Impact of discharge medication reconciliation across a five hospital health system

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Background

- More than 40% of medication errors are believed to result from suboptimal reconciliation during admission, transfer, and discharge of patients. Discharge medication reconciliation (DMR) can reduce medication errors that can play a role in readmission.
- Hospital readmission currently places significant burden on the healthcare system. Medicare data reports all-cause 30-day readmission rates at approximately 17%, with an estimate 47% deemed preventable through adequate transitions of care. These rates have significant financial impact on hospitals, as well as the lives of patients.
- The Centers for Medicare and Medicaid Services penalizes hospitals for 30-day readmissions of a primary diagnosis by reducing reimbursement rates up to 3%.
- Previous studies have proven that medication reconciliation, clinical interventions, and patient education by clinical pharmacists can reduce the risk of 30-day readmission.
- The financial and patient-oriented benefits of a transitions of care program presents a unique opportunity for increased pharmacist involvement within the Yale New Haven Health System

Objectives

- Expand pharmacist-led DMR across a five hospital health system
- Increase the DMR capture rate for patients with a primary diagnosis of COPD, PNA, CHF and AMI
- Reduce all-cause 30-day readmission rates for the five hospital Yale New Haven Health System

Methods

- A DMR training education presentation was created and dispersed to the pharmacists
- A plan for DMR expansion across the health system was developed based on the personnel and bandwidth for each delivery network.
- Number and types of pharmacists depended upon the delivery network
  - Transitions of care pharmacists, unit-based clinical pharmacists, and pharmacy residents
- Data was collected from weekday day shifts only over a 3 month study period
- The primary measure of this retrospective, multi-center study is 30-day readmission rate.
- Secondary measures included DMR capture rate and interventions made.

Performing a Discharge Medication Reconciliation

- Run a daily report to identify patients with high risk disease states
- Review prior to admission medications and inpatient orders
- Compare orders with the medications ordered on discharge
- Identify discrepancies such as dosage errors, omissions, duplications, drug interactions, and drug-disease state interactions
- Document the completion of a DMR via an internal pharmacy documentation
- Post to the patient's chart if an intervention was made or recommended

Results

Inclusion and Exclusion Criteria

Inclusion Criteria:
- Adult patients ≥18 years old
- Primary admitting diagnosis of at least one of the four high risk of readmission diseases (identified via ICD-10 codes)
  - Chronic obstructive pulmonary disease (COPD)
  - Pneumonia (PNA)
  - Congestive heart failure (CHF)
  - Acute myocardial infarct (AMI)
- Discharge medication reconciliation was completed and documented within 24 hours of the hospital discharge

Exclusion criteria
- Patients <18 years old
- Patients without a primary diagnosis of the four high risk of readmission diseases

Interventions

1,842 patients reviewed → 651 patients met inclusion criteria

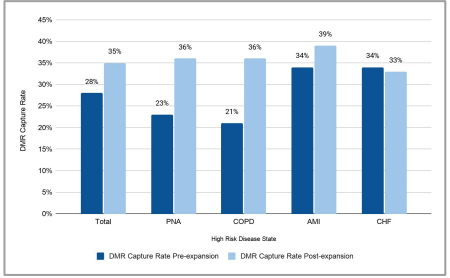

Figure 1. Discharge medication reconciliation capture rate comparison between pre-expansion and post-expansion study periods. The secondary measure of DMR capture rate increased from 28% pre-expansion to 35% post-expansion. Of the high risk disease states studied, pneumonia, chronic obstructive pulmonary disease, and acute myocardial infarction all saw increases in capture rate.

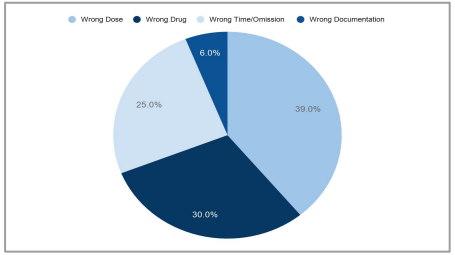

Figure 2. Types of interventions made during discharge medication reconciliation. The majority of interventions performed by pharmacists included identifying an incorrect dose or an incorrect drug, which often was a therapeutic duplication.

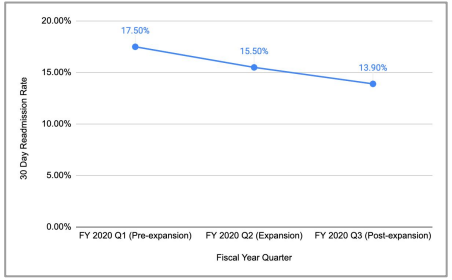

Figure 3. Health system 30-day readmission rates. The primary outcome of 30-day readmission rates decreased significantly from 17.5% pre-expansion, defined as FY 2020 Q1, to 15.5% post-expansion, defined as FY 2020 Q2 ($p=0.003$). A continuing downward trend was noted in the quarter following the end of the study, defined as FY 2020 Q3, where 30-day readmission rates decreased to 13.9% in the quarter following the end of the study ($p < 0.05$).

Limitations

- A major limitation of this study was the 3 month data collection period. This may not have been an adequate length of time to represent the true capture rate, and the health system census was inconsistent due to the COVID-19 pandemic.
- Lack of personnel was an additional limitation. A new transition of care pharmacist position was implemented at only one of the delivery networks. In other networks, the discharge medication reconciliation responsibilities were assigned to the unit based pharmacists. Both medication reconciliations as well as unit based pharmacist responsibilities were perhaps difficult to balance, and it is possible that discharge medication reconciliations were not prioritized.

Conclusions

- Expansion of this pharmacist-led program led to an increase in discharge medication reconciliation capture rate as well as a 193% increase in interventions, with 179 documented DMR interventions from pharmacists during the study period.
- Expansion of discharge medication reconciliation across a five hospital system for patients admitted with a primary diagnosis that is highly associated with readmission resulted in a significant decrease in system-wide 30-day readmission rates.
- Pharmacists can play a key role in the transitions of care process by identifying medication safety interventions and avoiding potential adverse events through discharge medication reconciliation.

Future Directions

- Implement a hospital-wide pharmacist discharge medication reconciliation program for all high-readmission risk patients
- Increase transitions of care resources, including new pharmacist positions in order to increase discharge medication reconciliation capture rates
- Expand discharge medication reconciliation to include all inpatients
- Implement follow up phone calls to ensure access to medications at outpatient pharmacies and assess any medication related problems.
- Expand discharge medication reconciliation to include a Meds-To-Bed program where pharmacists, residents and pharmacy students can deliver discharge meds to bedside and provide counseling.

References

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