Doctor of Pharmacy Honors Theses   Undergraduate Scholarship

Spring 2017

Pharmacy Interventions in Transitions of Care from Hospital Discharge (PITCH) Pilot Program for Medicare Part D Patients at High-Risk for Readmission

Muirisha Nicole Lavender
Butler University

BUTLER UNIVERSITY HONORS PROGRAM

Honors Thesis Certification

Please type all information in this section:

Applicant   Muirisha Nicole Lavender
                        (Name as it is to appear on diploma)

Thesis title   Pharmacy Interventions in Transitions of Care from Hospital

                     Discharge (PITCH) Pilot Program for Medicare Part D

                     Patients at High-risk for Readmission

Intended date of commencement   May 6, 2017

Read, approved, and signed by:

Thesis adviser(s) Carrie Jung   4/20/17
                                                                              Date
                     Carolyn M. Jung   4/20/17
                                                                              Date

Reader(s)   Todd Walroth
                     Todd A. Walroth   4/5/17
                                                                              Date

Certified by   _____   _____
                        Director, Honors Program   Date

For Honors Program use:

Level of Honors conferred: University   _____

                                   Departmental _____

                                                       _____

                                                       _____

Pharmacy Interventions in Transitions of Care from Hospital Discharge (PITCH) Pilot

Program for Medicare Part D Patients at High-Risk for Readmission

Muirisha N. Lavender, PharmD/MBA Candidate

Butler University

843 Berkley Road, Indianapolis, IN 46208

mlavende@butler.edu (513) 526-8908

Carolyn M. Jung, Pharm D, BSPS,

Clinical Pharmacy Specialist, Transitions of Care, Eskenazi Health

Associate Professor, College of Pharmacy and Health Sciences, Butler University

Pharmacy Intervention on Readmission Rate

Text Word Count: 1393

1

Background: Pharmacist implemented transitions-of-care (TOC) programs focus on identifying adherence issues, developing care plans, investigating medication-related insurance problems, and instilling the value of medication treatment in patients frequently admitted to hospitals for manageable, chronic disease-states.

Study objective: The primary objective of this study is to determine the impact of pharmacist interventions during a TOC pilot on hospital readmission rates for patients with acute myocardial infarction (AMI), heart failure (HF), chronic obstructive pulmonary disease (COPD), or pneumonia.

Methods: This study is a retrospective review of patients receiving high intensity care to prevent readmission, including pharmacy intervention during a three-month pilot period versus patients with the same disease states not receiving high intensity care. The patient population includes patients greater than 18 years of age who were admitted for AMI, HF, COPD, or pneumonia. Patients were excluded if less than 18 years of age and prisoners.

Results: Hospital records identified 513 patients eligible for study inclusion following removal of exclusion patients. The study showed no statistical evidence to conclude that pharmacy intervention has effect on readmission rate when pharmacy intervention in the Medicare population was compared to the non-pharmacy intervention Medicare population (Fisher's Exact *P = 0.123*).

Conclusion: The study failed to show a significant difference in readmissions for patients receiving additional pharmacy care. Other factors play a role in readmission risk. Additional studies including more patients and comparing risk factors for readmission are needed to determine best practices to reduce risk while promoting patient health.

Background

There is a trend of underutilization of pharmacists to provide intervention on medication adherence for patients. Lack of adherence puts patients at increased risk for readmission, decline in health, and morbidity and mortality. This also creates a greater burden on the health system as hospitals are not reimbursed by government payors for readmissions within 30 days for certain disease states. In an effort to prevent further readmissions, provide better quality of life, and prevent reimbursement penalties, pharmacists are implementing transitions-of-care (TOC) programs. These programs focus on identifying adherence issues, developing care plans, investigating medication-related insurance problems, and instilling the value of medication treatment in patients frequently admitted to hospitals for manageable, chronic disease-states.

In a study on the "Impact of a transition-of-care pharmacist during hospital discharge", pharmacists were involved in the education of 1,011 patients, performing 452 interventions which lead to a decline in the overall readmissions per month ($P = 0.0369$).[1] Interventions included starting an omitted medication from previous admission, preventing discharge problems, avoiding medication duplication, correcting medication-coverage insurance issues, revising improper medication dose or quantity, changing inappropriate medications, and resolving other problems pursuant to the patient's medication. The findings indicated that a transition-of-care pharmacist is in a unique position to educate patients, and resolve medication errors and insurance problems which may result in reduced hospital readmission rates.

