Implementation of a Pharmacy-Led Transitions of Care Program

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Transitions of Care Specialist
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Learning Objectives

1. Describe background and purpose of transitions of care (TOC) programs in the inpatient and outpatient setting
2. Identify benefits of pharmacy involvement in TOC models
3. Explain current practices to implement an effective TOC model
4. Define quality metrics and outcomes to measure success and impact of services
Background
Defining Transitions of Care

- Relating to care transitions, or the movement of a patient from one setting of care to another
- Set of actions to ensure patient coordination and continuity of care as patients undergo the transition
- Collaborative team of physicians, nurses, pharmacists and others who contribute to the overall care of patients

https://www.ashp.org/Pharmacy-Practice/Resource-Centers/Transitions-of-Care, Accessed 01Sept2018
Transition of Care within Facilities

Photo: https://www.linkedin.com/pulse/how-many-things-can-go-wrong, Accessed 01 Sept 2018
Transition of Care within Single Facility

- Patient
  - Inpatient
  - ICU
  - ED
  - Observation
  - Rehab
Background

• Strategies to provide cost-effective, quality, healthcare being pursued by multiple organizations
  – Centers of Medicare & Medicaid Services (CMS)
  – The Joint Commission (TJC)
  – Agency for Healthcare Research and Quality (AHRQ)
Background

- 125 million people affected by chronic diseases, disability or functional limitation
- High-risk patient populations
  - COPD
  - CHF
  - Pneumonia
  - Sepsis
  - Coronary atherosclerosis
  - Diabetes
  - Five or more chronic diseases
Background

- Medicare beneficiary with one or more chronic conditions is seen by eight different physicians during a year
- Cost of illness and death resulting from inadequate medication management reached $528.4 billion in 2016
- Transition of care is vital to ensure seamless continuity of care and minimize harm

Anderson, Health Aff. 2001, 20 (6), 146
Pharm, NEJM 2007, 356, 1130
Bodenheimer, NEJM 2008, 358, 1064
Background

- Hospital Readmission Reduction Program (HRRP) established by a provision in the Affordable Care Act
- Reduce payments to hospitals with high readmissions rates for selected conditions
- CMS also collects the hospital’s overall readmissions rates, but not utilized in HRRP to calculate penalties

Most Frequent Diagnoses

Table 1. Number of hospital stays and stays per 10,000 population by the most frequent principal diagnoses, 2011

<table>
<thead>
<tr>
<th>Principal CCS diagnosis</th>
<th>Number of stays in thousands</th>
<th>Stays per 10,000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>All stays</td>
<td>38,591</td>
<td>1,239</td>
</tr>
<tr>
<td>Liveborn (newborn infant)</td>
<td>3,818</td>
<td>123</td>
</tr>
<tr>
<td>Pneumonia (except that caused by tuberculosis and sexually transmitted diseases)</td>
<td>1,114</td>
<td>36</td>
</tr>
<tr>
<td>Septicemia (except in labor)</td>
<td>1,094</td>
<td>35</td>
</tr>
<tr>
<td>Congestive heart failure, nonhypertensive</td>
<td>970</td>
<td>31</td>
</tr>
<tr>
<td>Osteoarthritis</td>
<td>964</td>
<td>31</td>
</tr>
<tr>
<td>Mood disorders</td>
<td>896</td>
<td>29</td>
</tr>
<tr>
<td>Cardiac dysrhythmias</td>
<td>795</td>
<td>26</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease and bronchiectasis</td>
<td>729</td>
<td>23</td>
</tr>
<tr>
<td>Complication of device, implant, or graft</td>
<td>699</td>
<td>22</td>
</tr>
<tr>
<td>Spondylosis, intervertebral disc disorders, other back problems</td>
<td>667</td>
<td>21</td>
</tr>
</tbody>
</table>

Abbreviation: CCS, Clinical Classifications Software

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), Nationwide Inpatient Sample (NIS), 2011

### Table 1: The first five years of the Hospital Readmission Reduction Program

<table>
<thead>
<tr>
<th>Performance (measurement) period</th>
<th>FY 2013</th>
<th>FY 2014</th>
<th>FY 2015</th>
<th>FY 2016</th>
<th>FY 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart attack Heart failure Pneumonia</td>
<td>Heart attack Heart failure Pneumonia</td>
<td>Heart attack Heart failure Pneumonia COPD Hip or knee replacement</td>
<td>Heart attack Heart failure Pneumonia COPD Hip or knee replacement</td>
<td>Heart attack Heart failure Pneumonia (expanded)* COPD Hip or knee replacement CABG</td>
<td></td>
</tr>
</tbody>
</table>

