Impact of Pharmacist-Driven Medication Profile Review, Medication Reconciliation and Discharge Education on 30-day Hospital Readmission

by

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Abstract

PURPOSE: Transitions of care interventions are well documented to contribute to decreasing medication-related problems and readmissions. Consequently, healthcare facilities have implemented processes and models in efforts to address a public health need. Pharmacist-driven activities, such as medication history, medication reconciliation, medication profile reviews and discharge education have shown to contribute to reduced 30-day readmissions for patients who have an increased-risk for readmission.

METHODS: Patients admitted to the 6th floor complex medical care unit at Allegheny General Hospital from November 2018 to February 2019 who were identified to be at an increased-risk for readmission were included. Patients were identified through our electronic health record predictive analytics model. These patients were followed through pharmacist-driven medication profile review, best possible medication history, admission and discharge medication reconciliation and discharge education. Patients were followed for 30-days post-discharge to assess the actual versus predicted readmission.

RESULTS: The actual and predicted readmission rate was 46% and 47%, respectively. The actual and predicted rates appeared to be similar. This initiative included 107 patient admissions. Of these patients, 54% of patients were not discharged to home or self-care. On average, pharmacist made 4 interventions and spent 57 minutes per patient during the admission encounter.

CONCLUSION: There was no difference observed in actual versus predicted readmission. However, we were able to utilize this data and project to adjust pharmacist workflow through identifying technical barriers and reprioritizing responsibilities. A crucial step post-implementation will be to continue to evaluate to ensure processes are transforming to the public needs.

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1.0 Background

Across different sites, less than optimal transitions of care activities are conducted. Admission and discharge medication discrepancies are well documented to contribute to patient harm or poor patient outcomes.[1] In fact, medication discrepancies occur in up to 70% of patients at hospital admission and discharge, with almost one-third of them having the potential to harm.[1] These discrepancies could prolong hospital stay and in the immediate post-discharge period lead to emergency room visits and hospital readmissions. Medication reconciliation is a strategy to reduce the occurrences of medication discrepancies, defined as "the process of identifying the most accurate list of medications a patient is taking and using this list to provide correct medications for patients anywhere within the health care system."[2]

In 2005, The Joint Commission added medication reconciliation to its list of National Patient Safety Goals. The goal details multiple steps needed to appropriately reconcile current and newly ordered medication. With increased awareness of the need for transitions of care activities, various institutions and health care facilities implemented processes and models in efforts to reduce 30-day post-discharge emergency department visits and hospital readmissions using medication reconciliation. However, despite more than a decade of trial and error, there are still many necessary improvements required to optimize the process of medication reconciliation. As a result, there is a critical need for more initiatives to improve this process to protect and improve the health of the population.

Preventing costly readmissions and high healthcare costs from incurring through effective transitions of care is a public health goal and essential for addressing society's health needs. Improving the health of people and their communities through detecting errors that may lead to readmission will improve the quality of health and the quality of life. In a study with Najafzadeh *et al*. a discrete-event simulation model was developed to model the incidence of drug-related events from a hospital payer's perspective. [3] Taking medication discrepancies, preventable adverse drug events, emergency visits, rehospitalization and costs into account, the model projected that the total cost of preventable events was estimated to be $472 (95% credible interval, $247-$778) per patient with usual care. Poor health outcomes projected in this model could be avoided through putting processes in place to ensure these negative outcomes are minimized. According to the Institute of Medicine's Preventing Medication Errors report, the average hospitalized patient is subject to at least one medication error per day.[4] With the Centers for Disease Control and Prevention (CDC) estimating 145.6 million visits to the emergency department in 2016, it suggests that many medication errors occur. There are opportunities for medication errors to be prevented by reviewing patient medication history and reconciliation. As aforementioned, medication reconciliation, when conducted thoroughly and appropriately, ensures people have all the appropriate medication therapy required throughout all phases of care. It is also important to note that medication reconciliation involves not just a comprehensive list but also reconciling patient or caregiver reported adherence administration or financial limitations to medications.

Pharmacists have been identified through various studies to effectively minimize 30-day hospital readmissions. In the study Koehler *et al*., pharmacy residents performed

medication reconciliation on hospital admission and discharge, patient and provider medication education during hospitalization, communication with primary care physician on discharge, and follow-up communication with the patient 2 months after discharge.[5] These interventions showed a 30-day emergency department visit/readmissions of 10% in the intervention group and 38.1% in the control group ($p = 0.04$). In a similar study Gillespie *et al*, pharmacists interventions reduced the odds of all visits by 16% (odds ratio, 0.84; 95% CI, 0.72-0.99), including a 47% reduction in emergency department visits and an 80% reduction in drug-related readmissions in the 12 months after hospital discharge.[6] In a systematic review of 26 studies from 1966 to February 2012, the majority of interventions were focused on a high-risk subgroup of patients with an age threshold from 55- 80 years of age, polypharmacy, a threshold ranging from greater than 4 to 13 medications and having 3 comorbid conditions. The review highlights that there were very few rigorously designed, randomized controlled and multi-site studies showing good quality comparison and evidence to support pharmacist interventions despite the recognition of medication reconciliation efforts being important for patient safety.