At New Hanover Regional Medical Center, a transitions of care protocol was implemented through collaboration with a general medicine pharmacist, nurse and case manager.[2] The

discharge pilot focused on transitioning patients from inpatient to outpatient status with the inpatient, general medicine pharmacist coordinating education and information with the outpatient pharmacist. The baseline readmission rate for high-risk patients, those with high readmission rates, chronic disease states, large number of medications, and psychosocial concerns, to the general medicine floor was 17.88%. Following the pilot intervention, readmission rates for these patients decreased to 15.31%. Those patients, with the general medicine pharmacist-provided medication reconciliation and education, had a readmission of 14.67%. Furthermore, patients who elected to have their medications filled in the outpatient pharmacy had a readmission rate of 9%. This study showed that pharmacist intervention may have an impact on readmission rates by helping to streamline processes for better medication adherence in high-risk patients.

With the implementation of the Affordable Care Act (ACA), further focus has been placed on coordination of care and reducing unnecessary medical expenditure.[4] In response to the act, the Centers for Medicare and Medicaid Services (CMS) enacted cost-saving strategies to reduced readmissions. CMS will not fully reimburse hospitals if patients with disease states such as acute myocardial infarction (AMI), chronic heart failure, chronic obstructive pulmonary disease (COPD), or pneumonia are readmitted within 30 days of discharge.

Eskenazi Health is dedicated to serving the unprivileged and thus serves a large portion of Medicaid and Medicare patients in central Indiana.[3] Financial stability is marked by the cornerstone of receiving payment and reimbursement for medical services through CMS. Due to the necessity and the concern for patients frequently readmitted, inpatient pharmacists have

implemented a transitions-of-care (TOC) pilot which focuses on patients with a primary or secondary diagnosis of AMI, HF, COPD, or pneumonia. The pharmacists implemented processes to provide discharge medication reconciliation and discharge counseling, evaluation medication adherence, accessibility, cost, insurance issues, and secure accessibility to medications upon discharge to prevent hospital readmission.

Study Significance

The study attempts to show the impact of pharmacist intervention in transitioning patients from hospital to home, and the potential impact of these interventions on reducing readmission rates in patients who are at high risk for readmission.

Study Objective

The primary objective of this study is to determine the impact of pharmacist interventions during the TOC pilot on hospital readmission rates for patients with AMI, HF, COPD, or pneumonia. Secondary objectives include characterizing the pharmacist interventions, amount of time dedicated to the pilot interventions, and patient adherence based on medication fill history.

Methods

Study Design

The study is a retrospective review of patients receiving high intensity care including pharmacy intervention during a three month pilot period versus patients with the same disease states not receiving high intensity care.

Study Data Source

The data source is through records obtained through electronic medical records at Eskenazi Health.

Inclusion Criteria

The inclusion criteria for the study is patients greater than 18 years of age who have previous admission for AMI, HF, COPD, or pneumonia

Exclusion Criteria

The exclusion criteria for the study is patients less than 18 years of age, prisoners, and patients who did not have a diagnosis of AMI, HF, COPD, or pneumonia

Measurement of Variables

Measurement of variables include an analysis of readmission within 30-days post-discharge, number of pharmacist interventions, time spent on interventions, pharmacy fill history post-discharge, number of medications post-discharge, and number of co-morbid conditions.

Control Variables

Control variables include readmission within 30-days post-discharge, pharmacy fill history post-discharge, number of medications post-discard, number of co-morbid conditions, and length of stay while in hospital.

Statistical Analysis

Statistical analysis of the data is through a CHI square test, Fisher's exact test, and Student T test.

Results & Discussion

Hospital records identified 513 patients eligible for study inclusion following removal of exclusion patients. Baseline demographics (gender, age, race) are similar between the intervention potential group overall (Medicare population) versus non-intervention group (other insurance/no insurance population). COPD followed by mixed presentation, in which it was undetermined which target disease state was the cause of readmission, are the highest causes for admission in both groups. COPD is the highest cause of readmission in the pharmacy, Medicare intervention group. Heart failure is the highest for readmission in the non-intervention, other insurance/no insurance group. There were 13 patients readmitted within 30 days following pharmacy intervention in the Medicare group (8 readmitted from the target disease in question), compared to 62 in the non-pharmacy intervention Medicare group (25 from target disease) and 30 in the non-intervention, other insurance/no insurance group (5 from target disease). Table 1 summarizes the data below.

The results show that, per the CHI square test comparing all three test groups, differences seen are not due to randomness ($P < 0$), but that there are no statistical differences between the Medicare populations versus other insurance/no insurance study population (T test $P = 0.617$). There is also no statistical evidence to conclude that pharmacy intervention has effect on readmission rate when pharmacy intervention in the Medicare population was compared to the non-pharmacy intervention Medicare population (Fisher's Exact $P = 0.123$). It should be noted that the pharmacy, Medicare-population intervention group consisted of only 46 patients of 237 possible. This can affect the variance of the statistical analysis and subjects it to high level of factors not attributable solely to pharmacy intervention.