**Penalties: Percentage reduction in base payments on all Medicare inpatient admissions**

<table>
<thead>
<tr>
<th>Maximum rate of penalty</th>
<th>1%</th>
<th>2%</th>
<th>3%</th>
<th>3%</th>
<th>3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average hospital payment adjustment (among all hospitals)</td>
<td>-0.27%</td>
<td>-0.25%</td>
<td>-0.49%</td>
<td>-0.48%</td>
<td>-0.58%</td>
</tr>
<tr>
<td>Average hospital penalty (among penalized hospitals only)</td>
<td>-0.42%</td>
<td>-0.38%</td>
<td>-0.63%</td>
<td>-0.61%</td>
<td>-0.74%</td>
</tr>
<tr>
<td>Percent of hospitals penalized</td>
<td>64%</td>
<td>66%</td>
<td>78%</td>
<td>78%</td>
<td>79%</td>
</tr>
<tr>
<td>Percent of hospitals at max penalty</td>
<td>8%</td>
<td>0.6%</td>
<td>1.2%</td>
<td>1.1%</td>
<td>1.8%</td>
</tr>
<tr>
<td>CMS estimate of total penalties</td>
<td>$290 million</td>
<td>$227 million</td>
<td>$428 million</td>
<td>$420 million</td>
<td>$528 million</td>
</tr>
</tbody>
</table>

**NOTES:** *Additional types of pneumonia diagnoses added for 2017. Penalties are applied to each hospital in the year shown, based on performance during the preceding 3-year measurement period. Penalties assessed as reductions in base payments on all Medicare inpatient admissions, and do not apply to added payment adjustments, such as graduate medical education payments. Analysis excludes hospitals not subject to HRRP, such as Maryland hospitals and other hospitals not paid under the Medicare Hospital Inpatient Prospective Payment System, such as psychiatric hospitals. COPD: Chronic obstructive pulmonary disease. Estimates of total penalties reflect CMS’s published corrections for 2013 and 2014. CABG: coronary artery bypass grafting.*

**SOURCE:** Kaiser Family Foundation analysis of CMS Final Rules and Impact files for the Hospital Inpatient Prospective Payment System.

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Background

- CMS posts hospital readmissions data on its Hospital Compare website
- Additionally, other quality measures are reported such as patient satisfaction and experience
- Provides comparisons of each hospital’s Medicare readmission performance to the national average

Breakdowns in Transitions of Care
Ineffective Transitions of Care

Communication breakdowns

Accountability breakdowns

Patient education breakdowns

https://www.jointcommission.org/assets/1/18/Hot_Topics_Transitions_of_Care.pdf
Accessed 20Sept2018
Communication Breakdowns

- Information ineffectively or incompletely communicated
- Ineffective communication methods
- Unsuccessful hand-off between clinicians
- Causes related to communication breakdowns
  - Differing expectations
  - Institution culture
  - Inadequate time
  - Lack of standardized procedures
Patient Education Breakdowns

• Conflicting information
• Confusing medication regimens
• Unclear instructions about follow-up care
• Excluded from transition planning process
• Lack of understanding of medication condition and care plan

Accountability Breakdowns

- No identified provider responsible for coordinating care
- Lack of coordination and communication when multiple specialists involved in patient’s care
- Primary care providers may not be specifically identified
- Limited discharge planning and risk assessment
- Steps not taken to assure sufficient knowledge and resources will be available at home or at next setting

Pharmacy Involvement in Transitions of Care
Pharmacist’s Role in TOC

- Pharmacists optimize medication therapy and coordinate care that translates into:
  - Improved quality measures and outcomes
  - Reduced readmissions
  - Increase patient satisfaction and experience
  - Improved quality of life for patients
Pharmacist’s Role in TOC

- Multiple tested best practice models now being utilized in an acute care setting
  - Project – RED
  - Project PHARMD
  - Medication Management in Care Transitions (MMCT) Project

https://www.ashp.org/Pharmacy-Practice/Resource-Centers/Transitions-of-Care, Accessed 20Sept2018
Project-RED

