

2014 Gage Awards

Reference #	7486794
Status	Complete
Name of hospital or health system	Truman Medical Centers
Name of project	The Impact of a Medication Reconciliation and Discharge Education Pharmacist
CEO name	John W. Bluford
CEO approval	Check here to confirm that your CEO approves of this project being submitted for a 2014 Gage Award
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Within which of the two categories does your application best align?	Quality

1. Provide a brief description of the project. (This section should resemble an abstract for a poster presentation or an abstract for a peer reviewed journal. Include an objective, data sources, study design, findings, and conclusions.)

Reducing hospital readmissions is receiving increased attention as a way to promote quality care and control health care costs. However, the key interventions or combination of interventions leading to reduced readmissions remain to be elucidated. Among successful approaches to reducing 30-day readmission rates has been through the use of pharmacists or pharmacy members in programs offering medication reconciliation,¹ post discharge education,¹ and phone call follow-up.² The purpose of this study was to determine the effectiveness of pharmacist-led interventions at the time of, and soon after, discharge on readmission rates. In the study, pharmacist intervention reduced 30-day all-cause readmission rates for patients with chronic obstructive pulmonary disease (COPD) and/or heart failure (HF) and saved an estimated \$400,000 to healthcare payers as a whole by preventing approximately 31 readmissions per year.

A clinical pharmacist provided medication reconciliation and discharge education to admitted patients with a current diagnosis of HF and/or COPD. ICD-9 codes and previously documented problems were used to identify eligible patients. Adult patients admitted to the general medicine floor or intensive care unit were eligible for inclusion.

Interventions generally occurred within 24 hours of admission, on day of discharge, and by phone within 3 to 7 days of discharge. Patients who received at least 1 of 3 interventions during a 6-month study period were compared to 1 year of historical data for those comparative patients. The primary outcome was a reduction in the 30-day hospital all-cause readmission rate. A secondary outcome was payer cost savings based on Medicare diagnostic related group (DRG).

234 patients received a pharmacist led intervention in the first 6 months of the program and were compared to historical controls (n equals 730). Patient groups were similar with regard to baseline demographic characteristics, except the intervention group had diagnoses of COPD or heart failure. Pharmacist intervention reduced 30-day all-cause readmission rates for patients with COPD and/or HF (21.4% in intervention group, 28.2% in historical group; relative risk 0.76; 95 percent CI, 0.58 to 0.99; P equals 0.039). Potential cost savings to healthcare payers as a whole were approximately \$400,000 for the anticipated 31 readmissions prevented per year. Common pharmacist interventions during medication reconciliation include assessing non-adherence, medication on medication record that has been discontinued, omitted medication from medication record, and undocumented over-the-counter medication use.

Sources:

1. Gardella JE, Caldwell TB, Nnadi M. Improving medication safety with accurate preadmission medication lists and post discharge education. *Jt Comm J Qual Patient Saf.* 2012; 38(10): 452-458
2. Jack BW, Chetty VK, Anthony D, et al. A

	reengineered hospital discharge program to decrease rehospitalization. Ann Intern Med. 2009; 150: 178-187.
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2. Describe the methods use in this project. Include where, why, and how the project was accomplished.

Truman Medical Centers (TMC) is the primary teaching hospital for the University of Missouri-Kansas City School of Medicine, and is a critical component of our area's healthcare system. TMC holds itself highly accountable for providing the best possible standards of care and outcomes for our patients as evidenced by the incorporation of a medication reconciliation and discharge education pharmacist (MRDEP) at our Hospital Hill campus. Additionally, chronic disease management excellence is one of TMC's top 3 business priorities, which stimulated earlier TMC work with socially and medically complex chronic disease patients. That target population of patients for that study was identified as requiring large numbers of medications and having frequent significant challenges with managing them. Finding solutions to support these patients in preventing readmissions became part of the improvement journey.

The PowerInsight program, a data mining tool able to pull data from the TMC EMR, was used to screen patients currently in the hospital with either an ICD-9 code or documented problem code relating to COPD or HF. Once initially screened by PowerInsight, an automated daily email was sent to the MRDEP for further evaluation for inclusion and exclusion criteria. Patients greater than 18 years of age admitted to the general medicine floor or intensive care unit were eligible for inclusion. Patients were excluded due to pregnancy, observation status, currently receiving chemotherapy or radiation, intended discharge to another facility, patient refusal, death during inpatient stay, admission related to alcohol intoxication, illicit substance abuse, dialysis, or uncontrolled psychiatric issues.

During medication reconciliation, the MRDEP would review medication allergies, verify prescription and over-the-counter medication use, and assess the patient for barriers to taking medication. Information was verified with the patient's home pharmacies to assess the need for refills or potential duplicate prescriptions. Upon completion, the patient's primary team was informed by the pharmacist noting key drug therapy and medication reconciliation concerns.