Conclusion

Although pharmacist intervention is meant to reduce the risk of readmission through proper counseling and management of medications, this study failed to show a significant difference in readmissions for patients receiving additional pharmacy care. Other factors play a role in readmission risk such as lack of adherence following education, health literacy issues, and unavoidable readmissions (i.e. bone fractures). Additional studies including more patients and comparing risk factors for readmission are needed to determine best practices to reduce risk while promoting patient health.

Study Limitations

This study is limited to Eskenazi Health in Indianapolis, Indiana and includes patients with four specific disease states—AMI, HF, COPD, or pneumonia. The study population does not include any patient under the age of 18 years old, nor any prisoners who might otherwise fall into inclusion criteria. These factors make this study less widely applicable to the general population.

The study only includes data from three month time period and is limited by number of pharmacists able to participate in active interventions. The pilot study was conducted on patients with Medicare Part D versus the control group that includes patients with other payers as well as patients without insurance, and thus may contribute to other factors for readmission in the control group not assessed by the study.

Table 1. Descriptive statistics between groups

	Intervention Group – Medicare Patient	Medicare Patient – Pharmacy Intervention	Medicare Patient – No Pharmacy Intervention	Non-intervention – Other Insurance/None
Patient (n)	237	46	191	276
Males	94	19	75	145
Females	143	27	116	131
Mean age	66.160	67.043	65.948	57.029
Caucasian	112	25	87	128
African American	123	20	103	127
Other	2	1	1	21
Admission diagnosis: Heart Failure	67	7	60	82
Admission diagnosis: Myocardial Infarction	4	1	3	11
Admission diagnosis: COPD	77	18	59	85
Admission diagnosis: Pneumonia	14	3	11	30
Admission diagnosis: Mixed presentation	75	17	58	68
Mean length of stay (days)	4.168	3.870	4.241	4.674
Median length of stay (days)	3	3	3	3
Range	45-1	8-1	45-1	33-1
Mean number of comorbid conditions	7.468	7.304	7.508	5.920
Median number of comorbid conditions	7	7	7	5
Range	22-0	15-2	22-0	21-0

Mean number of medications at admission	11.008	10.609	11.105	7.855
Median number of medications at admission	11	11	11	8
Range	24-0	18-0	24-0	26-0
Mean number of medications at discharge	15.139	15.130	15.141	12.293
Median number of medications at discharge	15	15	15	11.5
Number of pharmacy interventions	-	46	-	-
Mean time (min) of pharmacy intervention	-	33.913	-	-
Median time (min) of pharmacy intervention	-	30	-	-
Mean number of interventions made	-	4.522	-	-
Median number of interventions made	-	3	-	-
Mean number of interventions accepted	-	4.391	-	-
Median number of interventions accepted	-	3	-	-
Claimed patient pharmacy: Eskenazi	93	20	73	136
Claimed patient pharmacy: Other	144	26	118	140
Number of patients utilizing Eskenazi outpatient pharmacy	82	20	62	91

Number of patients utilizing "Other" pharmacies	155	26	129	35
Number of patients with confirmed fills	89	22	67	124
Mean number of medications filled at discharge	4.561	4.774	4.313	5.073
Median number of medications filled at discharge	4	4	4	5
Range	18-0	18-0	16-0	17-1
Number readmitted within 30 days	75	13	62	30
Number readmitted with target disease state	33	8	25	5
Readmission diagnosis: HF	12	1	11	3
Readmission diagnosis: MI	2	-	2	-
Readmission diagnosis: COPD	15	6	9	1
Readmission diagnosis: Pneumonia	3	-	3	1
Readmission diagnosis: Mixed presentation	1	1	-	-

References

1. Balling L, Erstad BL, Weibel K. Impact of a transition-of-care pharmacist during hospital discharge. J Am Pharm Assoc. 2015; 55:443-448. http://www.japha.org/article/S1544-3191(15)30091-1/pdf

2. Patel M, Thomas R, Vitrone K, et al. Transitions of Care: Pharmacist Collaboration at a Community Teaching Hospital. U.S. Pharmacist. 2014. https://www.uspharmacist.com/article/transitions-of-care-pharmacist-collaboration-at-a-community-teaching-hospital

3. Harris LE. About Us. Eskenazi Health. Accessed June 10, 2016. http://www.eskenazihealth.edu/about-us

4. Readmissions Reduction Program (HRRP). CMS.gov. Accessed June 10, 2016. https://www.cms.gov/medicare/medicare-fee-for-service-payment/acuteinpatientpps/readmissions-reduction-program.html