- RED = Re-Engineered Discharge
- Randomized controlled trial (RCT) conducted at Boston University Medical Center
- Usual care vs. systematic interventions including:
  - Nursing discharge advocates
  - Clinical pharmacists
- Assessed rate of ED visits and readmissions within 30 days of discharge

Project-RED Components

1. Educate patient about relevant diagnoses
2. Make appointments for clinician follow-up and post-discharge testing
3. Discuss with patient any pending in-hospital tests or studies completes and who will follow-up with results
4. Organize post-discharge services
5. Confirm medication plan
6. Reconcile the discharge plan with national guidelines and critical pathways

Project-RED Components

7. Review appropriate steps for what to do when a problem arises
8. Transmit discharge summary to physicians and services accepting responsibility of patient’s care
9. Assess the degree of understanding by asking the patient to explain in his/her words the details of the plan
10. Give the patient a written discharge plan
11. Post-discharge: call the patient to reinforce discharge plan, review medications, and solve problems
Project-RED

Project RED – After Hospital Care Plan Example

**EACH DAY** follow this schedule:
Medication Schedule for Maria Johnson

<table>
<thead>
<tr>
<th>What time of day do I take this medicine?</th>
<th>Picture (the medication from the pharmacy may not look exactly like this)</th>
<th>Medication name</th>
<th>How do I take this medicine?</th>
<th>Why am I taking this medication?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning</td>
<td>Motrin® (Ibuprofen) 800mg 1 pill</td>
<td>by mouth with food</td>
<td>pain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Zestril® (Lisinopril) 10mg 1 pill</td>
<td>by mouth</td>
<td>blood pressure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Apresazide® (HCTZ) 25mg 1 pill</td>
<td>by mouth</td>
<td>blood pressure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nifedical XL® (Nifedipine) 30 mg 1 pill</td>
<td>by mouth</td>
<td>blood pressure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Protonix® (Pantoprazole) 40 mg 1 pill</td>
<td>by mouth</td>
<td>indigestion</td>
<td></td>
</tr>
</tbody>
</table>

[http://www.ahrq.gov/about/annualconf09/jack.htm](http://www.ahrq.gov/about/annualconf09/jack.htm)
Sample Script

Hello, my name is ______________, and I'm calling from (name of facility). I'm checking in because it has been a few days since you went home and I wanted to see how you are doing. How are you feeling?

I'd also like to ask you a few questions about your after-care plan.

- Were you able to get your prescriptions filled?
- Are you taking your medication(s) as your doctor ordered?
- Are you taking any other medications that are not on the list? (may explain rationale to the patient—something like “this information is helpful for us to know because some drugs when used together can cause different interactions and can be less effective.”
- Do you have any questions about your medications?
- Did you make your follow-up appointments (if the hospital did not do this before discharge)?
- Is there any reason you might not be able to keep your follow-up appointments?
- Do you have any questions about your care plan?
- Do you have any questions about your condition?
- Do you know which symptoms to watch for that would mean you would need to call your doctor right away? (read list of symptom prompts if needed)
- Do you have any questions about the follow up process or any instructions that we have provided?

Thank you for speaking with me today. If you have any additional questions, please call me at (phone number).
Project-RED Study Results

- Pharmacists reached 62% of intervention participants
  - 65% had at least 1 medication-related problem
  - 53% of patients needed corrective action by pharmacist

### Primary outcomes ≤30 d after index hospitalization

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Intervention (n)</th>
<th>Control (n)</th>
<th>Adjusted IRR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients, n</td>
<td>368</td>
<td>370</td>
<td>1.0</td>
</tr>
<tr>
<td>Hospital utilizations, n (visits/patient/mo)</td>
<td>166 (0.451)</td>
<td>116 (0.314)</td>
<td>0.695 (0.515–0.937)</td>
</tr>
<tr>
<td>Emergency department visits, n (visits/patient/mo)</td>
<td>90 (0.245)</td>
<td>61 (0.165)</td>
<td>0.674 (0.476–0.955)</td>
</tr>
<tr>
<td>Readmissions, n (visits/patient/mo)</td>
<td>76 (0.207)</td>
<td>55 (0.149)</td>
<td>0.720 (0.445–1.164)</td>
</tr>
</tbody>
</table>

Project-RED Study Results

Figure 2. Cumulative hazard rate of hospital utilization for 30 days after index hospital discharge