Allegheny General Hospital recognizes the need for a continuum of care model that encompasses transition of care activities necessary to minimize medication-related error and prevent patient harm. Pharmacist-driven care activities such as medication reconciliation and patient education prior to discharge are examples of strategies to advocate for this cause. As healthcare reimbursement moves away from a fee-for-service model, hospitals with higher readmission rates relative to national averages are facing penalties for unplanned and preventable readmissions that occur soon after a patient is discharged from the hospital. The Hospital Readmission Reduction Program (HRRP) is a

Medicare value-based purchasing program that reduces payment to hospitals with excess readmission. The goal of this program is to support the national goal of improving healthcare for Americans through linking payment with quality of hospital care. The Centers for Medicare and Medicaid Services reduces reimbursement for all Medicare patients if a facility has a higher-than-expected 30-day readmission rate based on the excess readmission ratio (ERR), which gauges hospital performance for certain conditions and procedures. The ERR measures relative hospital performance using a ratio of predicted-to-expected readmission. With an additional financial incentive, the expectation is HRRP will make healthcare better for conditions and procedures that have a large impact in the lives of many people with Medicare.

The Readmission Risk (%) score was adopted by Allegheny General Hospital to identify the target population who may benefit from discharge medication education and reconciliation. The increased readmission risk generated by the hospital's computerized physician order entry (CPOE system; EPIC) was available starting in July 2018, as a standard model that determines a patient's risk of an unplanned readmission within 30 days of being discharged from an index admission.[7] The model was built based on a span of three years of data including more than 275,000 inpatient hospital admission encounters and more than 203,500 unique patient records that mirrored the national readmission rate of 15 percent reported by CMS. Upon validation, at a threshold of 40 percent of total patients assigned to interventions, the model predicted 66 percent of the readmissions that actually occurred. LACE+ model is a similar index used to predict the risk of post-discharge death or urgent readmission. It uses four variables to predict risk: length of hospital stay, acuity of admission, comorbidity and emergency department utilization in the 6 months before admission.[8] In

comparison, the EPIC model's performance showed 8 percent points higher compared to the LACE+ model and 26 percent points higher than readmissions identified without using a model. The readmission risk score is calculated as a percentage ranging from 0 to 99%, where the greater the risk for readmission the higher the percentage. The percentage is adjusted in real-time and could fluctuate based on the various factors used to determine the percentage. The larger the impact of the factors, the greater it influences the readmission risk for the patient. The goal of this tool is to effectively allocate personnel to target patients at an increased-risk for readmission and focus hospital resources to identify and correct potential medication-related problems and provide patient education and counseling.

2.0 Methods

A single-center prospective quality improvement initiative in adult patients admitted to the 6th floor complex medical care unit at Allegheny General Hospital from November 2018 to January 2019 were identified. Patients ages 18 years and older, admitted or transferred to the 6th floor complex medical care unit, classified as being at increased-risk for 30-day hospital readmission were included. The increased-risk population was identified through EPIC software, our electronic medical record. Patients who are pregnant, incarcerated, deceased, left the hospital against medical advice or transferred to another floor or acute care hospital (due to loss of follow-up) were excluded. Clinical pharmacists and pharmacy residents performed medication history, admission medication reconciliation, medication profile review, discharge medication reconciliation and discharge education (for patients discharged home) for all included patients. Patients were included if their readmission risk percentage was greater than or equal to 35%. Patients were included at any point during their admission if the predicted readmission risk met the criteria. They were then followed 30-day post-discharge to assess for hospital readmission to Allegheny General Hospital. We speculated providing comprehensive pharmacist-driven interventions would reduce the number of 30-day readmissions in patients with an increased-risk for readmission. The primary objective was to compare the average actual versus predicted 30-day readmission rate, based on the readmission risk score, for patients designated to have an increased-risk for readmission. The secondary objectives were to identify the average number of interventions per patient encounter, average time spent by pharmacists per

patient, and the primary factor contributing to the readmission risk score. Examples of interventional activities include but are not limited to incorrect frequency of medication administration, incorrect strength or dose of the medication, omission of medication, absence of medication indication, inappropriate medication, prevented adverse drug effect and reconciled medication not covered by health insurance. All interventions were documented by pharmacist through the EPIC I-vent system, categorized by type, medication associated and time spent for the intervention. The project was exempted by the Allegheny General Hospital Institutional Review Board as a quality improvement project. The primary and secondary outcomes were assessed using descriptive statistics. Baseline characteristics were collected to further analyze the target population in Table 1.

2.1 Definitions

Increased-Risk Population: An EPIC readmission risk (%) identified as ≥35 %.

Medication History: The process of obtaining the patient's most current list of medications.

Medication Reconciliation: The process of creating the most accurate list possible of medications through comparing the patient's medication list against the physician's admission, transfer and discharge orders with the goal of providing appropriate medications to a patient at any point during transitions of care.

Medication Profile Review: Assessing the patient's current medications based on new diagnoses, findings or changes in medical condition during the hospital admission.

