readmission. Most of these tools are designed around patient characteristics such as severity of comorbid conditions or number of medications.[16-20] Predictive tools serve as a means to focus resources on patients who would benefit most from medication reconciliation or other TOC interventions. However, currently available tools have low predictive value in clinical practice and rarely account for variables not discretely available within the EHR, such as functional status, socioeconomic status, employment, education, social support network, and physical environment.[21-23] Disagreement exists within the profession about the type of risk assessment needed to make predictions about patients at highest risk of readmission due to unresolved MRPs.

The purpose of the present quality improvement project was to: 1) implement use of an automated referral process to enable inpatient pharmacists to identify and refer patients likely to be at high risk for readmission due to patient-associated MRPs; and 2) evaluate the quality improvement process by which the TOC pharmacist receives automated referrals from inpatient pharmacists for high-risk patients and contacts these patients after hospital discharge to address previously identified problems as well as new concerns.

Practice setting and description

University of Wisconsin (UW) Health is an academic health system comprised of 6 hospitals. Located in Madison, WI, UW Hospital is the flagship 505-bed primary referral center with 25,488 unique patient discharges in 2016. There are approximately 270,000 patients medically homed across UW Health.

Inpatient pharmacists practicing within the integrated pharmacy practice model at UW Health conduct admission and discharge medication reconciliation and education for all hospitalized patients. Inpatient pharmacists focus on resolving provider-associated MRPs when completing discharge medication reconciliation. In addition, inpatient pharmacy technicians are heavily involved in finding affordable alternatives or assistance programs for patients with cost barriers. As part of the hospital care team, inpatient pharmacists also identify patient-associated MRPs during a patient's admission but have historically had limited resources for ensuring that patients are taking medications appropriately after discharge.

A full-time-equivalent (FTE) TOC pharmacist role was implemented in 2012 with a focus on reinforcing discharge medication changes, assisting patients in resolving MRPs, and communicating recommendations to the primary care provider (PCP). The TOC pharmacist calls patients who meet eligibility criteria for postdischarge follow-up within 3 days of discharge to discuss any issues or barriers they may have with their hospital discharge medication regimen. Further follow-up telephone calls are conducted if necessary according to clinical judgment. The TOC pharmacist communicates recommendations with the PCP via telephone or secure messaging within the EHR. Before this project, a daily report with patient characteristics was generated and reviewed by