<table>
<thead>
<tr>
<th>Cumulative Events*</th>
<th>Time After Index Discharge, d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usual care</td>
<td>30</td>
</tr>
<tr>
<td>Intervention</td>
<td>30</td>
</tr>
</tbody>
</table>

*P = 0.004
Project PhARMD

• **Pharmacist Assisting at Routine Medical Discharge**
• RCT conducted in UNMH Internal Medicine service
• Usual care vs. Pharmacist interventions, including:
  • Medication reconciliation
  • Identify and resolve medication-related issues
  • Discharge education
  • Follow-up phone call
• Outcome: 30-day hospital utilization, pharmacist interventions, patient satisfaction
## Project PhARMD Results

<table>
<thead>
<tr>
<th></th>
<th>Control (n = 139)</th>
<th>Intervention (n = 140)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined 30-day rehospitalizations and ED visits</td>
<td>24 (17.3)</td>
<td>30 (21.4)</td>
<td>.34</td>
</tr>
<tr>
<td>30-day hospital readmission</td>
<td>16 (11.5)</td>
<td>20 (14.3)</td>
<td>.49</td>
</tr>
<tr>
<td>30-day ED visits</td>
<td>11 (7.9)</td>
<td>17 (12.1)</td>
<td>.24</td>
</tr>
</tbody>
</table>

Abbreviation: ED, emergency department.
Project PhARMD Results

Figure 2. Patient satisfaction survey response means by group. This graph depicts the individual question differences between groups. Statistically significant differences were identified for all questions favoring the intervention group. F = 3.05 (Wilks’s λ), P = .002, partial η = 0.14.
Project PhARMD Results

- No significant reduction in hospital utilization
- Improved patient satisfaction
- Pharmacists intervened 1.41 interventions per patient, with 94% acceptance rate
- Small subpopulation but overall improved med adherence in intervention group
- Large representation of minorities

Research in Health Literacy Interventions

- Systematic review performed by AHRQ in 2011
- Reviewed 42 studies addressing different types of interventions:
  - Single intervention design
  - Combination of interventions
# Studies with Positive Outcomes

<table>
<thead>
<tr>
<th></th>
<th>Single intervention design studies</th>
<th>Combination of intervention studies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strength of evidence</strong></td>
<td>Low or insufficient</td>
<td>Moderate</td>
</tr>
<tr>
<td><strong>Outcomes</strong></td>
<td>• Improved comprehension for low-health literacy population</td>
<td>• Lower hospitalization, ED visits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Increased self management behavior and health screenings</td>
</tr>
<tr>
<td><strong>Intervention Methods</strong></td>
<td>• Present essential information by itself and/or first</td>
<td>• Intensive disease self-management programs</td>
</tr>
<tr>
<td></td>
<td>• Rate higher quality information higher numerically</td>
<td>• Adherence interventions</td>
</tr>
<tr>
<td></td>
<td>• Adding verbal or video narratives</td>
<td></td>
</tr>
</tbody>
</table>

ASHP-APhA Medication Management in Care Transitions Best Practices

Accessed 20Sept2018
### Appendix A. Key Attributes of Programs Demonstrating Best Practices in Medication Management in Care Transitions

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Foothill Healthcare Network</th>
<th>Four Star Hospital</th>
<th>Maricopa County Medical Care</th>
<th>Sharp HealthCare</th>
<th>University of Arizona Ambulatory Care Network</th>
<th>University of Arizona and Arizona Health Sciences Center</th>
<th>University of Arizona and University of Arizona Medical Center</th>
<th>University of Arizona and University of Arizona Medical Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured and consistent processes for communication between inpatient and outpatient pharmacists</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Structured and consistent processes for communication between pharmacists and other health care providers (i.e., identified point of contact at each transition point)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ability for outpatient organization to view inpatient data or inpatient organization to view outpatient data</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ability to overcome barriers</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Documentation of improved Hospital Consumer Assessment of Healthcare Providers and System (HCAPS) score</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Documentation of reduced readmissions</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Documentation of sustained impact on patient care (patients followed at least 30 days post discharge)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Model has innovative process for transition referrals</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Model has innovative process for transitioning patients based on disease state</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Model utilizes pharmacy personnel (i.e., pharmacy technicians, student pharmacists, and pharmacy residents) in innovative ways</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Model uses risk stratification tool to identify patients</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Model has documented return on investment</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Model has structured way of enrolling patients into patient assistance programs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Model has large network of community partners</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Model represents Medication Management in Care Transitions as an accountable care organization</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
What Research has shown so far