Medication Education: Visual medication information and verbal medication education will be provided to patients initiated on new medications during the recent admission, any medication changes (strength, dose, frequency, etc.) and medication discontinuations.

3.0 Results

There were a total of 114 patient admissions assessed for eligibility from November 2018 to January 2019. Of these patients, 7 were excluded (6 were transferred off the floor and 1 transferred to another hospital). In total, there were 107 patient admissions included in the study. The average actual readmission rate was 46 percent and the average predicted readmission risk was 47 percent ranging from 35 percent to 99 percent. Patients were discharged home 47 percent of the time meaning over 50 percent of patients were discharged to facilities such as a skilled nursing facility, inpatient rehabilitation or long-term acute care hospitals. The long term acute-care hospitals and skilled nursing facility were the most common discharge dispositions for patients not going home (Table 3). The mean length of stay was 8 days and there was a mean active prescription orders of 41, based on the readmission risk score. Through the readmission risk score, both inpatient and outpatient medication orders are included in the calculation of active prescription orders. The primary factor contributing to the predicted readmission risk was ED visits in the last 6 months followed by the number of active prescription orders (Table 4). Pharmacists intervened on average 4 times and spent 57 minutes per patient admission. Only 16% of patients included received all interventions detailed in the methods (i.e. medication history, admission medication reconciliation, medication profile review, etc) intended to be completed in this pilot study. Of the different interventions collected, interventions documented to be performed the least (less than 50% of the time) were admission/discharge medication reconciliation and discharge education (Table 5). The number of interventions made by

pharmacists per patient increased gradually throughout the pilot study (Figure 1). Comparing the number of interventions made for patients discharged home versus discharged to a facility, the number of intervention were generally similar throughout the study (Figure 2 and Figure 3). Based on the patient's discharge date, 23 percent of patients discharged on Saturday, Sunday and Monday were summed together according to the current clinical pharmacist hours on the unit for review. Monday was added to the calculation, although a clinical pharmacist is present, because by the time the clinical pharmacist is familiar with the new patient list, the anticipated discharges would have already been processed for the day. Further analyzing the results from patients who did not receive discharge medication reconciliation on the weekdays, we found that over 75 percent of patients who did not receive discharge medication reconciliation were discharged after 1600 (Figure 4). Of the 107 patient admissions included in the study, there were 89 unique patient identifiers. There were 18 patient admissions, identified through a patient unique identification, accounting for readmissions to the complex medical care unit during or post 30-day time frame.

4.0 Discussion

The interventions made during this quality improvement pilot did not show a decrease in 30-day readmission rates. The average actual readmission rate was 46% versus the average predicted readmission risk was 47%. The median predicted readmission risk score was 43.5% indicating there were minimal outliers in the data collected. Due to differences in derivation of the actual versus predicted rates, we were unable to conduct statistical analyses to assess for statistical significance. However clinically, pharmacists were actively contributing to the patient care team to minimize medication-related errors and conducting medication-related activities. It is postulated that various factors could have impacted the primary outcome showing no difference in readmission rates during this initial pilot. The patients were identified based on a predetermined hospital readmission risk standard. The 35% cut-off simply served as a starting point for targeting a specific population throughout the hospital. Consequently during implementation, this cut-off was eventually reevaluated for appropriateness and relevance to best serve the patient population. Other factors will be discussed in more detail in the limitations section below. The major admission diagnoses were sepsis, respiratory failure, renal failure and SIRS (systemic inflammatory response syndrome). The extent of use for this data point is limited since these initial diagnoses are not standard selectable options useful for categorizing patient characteristics. However, diagnosis could potentially have a large role in prioritizing the acuity of patients as requiring more pharmacists' intervention.

Interventions were conducted mainly by our clinical pharmacists and acute care pharmacy residents. The residents were rotating on a monthly basis and required training regarding documenting and conducting different interventions prior to each month. The number of different people involved could have accounted for the variable completion rates and the number of pharmacists available to complete the interventions. Having only a 16% completion rate, we concluded that the time required to perform all the listed interventions is definitely limited. Prioritizing this initiative was conveyed to the pharmacists on the unit at the initially but may have not been conveyed effectively throughout the study. In addition, during this time frame, our electronic medical record made a few updates to the documentation process I-vent platform which may have required additional clarification for pharmacists. Therefore, we suspect many more interventions were made on the complex medical care unit than that was documented appropriately or documented at all. The mean interventions made per patient were 4 and the mean time spent per patient was almost an hour indicating pharmacists were very involved in the care for their patients. Based on the time spent per pharmacists, it is evident that this transition of care goal would realistically require a lot more pharmacists than available to impact all the patients identified throughout the hospital. As a result, we choose to target only the population at an increased-risk to ensure that pharmacists are spending time reviewing patients who would benefit the most from these interventions. Pharmacists on the complex medical care unit were similarly responsible for other patients on the team but their primary focus was to assess the hospital-wide initiative to prevent 30-day hospital readmissions post-discharge.