Prior to discharge, the MRDEP worked with the interdisciplinary team to help assure patient access to medications upon discharge. Through the patient's stay, pharmacists provided intensive medication education by reviewing the medication name, strength, route, frequency, possible side effects, and any special instructions or concerns with use for the patient's entire discharge medication profile.

Within 3–7 days of discharge, the MRDEP contacted patients to discuss patient access to medication, re-clarify any medication reconciliation discrepancies, reinforce medication education, assess medication adherence, and reinforce possible side effects or symptoms to report to the physician. The patient's clinic was notified to arrange an appointment with the

	<p>physician or seek guidance about appropriate management if side effects or symptoms arose. Upon completion of the patient's medication review, the MRDEP reviewed the patient's follow-up appointment schedule.</p>
<p>3. Describe the results of the project. What data was used to support improvement results?</p>	<p>From July 2011 through June 2012, 730 patients were screened as eligible to be included in the historical comparison group. Of these, 234 patients were seen by the MRDEP and received at least one intervention from July–December 2012.</p> <p>Patients were similar in the baseline demographic information including race, ethnicity, gender, language. The presence of the key disease states, COPD and HF, differed among groups. COPD was present in 180 patients (76.9%) in intervention group and 490 patients (67.1%) of the historical group (P equals 0.005). HF was present in 114 patients (48.7%) in intervention group and 433 patients (59.3%) in the historical group (P equals 0.004).</p> <p>Patients that received at least one intervention from the MRDEP had a statistically significant decrease in 30 day readmission rate. A composite of both disease states showed that pharmacist intervention reduced the 30 day readmission from a baseline of 28.2% to 21.4% in the intervention group (relative risk 0.76; 95 percent CI, 0.58 to 0.99; P equals 0.039). Individually, pharmacist intervention resulted in reduced 30 day readmission rate for COPD (23.9% in intervention group, 28.2% in historical group) and for heart failure (23.7% in intervention group, 33.7% in historical group). In patients with both COPD and heart failure, the risk of 30 day all-cause readmission rate was decreased from 40.4% in the historical group to 33.3% in the intervention group.</p> <p>Payer cost savings estimates were made based on the difference in readmission rate and the number of patients anticipated to be seen by the pharmacist. The Medicare DRG reimbursement averages for COPD and heart failure were used as approximate costs. For every 14 patients seen by the pharmacist, one 30 day readmission is prevented. Based on these estimations, between \$480,000 and \$741,000 are anticipated to be saved during the course of a 12-month period.</p>

<p>4. Describe what happened as a result of the project. Was the improvement related to the intervention? Can the project be duplicated by other organizations?</p>	<p>Following the one year completion of the project, the MRDEP was made a full time position in the hospital. The MRDEP is now actively involved in committees and programs relating to transitions of care, medication reconciliation, patient education, and discharge planning and continues to gain growing support from the interdisciplinary team as a valued member of the discharge planning process. The project is attempting to expand to assess the effect of involving a MRDEP with patients with other disease states, including acute myocardial infarction and pneumonia.</p> <p>We feel confident that the improvement has been linked to the intervention. Since the 6-month data analysis, there was a single month where the MRDEP was needed in other areas of the hospital. During this one month time period, readmissions for the same patient population returned to baseline, which reinforces the concept that the application of this process does improve patient care.</p> <p>It is very likely that this project could be duplicated at other organizations. Recent literature has focused largely on pharmacists providing singular components of medication reconciliation, discharge education, or phone call follow-ups. Pharmacists are specifically trained to assess the patient for drug interactions, have knowledge of drug therapy to be able to provide alternative therapies, and receive training in providing patient education. As concerns regarding all of these areas are present in multiple institutions, it is reasonable that the incorporation of a pharmacist will be beneficial in multiple settings.</p>
<p>5. Describe how patients, families, and if appropriate, community was included in the work.</p>	<p>Patient centered care was a cornerstone in developing this medication reconciliation and discharge education program. As noted above, through this program patients interact with their pharmacist on a frequent basis in the course of their hospital stay. Upon discharge, the patient is provided a business card to contact their pharmacist if questions or concerns arise.</p> <p>Families are involved in the course of patient care, as long as the patient is willing. Often, patients desire to discuss their home medications, as well as anticipated discharge plans, with their families. In these instances, the pharmacist provides education to the group and helps to address medication questions and concerns. In family meetings, pharmacists also highlight medication adherence strategies for family members who help care for the patient while on an outpatient basis.</p> <p>On the whole, the program has been well received by both patients and families. Both patients and families have noted that it is helpful to have another individual to ask questions to during the course of the inpatient stay as well as to have an input into the system if they are unsure who to contact as an outpatient.</p>
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