• Pharmacists have a positive impact on patients transition of care
• Not any one intervention has been shown to reduce readmissions
• Systematic and bundled services are more likely to yield positive results and outcomes
• Many studies did not include patients discharged to other locations than home
• Many studies did not capture all ED visits and readmissions to other facilities
Elements of Inpatient Transitions of Care
Inpatient Transitions of Care Components

- Multi-disciplinary team
  - Pharmacists
  - Nurses / Nurse Practitioners
  - Physicians / Physician Assistants
  - Social workers / Case Management
  - Respiratory therapists / Physical therapists
- Pharmacist extenders
  - Pharmacy technicians
  - Pharmacy interns
Components of the Discharge Process

- Discharge Planning
- Medication Reconciliation
- Discharge Summary
- Patient Instructions
- Discharge Checklist

IDEAL Discharge Planning Strategy

• **I**nclude patient and family as partners in the discharge planning process
• **D**iscuss with the patient and family five key areas to prevent problems at home
• **E**ducate patient and family
• **A**ssess education by using teach back method
• **L**isten to patient and patient’s family regarding goals, observations and concerns

TOC Implementation and Metrics
TOC Resources

- Staffing resources
  - Standardized training
  - Competency
- Electronic resources
  - Surveillance tool
  - Notification of team
  - Data transfer
- Financial resources
  - Equipment
- Patient Education resources
TOC at MSBI

• Disease-targeted approach to identify high-risk patients
• Pharmacy-led interventional bundles and checklists
  • Chronic Obstructive Pulmonary Disease (COPD)
  • Heart Failure (HF) / Cardiac Telemetry
  • General Surgery
• Team consists of:
  • 1 FTE TOC pharmacist
  • 1 FTE hybrid TOC and outpatient pharmacist
  • 4 FTE decentralized staff pharmacists
  • Rotating APPE students
COPD / HF Intervention Bundle

Team consulted via COPD / HF Pager, ED reports and interdisciplinary team rounds

Pharmacist counsels patient on disease state, smoking cessation and medication use

Pharmacist reconciles and optimizes medication regimens

Med-to-bed provided for “high-risk” patients

Pharmacists conduct follow-up phone calls 24-72 hours post-discharge
TOC Metrics

- Outcome Metrics
- Financial Metrics
- Process Metrics
- Completion of Care Plan Metrics
## TOC Metrics

<table>
<thead>
<tr>
<th>Category</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome Metrics</strong></td>
<td>30-day unplanned readmission rate</td>
</tr>
<tr>
<td></td>
<td>Patient experience related to discharge</td>
</tr>
<tr>
<td><strong>Financial Metrics</strong></td>
<td>The cost of second length of stay (readmission)</td>
</tr>
<tr>
<td></td>
<td>Project and resources costs</td>
</tr>
<tr>
<td><strong>Process Metrics</strong></td>
<td>Percent of follow-up phone calls</td>
</tr>
<tr>
<td></td>
<td>Percent of patients completing post-discharge surveys</td>
</tr>
<tr>
<td><strong>Care Plan Metrics</strong></td>
<td>Percent of appointments / referrals made</td>
</tr>
<tr>
<td></td>
<td>Percent of care plans with reconciled and complete medication lists</td>
</tr>
</tbody>
</table>

TOC Outcomes at MSBI

- Reduction in readmission rates from baseline for HF and COPD
- Increase in patient satisfaction scores
- Increase in pharmacist to patient exposure on floors
- Healthcare provider satisfaction
- Enhanced interdisciplinary team involvement
MSBI – COPD Readmissions

<table>
<thead>
<tr>
<th>Year</th>
<th>Readmission Rate</th>
<th>O/E</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>17.1%</td>
<td>0.87*</td>
</tr>
<tr>
<td>2016</td>
<td>17.8%</td>
<td>0.97</td>
</tr>
<tr>
<td>2015</td>
<td>19.2%</td>
<td>1.19</td>
</tr>
</tbody>
</table>

*Ratio below targeted benchmark

https://tableau.mountsinai.org/, Accessed 26Sept2018
MSBI – Heart Failure Readmissions