Each time a patient was readmitted to the complex medical care unit, they were identified as another independent patient admission. The same patients were included as

another unique patient admission because it represented a more realistic picture of the actual patient population. Based on the number of people readmitted multiple times, we believe that these patients, regardless of pharmacist interventions, would be readmitted due to the severity of illness and other comorbidities. Therefore, pharmacists would have less of an impact regardless of the medication history, medication reconciliations, medication profile review or education conducted. Throughout the project, the goal was to identify areas of improvement to ensure pharmacists have the opportunity to make this impact for our patients at an increased-risk for readmission. We identified that the current pharmacist hours do not support late and weekend discharges. More than 75% of incomplete discharge medication reconciliations occurred after hours based on the pharmacist work schedule. This observation could also account for the low completion rate and the reason why we did not observe a decrease in 30-day readmission. Similar to prior studies, this study focused on pharmacists' impact on 30-day post-discharge readmission rates. Anecdotally we saw increased patient adherence and understanding to medications and opportunities to provide medication education. Pharmacists on the unit continued to serve as a valuable asset to the interprofessional healthcare team and as a resource for medication-related problems. They were able to focus on patient problems such as anticoagulation, antimicrobial stewardship and other transitions of care changes. However, the various other responsibilities assigned to our pharmacists on the complex medical care unit prevented them from having enough time to complete these interventions. As a result, we reallocated the workflow around mid-February to allow pharmacists to distribute their time more for patients at an increased-risk for readmission. Unfortunately, we were not able to capture this change based on the time-frame for the quality improvement project.

4.1 Limitations

There are limitations associated with the pilot initiative that may limit the utility of the data. Patient readmissions were only captured if they were readmitted to Allegheny General Hospital. If they were readmitted within 30-days post-discharge to another institution we are unable to access this readmission. The readmission risk score, although adopted hospital-wide, may not capture the immediate risk of the population. For example, the score does not account for the differences in healthcare needs between neighboring populations from those experienced in the community. Healthcare needs could vary within communities based on characteristics such as socioeconomic status, health literacy, ethnicity and age and therefore affect the types of readmissions that impact the community. It is important to consider these aspects to further specify the population most at risk for readmission. After the end of the pilot study, the hospital-wide initiative shifted slightly to identify patients with a readmission risk score within 30% to 50%. This change largely addresses the observation that a portion of our patient population who were appropriately identified but not actually benefiting from readmission interventions throughout the hospital. These patients in the upper limit were too sick and likely to be readmitted due to the acuity of their illness or chronic disease state regardless of pharmacist intervention. Focusing on the study population, more than 80% of patients did not receive all interventions hypothesized to contribute to decreasing 30-day readmission. Therefore, the study has limited strength for attributing any decrease or increase in readmission to pharmacists' intervention on the unit. With various updates in the electronic medical record, the documentation process used to account for pharmacists' interventions had to be clarified

multiple times throughout the time frame. This gap in data was not advantageous for recording pharmacist involvement or tracking documentation compliance. It also limited the ability to collect specific interventions made because the documentation used free-text, making it difficult to sort. Patients were not captured on the weekday evenings and weekend discharges due to the current pharmacy hours. Therefore, the pharmacy hours did not support these patient discharges. In order to fully support this initiative, towards the end, we reallocated pharmacists' workflow on the complex medical care unit to allot more time to perform patient-focused activities. The biggest concern overall is that the identified patient population studied may not have benefited most from pharmacy intervention due to the severity of illness and progression of the patient's chronic disease state. With limited resources, it is important to continually reassess which patients to prioritize in order for the patient population overall to benefit from pharmacist intervention.

4.2 Post-Study Observations

Due to a limited time frame for gathering initial results, we only fully collected data until February 2019. Although the results for the quality improvement project were limited, the goal was to continue to maximize pharmacist impact by targeting the population of patients who are at an increased-risk for readmission. This goal aligns with the vision of the hospital to strengthen our transition of care model in order to encompass the entire continuum of care. Identifying pharmacist activities through a systematic workflow is essential for improving the health for the population. Post-quality improvement: modifying

pharmacists' responsibilities and readdressing pharmacist interventional activities, data showed higher completion rates for the various interventions. Pharmacists completed 97% of patient medication history, 87% of admission medication reconciliation, 94% of medication profile review and 63% of discharge education for patients identified at the new inclusion standards for risk of readmission. The higher completion rate indicated improvement in the documentation process and further demonstrates the value of pharmacists in transition of care activities. The decision to adjust the increased-risk population from ≥35 % to 30-50% allows pharmacists to focus more time on patients of lower acuity and would benefit more from pharmacists' intervention. Adjusting the target population moves the hospital closer to identifying the most appropriate patient population benefits from pharmacists' intervention.

