Utilizing a Pharmacist and Outpatient Pharmacy in Transitions of Care to Reduce Readmission Rates.

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Learning Objectives
• Define the role of a pharmacist in a COPD transitions of care program.

Medicare penalizes hospitals for high 30-day readmission rates for which indication?
A. Atrial Fibrillation
B. Diabetes
C. COPD
D. Hypertension

Morristown Medical Center
• Teaching hospital under the Atlantic Health System
• 656-bed general medicine and surgical facility
• Approximately 34,871 admissions per year reported
• 83,596 emergency room visits
• Nationally ranked in:
  – Cardiology
  – Geriatrics
  – Orthopedics
  – Pulmonology

Hospital Readmissions Reduction Program (HRRP)
• Introduced in 2012, penalizes hospitals for high 30-day readmission rates of Medicare patients.
• Currently for indications of:
  – Pneumonia
  – Heart failure
  – Myocardial infarction
  – COPD
  – Total knee/hip arthroplasty
Rationale – Why Study COPD Readmissions?

- In 2010, COPD imposed $49.9 billion in direct and indirect healthcare costs.¹
- Medicare claims spanning 2003-2004 displayed a 30-day hospital readmission rate for COPD patients of 22.6%.²
- Exacerbations and readmissions are associated with high medical costs.


Global Strategy for Diagnosis, Management, and Prevention of COPD

Objective

- Primary outcome: to examine the correlation of medication therapy in COPD patients with 30-day readmission rates.
- Evaluate appropriate treatment at the following points:
  - Preadmission
  - Exacerbation
  - Discharge
- Secondary outcome: correlation of drug therapy to length of stay.

Methods

- Time period: January-March of 2015
- Data collection was performed utilizing ChartMaxx and Access1.
- Patient selection was generated using the University Health System Consortium(UHC).

Methods: Study Population

- Inclusion criteria: patients selected were admitted to Morristown Medical Center
  - with a Medicare Severity Diagnosis Related Group (MS-DRG) of:
    - 190 - COPD with major complication or comorbidity (MCC).
    - 191 - COPD with complication or comorbidity(CC).
    - 192 – COPD without CC/MCC.
    - COPD patients who fell under the category of
      - Obstructive chronic bronchitis, with (acute) exacerbation
      - Obstructive chronic bronchitis with acute bronchitis
      - Chronic obstructive asthma, with (acute) exacerbation
Methods

• Exclusion Criteria:
  – Chemotherapy
  – Hospice
  – Radiation therapy
  – Rehabilitation
  – Death 1st admit
  – Delivery/birth
  – Mental diseases/alcohol and drug use

Methods: Data Collections

• Collected patient information included:

<table>
<thead>
<tr>
<th>Background</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Prior to admission</td>
</tr>
<tr>
<td>Gender</td>
<td>During admission</td>
</tr>
<tr>
<td>Race</td>
<td>At discharge</td>
</tr>
<tr>
<td>Co-morbidities</td>
<td></td>
</tr>
<tr>
<td>Previous admissions</td>
<td></td>
</tr>
<tr>
<td>Readmissions</td>
<td></td>
</tr>
</tbody>
</table>

Methods: Group Randomization

• Patients were included in the pharmacy group if the clinical pharmacist or pharmacy students assessed or intervened with the patient.
  – Pharmacist and pharmacy students work with a multidisciplinary team which included at least a physician and nurse.
  – May have also included a care manager, social worker, respiratory therapist, medical residents, and/or medical students
• All other patients were included in the non-pharmacy group and received standard care.

Methods: Pharmacy Group Interventions

• COPD education
• Appropriateness of home, exacerbation, and discharge Medications
• Appropriateness of vaccination history
• Conversion of medications from IV to oral
• Assessment of device technique
• Medication/Device access
  – Financially challenged patients received 30 day supply of medications at no charge (max $400)
  – Regardless of financial status, all patients were educated to use the outpatient pharmacy
• Referral to smoking cessation

Methods: Statistical Analysis

• Chi-square test
  – Appropriateness of medications and 30 day readmissions
• Mann-Whitney U test
  – Relationship between appropriateness and hospital length of stay

Results: Baseline Demographics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Pharmacy</th>
<th>Non-Pharmacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age, years</td>
<td>73.9 ± 11.4</td>
<td>75.3 ± 11.0</td>
</tr>
<tr>
<td>Gender, %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>42.3</td>
<td>51.9</td>
</tr>
<tr>
<td>Male</td>
<td>57.7</td>
<td>48.1</td>
</tr>
<tr>
<td>Race, %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>90.5</td>
<td>90.1</td>
</tr>
<tr>
<td>Asian</td>
<td>0.8</td>
<td>0.5</td>
</tr>
<tr>
<td>African American</td>
<td>4.7</td>
<td>6.1</td>
</tr>
<tr>
<td>Other</td>
<td>4.0</td>
<td>3.3</td>
</tr>
</tbody>
</table>
Results: Patient Groups

- n=468
- Pharmacy: n=255
- Non-Pharmacy: n=213

Results: Appropriateness of Medications

- * p<0.001

Results: Readmission within 30 Days

- Non-Pharmacy: 30%
- Pharmacy: 13%

Results: Readmission Rates > 30 days

- 60 Days: Non-Pharmacy: 13%, Pharmacy: 11%
- 90 Days: Non-Pharmacy: 8%, Pharmacy: 7%

Results: Length of Stay

- Median LOS: 6 days for pharmacy group.
- Median LOS: 5 days for the non-pharmacy group.
- When compared to medication appropriateness group, LOS increased to 10 days compared to 6 days for the not-appropriateness group

Conclusions

- Pharmacist(s) working with multidisciplinary team can help optimize exacerbation and discharge medications related to COPD
- Pharmacist can be utilized in the multidisciplinary team approach to help reduce readmission rates.
- Pharmacists, pharmacy technicians, residents, and students, have beneficial roles in medication reconciliation, discharge counseling, as well as improving medication access for patients at high risk.
Acknowledgements

- Stacy Hardeo, Pharmacist
- Stephanie Chiu, Statistician
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- Stephen May, Pharmacy Student

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Questions?