<table>
<thead>
<tr>
<th>Year</th>
<th>Readmission Rate</th>
<th>O/E</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>13.7%</td>
<td>0.72*</td>
</tr>
<tr>
<td>2016</td>
<td>15.4%</td>
<td>0.84*</td>
</tr>
<tr>
<td>2015</td>
<td>15.7%</td>
<td>1.03*</td>
</tr>
</tbody>
</table>

*Ratio below targeted benchmark

MSBI – General Surgery Patient Experience

HCAHPS - Communication About Medications Domain

Targeted service average: 59%

https://identity.pressganey.com/, Accessed 26Sept2018
Mount Sinai Future Directions

- Involvement of TOC throughout the health system
- Development of additional high-risk disease state bundles
- Expansion of outpatient clinic pharmacy services with collaborative drug therapy management (CDTM)
- Financial reimbursement for outpatient pharmacy services
- Ongoing research
  - Smoking cessation inpatient to outpatient referral
  - CHF / COPD checklist utilization and readmission outcomes
  - COPD bundle utilization in the short-stay setting
  - Medication to Bedside Delivery and Readmission Rates
Inhaler Training and COPD Education: A Pharmacist-Driven Approach To Lowering Readmissions in an Urban Safety-Net Hospital

M Islam MD1, N Bhogal PharmD1, N Ramesh MD2, J Mecca MD3, M Harris MD2, D Steiger MD2, P Walker MD2

1Department of Internal Medicine, 2Department of Pulmonary and Critical Care, 3Department of Pharmacy, Mount Sinai Beth Israel, New York, NY

BACKGROUND

- COPD affects approximately 5% of adults in the US, ranking 3rd in all-cause mortality and responsible for almost 700,000 hospital admissions annually.
- Since its inclusion to the Hospital Readmissions Reduction Program, there has been a renewed interest in identifying novel strategies to prevent readmissions nation-wide.
- While newer approaches continue to be explored, an emphasis on proper inhaler technique and disease self-management should likely remain at the foundation of effective control of COPD, yet is likely lacking in this patient population.

METHODS

Admission for AECOPD
Clinical Pharmacist Notified

Counseling:
- Inhaler training
- Disease Education
- Medication Reconciliation
- Smoking Cessation

Pre-Discharge:
- Home Oxygen
- Vaccination
- Pulmonary Rehab
- Meds-to-Bed
- Provider Follow-up

Post-Acute Care:
- Symptomology
- Prescription Filling
- Provider Follow-up

30-day readmission rate for AECOPD was evaluated for following the roll-out of a pharmacy-driven COPD bundle after 7 months (interventional group)

Readmission rate was compared to the same time period 1-year prior (control group)

RESULTS

Figure 1. Comparison of 30-day All-Cause Readmission Rate between 2015 and 2016 during Control and Interventional Periods (7 months)

Table 1. 30-day readmission diagnosis for Intervetional Group across Observation Unit (Obs) and Inpatient Unit readmissions

Table 2. Identified Precipitants for AECOPD for Observation Unit (Obs) and Inpatient Unit readmissions

Table 3. Comparison of unique vs. recurrent individuals making up presentations of interventional group

DISCUSSION

- An interventional bundle appears to lower risk for 30-day all-cause readmissions, though the current study was not powered to show statistical significance.
- While all patients received inpatient counseling (see Methods), a variable number were assessed for home oxygen needs, received referral to pulmonary rehabilitation, and given appropriate provider follow-up prior to discharge - the efficacy of these interventions have not been fully assessed for.
- Emerging reports have concluded that patient self-management, inhaler training, and early follow-up do reduce early readmissions, while pulmonary rehabilitation, medication reconciliation, telehealthcare, and receipt of medications prior to discharge may or may not do so.

- A significant minority of AECOPD presentations in the current study occurred by repeat individuals, while a majority were precipitated by inhalation substance abuse, suggesting a cohort of patients exist for whom aggressive psychosocial support may be additionally necessary to provide effective value-based care in preventing early COPD readmissions.