4.3 Recommendations

As effective transition of care models are being implemented throughout the country, the goal is to prevent adverse patient outcomes and minimize costs for rehospitalizations. The current focus is to allocate services in the forefront of healthcare to minimize the cost of negative outcomes after the progression of illness. With pharmacist-driven interventions, the objective is to ensure patients are treated with medications for the appropriate indications and for their appropriate current clinical status. While pharmacists are heavily involved with the primary care team, their role has not been established as an essential step in the transition of care model. Currently, care managers, social workers, nurses and

physicians are actively engaged in the continuum of care but pharmacists are viewed as a resource based on availability. The vision is to have pharmacists incorporated into the care model, especially during admission and discharge, to intervene, review and discuss with the patients in order to maximize their clinical expertise. More specifically, pharmacists should be required to complete medication histories alongside physicians prior to medications being ordered during admission and similarly required to review the medication discharge plan prior to completing discharge procedures. Creating these procedures will ultimately decrease medication errors by not only reducing physician burden but also increasing patient exposure to counseling and education. Various studies previously mentioned have identified pharmacists as healthcare professionals with the capability and resources to make a difference in reducing patient harm and avoiding penalties for 30-day hospital readmission. As a result, it is strongly suggested that having pharmacist involvement could optimize transition of care activity and further improve the health of the population.

5.0 Conclusion

Pharmacists are important components of the interdisciplinary healthcare team. Their expertise has shown to decrease emergency department visits and 30-day readmission post discharge in various institutions. As experts in pharmacotherapy, they have the opportunity to minimize patient harm and optimize patient medications through reviewing medication profiles during transitions of care. Although the initial pilot study did not show positive results in decreasing 30-day readmission rates, we were able to identify areas of improvement to work towards this goal. Pharmacist intervention increased gradually throughout the pilot study which likely will lead to more opportunities for pharmacists to focus on optimizing patient medication treatment regimens. There are likely more interventions conducted compared to those reported because the reported interventions solely relied on pharmacist adherence to documentation. Despite the limitations identified, we were able to utilize this data and perform adjustments to pharmacist workflow and address technical barriers while reprioritizing pharmacist responsibilities. As this process is implemented into more patient units at our institution, more data needs to be collected to ensure we are optimizing the efforts of our pharmacists to decrease medication-related problems and 30-day post discharge readmissions. Through continual improvement efforts, pharmacists' interventions will decrease the 30-day readmission rate and optimize patient care.

5.1 Public Health Perspective

The core functions of public health broadly defined are assessment, policy development and assurance.[9] Within these functions, healthcare professionals contribute to monitoring the health status of the community, investigating hazards that harm the community health, identify areas of need and education, develop guidelines to support these health goals and gather the appropriate personnel to perform these roles. A crucial step post-implementation is to continue to evaluate and reevaluate to ensure processes are transforming to the public needs. As healthcare has evolved, CMS is changing its perspective and creating incentives to improve quality of care rather than quantity of care provided in hospitals. Through research, pharmacists have been identified to improve activities involved with transitions of care. The practicality of pharmacist's pharmacotherapy expertise provides opportunity to perform medication reconciliation to further decrease medication errors. Unlike physicians, physician assistants and certified registered nurse practitioners, pharmacists do not focus on diagnosing patients. Instead pharmacists focus on optimizing medication therapy, increasing adherence and preventing adverse drug events. These activities have shown to produce a downstream effect by minimizing excess physician visits, emergency department visits, and hospital admissions. By decreasing avoidable healthcare costs, pharmacists serve an essential role in improving the health of the population. Although these activities are performed at various institutions, the most effective method is still being evaluated through different transition of care models. At Allegheny General Hospital, pharmacists were actively implemented into the complex medical care unit focusing efforts on patients identified at an increased-risk for readmission. With limited personnel, this

transition of care model identifies patients through an established criteria including prior 30-day readmissions and a large number of active medications. This practice aligns with other services offered throughout the community to improve the health of the community. Considering the limitations and preliminary results, when pharmacists were strategically imbedded in a interprofessional healthcare environment, they will have many opportunities to contribute to the health of the community and create an environment where people in the community could have improved health outcomes.

Appendix Tables and Figures

Table 1 Baseline Characteristics

Baseline Characteristics (n = 107)	
Mean Age – years	63
Female – %	39.25
Discharged Home – no. (%)	50 (47)
Mean Length of Stay – days (range)	8 (1 – 77)
Mean Active Rx Orders – no. (range)	41 (9 – 73)

Table 2 Admission Diagnosis

Admission Diagnosis (n= 107)	
Sepsis	5
Respiratory Failure	4
Acute respiratory failure with hypoxia	3
Renal Failure	2
SIRS	2
Alcohol withdrawal, AMS	2
Symptomatic anemia	2
Hyponatremia	2
Hypercapnic Respiratory Failure	2
Seizure	1
Hypoxia, acute respiratory failure	1
Volume overload, ESRD on HD	1
AMS, hyperglycemia	1
Open wound of scalp	1
Anasarca	1
Somnolence, acute on chronic diastolic HF	1
Anemia, SBP, AKI	1
Hypovolemia	1
Aspiratonal pneumonia	1
Melena, acute blood loss anemia	1
Asthma exacerbation attacks	1
Respiratory Distress	1
Bilious vomiting with nausea	1
Shock, Hypoxia, AKI	1
C Diff, Sepsis	1