CONCLUSION

- Inhaler training and disease self-management appear to reduce 30-day readmissions following AECOPD.
- A cohort of patients with psychosocial risk factors exist who may benefit from additional support and therapies

REFERENCES

Effective Components of a COPD Bundle in Reducing Readmissions

M Frank MD1, N Ramesh MD2, M Islam MD1, N. Bhogal PharmD3, P. Walker MD2, M. Harris MD2

1Department of Internal Medicine, 2Department of Pulmonary and Critical Care, 3Department of Pharmacy, Mount Sinai Beth Israel, New York, NY

BACKGROUND

- Reducing 30-day readmissions for acute exacerbations of COPD (AECOPD) has become a major goal in our current healthcare system, both for providing high-value care and to mitigate the impact readmissions have on hospital economics.
- We developed a novel approach to meet these goals by enhancing patient education during hospitalization and reinforcing disease-modifying behavior during post-acute care.

METHODS

- We performed a QI project involving patients admitted for AECOPD.
- Patients received a comprehensive COPD bundle comprising of medication optimization and patient education. This included tobacco cessation counselling, bed-side inhaler training and optimization of discharge medications by a clinical pharmacist. Discharge medications were delivered to bedside for patients at-risk of not filling their prescriptions.
- A pharmacist called patients 24-72 hours post-discharge, reviewing discharge medications and reinforcing adherence to follow up appointments. Three attempts were made to contact patients.
- Patients readmitted within 30 days of index admission were compared with those without readmission during a 7-month period.

RESULTS

- **Table 1.** Readmission Diagnosis For Patients Readmitted Within 30 Days

<table>
<thead>
<tr>
<th>READMISSION DIAGNOSIS</th>
<th>READMITTED (n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AECOPD</td>
<td>21 (70%)</td>
</tr>
<tr>
<td>OTHER</td>
<td></td>
</tr>
</tbody>
</table>

- **Figure 1.** 30 Day All Cause Readmissions by Hospital Discharge Site Compared to Patients Not Readmissions

**Table 2.** Comparison of Readmitted Patients vs. Patients Not Readmitted Within 30 Days at the 24-72 Hour Phone Call

<table>
<thead>
<tr>
<th>FOLLOW UP PHONE CALL ASSESSMENT</th>
<th>READMITTED</th>
<th>NOT READMITTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-discharge follow-up calls successful</td>
<td>43%</td>
<td>68%</td>
</tr>
<tr>
<td>Received Meds to Bed</td>
<td>11%</td>
<td>32%</td>
</tr>
<tr>
<td>Discharged with LABA/ICS</td>
<td>93%</td>
<td>95%</td>
</tr>
<tr>
<td>Discharged with LAMA</td>
<td>86%</td>
<td>85%</td>
</tr>
<tr>
<td>Discharged with steroid taper</td>
<td>55%</td>
<td>59%</td>
</tr>
<tr>
<td>Discharged with nebulizer machine</td>
<td>62%</td>
<td>42%</td>
</tr>
<tr>
<td>Discharged with home oxygen</td>
<td>11%</td>
<td>34%</td>
</tr>
<tr>
<td>Discharged with pulmonary rehab or home care</td>
<td>42%</td>
<td>40%</td>
</tr>
<tr>
<td>Currently using nicotine replacement</td>
<td>31%</td>
<td>35%</td>
</tr>
<tr>
<td>Prescriptions filled since returning home</td>
<td>77%</td>
<td>79%</td>
</tr>
<tr>
<td>Taking medications correctly</td>
<td>73%</td>
<td>89%</td>
</tr>
<tr>
<td>Has follow-up scheduled</td>
<td>69%</td>
<td>72%</td>
</tr>
</tbody>
</table>

DISCUSSION

- Reinforcing patient behavior and the “teach back” method post-discharge may be an effective method to prevent early readmissions.
- However, patient retention of relevant information is likely heterogeneous, but important for health maintenance outside the hospital.
- Since patients may be overwhelmed with information during hospitalizations, attempts to deliver proper communication and enhance social support during discharge can allow for better outreach.

CONCLUSION

- The reinforcement of disease-modifying behaviors during transition to post-acute care may improve health maintenance reduce early readmissions for AECOPD.
- Potential areas of focus in the post-acute care period include compliance with medication regimens and follow up appointments.
- Phone calls aid in identifying barriers to adherence and ensures proper referral.

REFERENCES

Summary

- Pharmacists play a crucial role when transitioning a patient from one health care setting to another
- Most patients encounter fragmented care when moving between healthcare settings
- Use of an evidence-based transition of care plan that includes key elements can result in improved patient safety, satisfaction and reduction in health care costs
Implementation of a Pharmacy-Led Transitions of Care Program

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