Table 2 Continued

UTI, AMS	1
CAP	1
AMS	1
Cardiac Arrest	1
Hypoxia	1
Cellulitis of RLE, Acute HF	1
Ileus, UTI, GI Bleed	1
Chest pain, Subtherapeutic INR	1
NJ tube placement	1
CHF exacerbation	1
Pulmonary edema, acute respiratory failure	1
CHF, possible stroke	1
Respiratory failure with hypoxia	1
CHF, SIRS, AKI	1
Sepsis, Hypernatremia	1
Cirrhosis, Abdominal Pain	1
Small Bowel Obstruction, ecchymosis	1
Cirrhosis, Dyspnea	1
Altered Mental Status	1
Coffee ground emesis	1
UTI, Pneumonia	1
CP, SOB	1
Weakness, Hypotension	1
Diarrhea	1
Hypothermia, AMS	1
Drug overdose	1
Hypovolemic shock, Hypotension	1
DVT	1
Hypoxia, acute on chronic respiartory failure	1
Dyspnea	1
Ileostomy care, skin breakdown	1
Encephalopathy	1
Leg Swelling, Ascites	1
ESRD, NASH	1
Neoplasm, loss of vision R eye	1
ESRD, NSTEMI	1
NSTEMI	1
Exacerbation of Crohn's and Anal Discharge	1
Pneumonia	1
Fisula of esophegus	1
Acute saddle PE	1

Table 2 Continued

Fracture, Tibial Plateau	1
Adbdominal Distension, Ascites	1
HCAP, PNA	1
Respiratory Failure, PNA	1
Hematemesis with nausea, GI bleed	1
Alcohol use disorder, severe	1
Hematochezia	1
Septic Shock	1
Hepatic encephalopathy	1
Acute pulmonary edema	1
Hepatorenal syndrome, hematemesis	1
SOB, Ascites	1
HF, ARF with hypoxia and hypercapnia	1
Steroid-induced hyperglycemia	1
Hip fracture requiring operative repair	1
Syncope, elevated troponin	1
Abdominal Pain, Hypotension	1
UTI, PEG tube malfunction	1
Hyperglycemia, Sepsis	1
UTI, sacral decubitus ulcer	1
Accidental APAP overdose	1
Vomiting; CP	1
Hyponatremia, PNA	1
Wound of LLE, infected knee	1
Hyponatremia, Sepsis	1
Hypotension	1

Table 3 Discharage Disposition

Row Labels	Percent of Patients (n=107)
Custodial Care Facility	2%
Rehab Facility	2%
Left Against Medical Advice	2%
Hospice - Medical Facility/General Inpatient	3%
Hospice - Home	4%
Expired	6%
Long Term Acute Care/LTAC	8%
Skilled Nursing Facility	27%
Home Health Care Svc	18%
Home or Self Care	29%

Table 4 Primary Factor Contributing to Predicted Readmission Risk

Primary Factor Contributing to Predicted Readmission Risk	n(%) (n= 107)
1. ED visits in last 6 months	56(53)
2. Active Rx orders	34(32)
3. Hospitalizations last year	9(8)
4. Current length of stay	4(4)
5. Past admissions	2(2)
6. Diagnosis of drug abuse	1(1)

Table 5 Interventions Based on Discharge Disposition

Intervention	Discharge Disposition (n=107)	
	Home- n (%) (n=50)	Facility- n (%) (n=57)
Medication History	35 (66)	34 (60)
Admission Medication Reconciliation	15 (30)	18 (32)
Medication Profile Review	42 (84)	50 (88)
Discharge Medication Reconciliation	17 (34)	26 (46)
Discharge Education	18 (36)	-

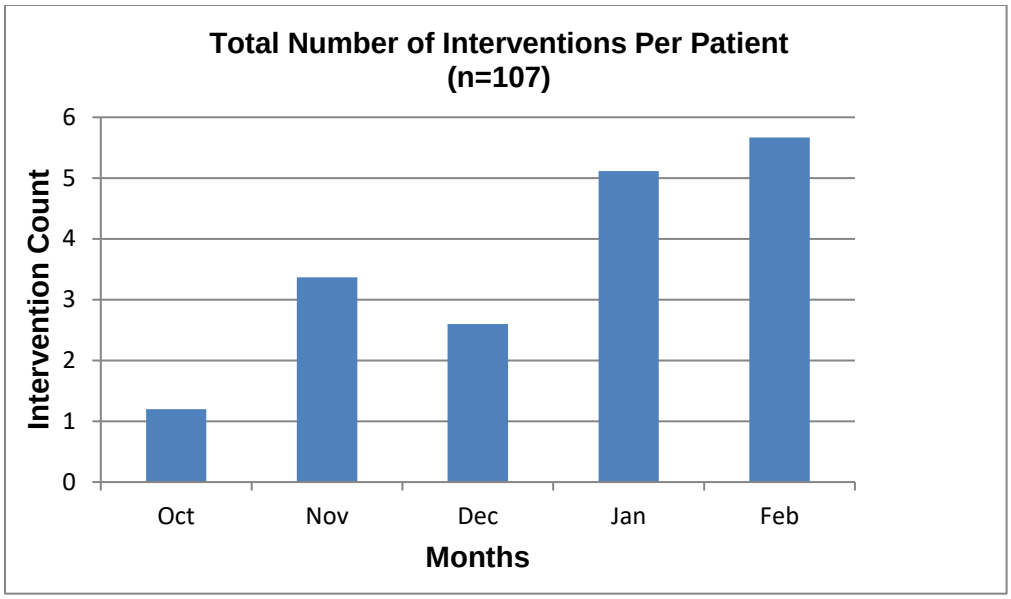

Figure 1 Total Number of Interventions Per Patient

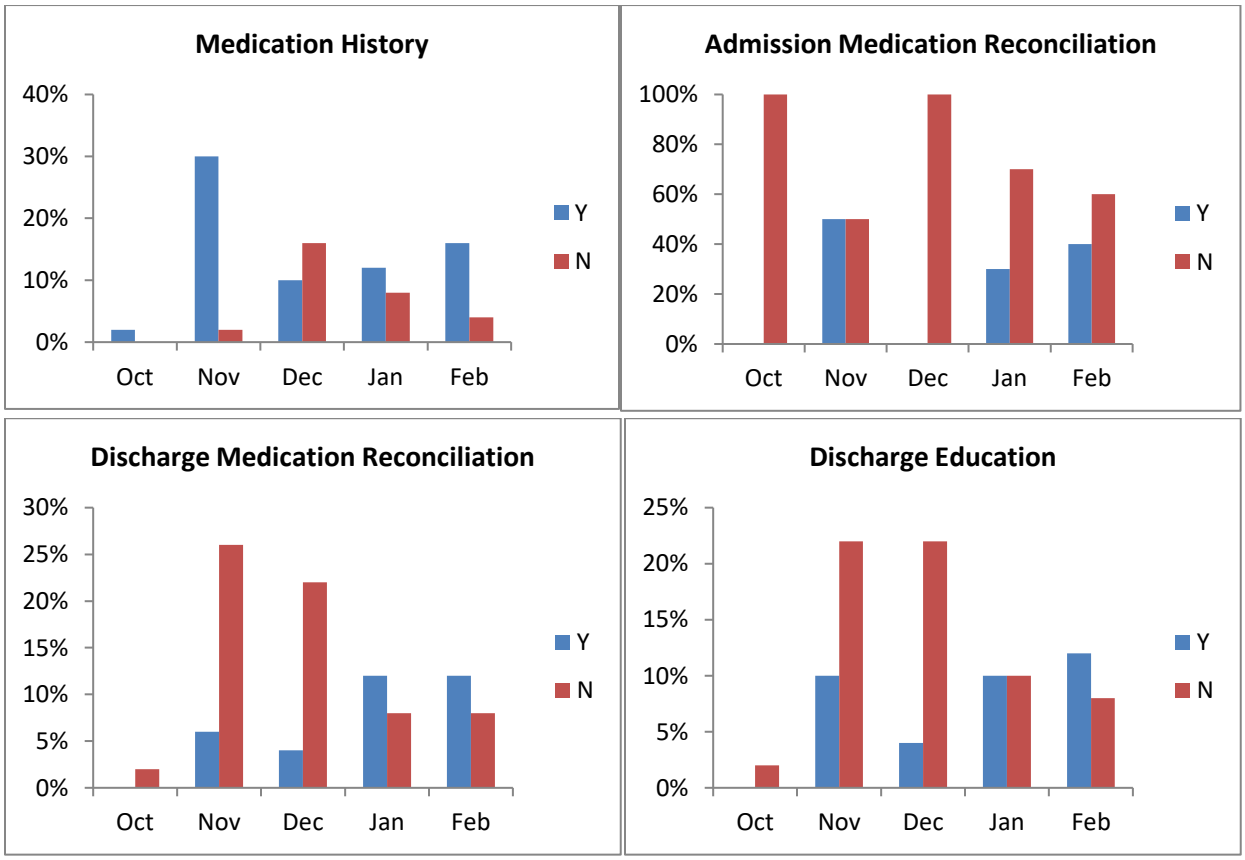

Figure 2 Type of Intervention for Patients Discharged Home

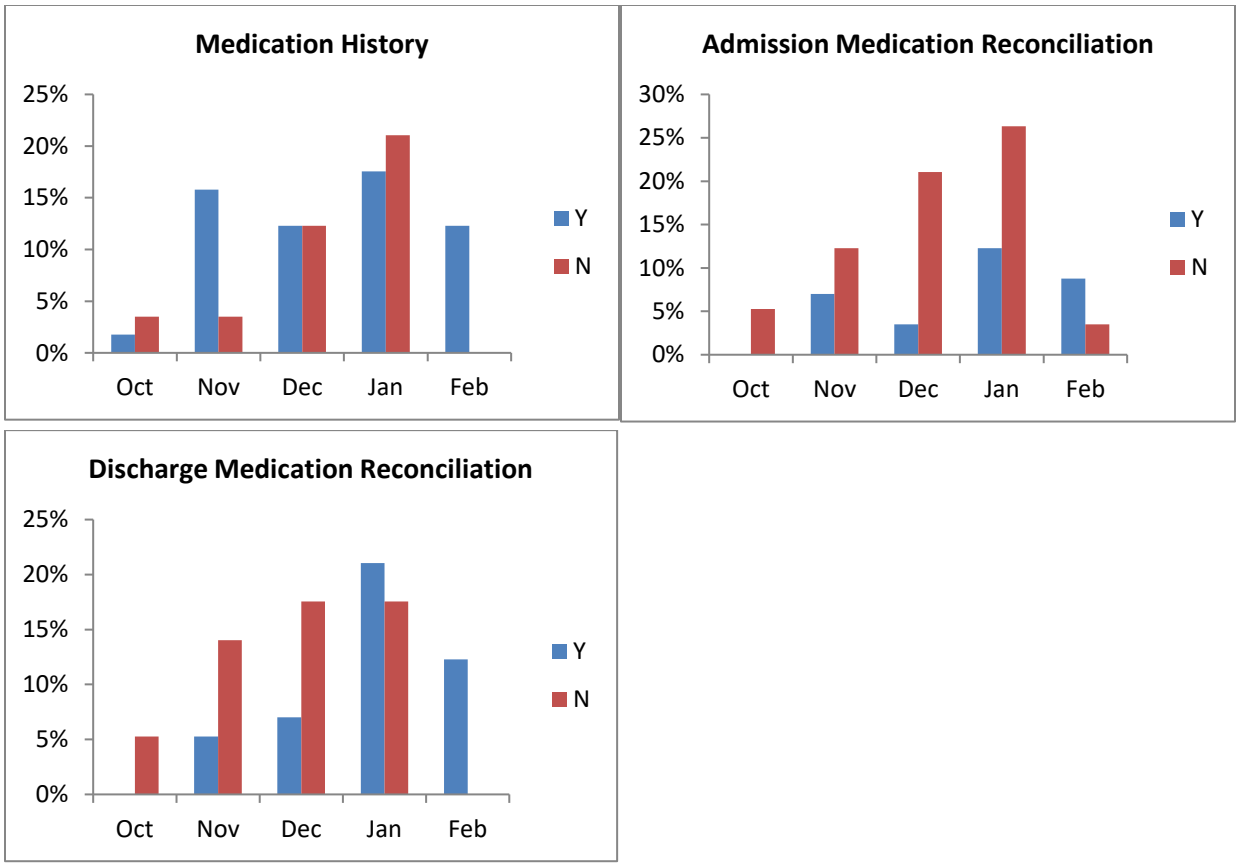

Figure 3 Type of Intervention for Patients Discharged to a Facility

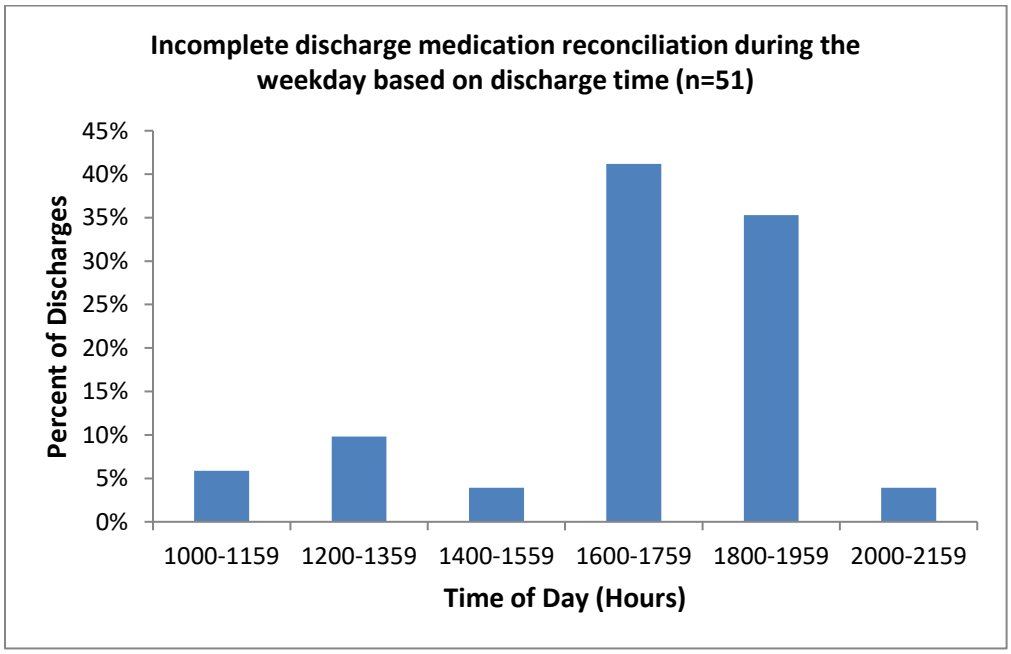

Figure 4 Incomplete Discharge Medication Reconciliation During the Wekday Based on Discharge time

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