### Risk Factors for Hospital Readmission in Patients with COPD

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- Chronic Obstructive Pulmonary Disease
- Progressive disease
- Decreased lung function and decreased quality of life
- HIGH hospital readmission rates
- Health care: increased focus on prevention

**Why is this important?**

- Repeated hospitalization can further decrease quality of life for patients with COPD
- Increased time in hospital leads to further decrease in physical health/fitness
- Patients are missing out on their life
- Hospital stays are becoming more expensive
- Also expensive for insurance companies
- Modifiable factors which contribute to early readmission are present, steps can be taken in the future to potentially minimize the risks of readmission

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### Predictors of Readmission among patients 40-64 who have been hospitalized for COPD

**2014. American Thoracic Society**

- Sharif et al. identified risk factors that were significantly associated with early readmission
- Individual retrospective cohort study
- Large database
- Individuals commercially insured
- Separated factors into 3 categories:
  - **Patient factors**
  - **Provider factors**
  - **System factors**

<table>
<thead>
<tr>
<th>Risk factors for readmission</th>
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</thead>
<tbody>
<tr>
<td><strong>Patient Factors</strong></td>
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<tr>
<td>Male gender, history of heart failure, lung cancer, osteoporosis, and depression</td>
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<tr>
<td><strong>Provider Factors</strong></td>
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<tr>
<td>No prior prescription of statins within 12 months of index, no prescription of short acting bronchodilator, anti-infectives, and antibiotics on discharge</td>
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<tr>
<td><strong>System Factors</strong></td>
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<tr>
<td>Length of stay ≤ 2 or ≥ 5 days and lack of follow up visits after discharge</td>
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**Importance:**

- Provider and system risk factors are modifiable nature
- Good quality
- 2B on Oxford Centre for Evidence Based Medicine Hierarchy
- Good Validity

**Limitations:**

- Physician plays major role
- Lack of description or classification for severity or complexity of hospitalization
- Lack of description of the diagnosis for the readmission—whether it’s COPD related or not

**Important factors for PTs to think about:**

- Often play a major role in patient’s length of stay
- Patient education about signs to look for infection & steps to take
- Patient education about follow up appointments
- Patient management of comorbidities
“Exploring Novel Medicare Readmission Risk Variables in COPD Patients at High Risk of Readmission within 30 days of Hospital Discharge”

- 2015 American Thoracic Society
- Glaser and El-Haddad performed a similar study identifying risk predictors for 30 day readmission
- Individual retrospective cohort study
- 617 Medicare patients who had been hospitalized with COPD
- Identified 9 high risk variables related to early readmission:
  - Pneumonia of lung or other chronic lung disorders
  - Vertebroplasty fracture
  - Anxiety
  - Metastatic cancer
  - Cardiopulmonary failure or shock
  - Sleep apnea
  - Disorders of fluid/electrolytes
  - Respirator dependence

This study supported Sharif’s in finding depression to have a significant impact on readmission
- The other factors did not match up
- Glaser & El-Haddad did not assess factors outside of what Sharif would call “patient factors”

“Risk Assessment of Readmissions Following an Initial COPD-related Hospitalization”

- Subjects age 40-65 years with primary diagnosis of COPD
- Subjects included:
  - 199 patients (8.25% readmitted within 30 days of discharge)

Variables assessed:
- Age
- Gender
- Geographic region
- History of COPD
- Insurance plan
- Month and year of index hospitalization
- Comorbidities
- Hospital readmission of COPD

Limitations:
- Subjects only with employee-sponsored health insurance policies
- Lack of mortality data
- Smoking history
- Socioeconomic status
- Important for healthcare professionals to recognize the impact of treatment on future quality of life for the patient
- Can lead to better outcomes, decreased length of hospital stay, and decreased readmission rates by acknowledging the modifiable risk factors

“Viral and Bacterial infection in acute asthma and chronic obstructive pulmonary disease increases the risk of readmission”

- Subjects age 41.46% readmitted within one year
- Patients with 2 or more pre-index hospitalizations
- Population was observed from the time of their initial exacerbation to the end of the study period
- Good validity
  - Lacks evaluation of limitations
  - Identifying risk factors can help lead to decreasing the chance of readmission to the hospital
  - Identify patients at higher risk
  - Improving quality of care
  - Ability to address risk factors that are potentially modifiable
Conclusion

- Matching factors:
  - Male gender
  - Depression
  - Comorbidities
- Many other factors identified outside of these four
- Can be used to identify at-risk patients
- Healthcare providers should be made more aware of these and should be able to identify these
- If all those admitted with an acute exacerbation could be screened for the risk factors, the patients could be categorized
- Categorized patients could be followed more closely and modifiable risk factors could be addressed by healthcare providers
- To ultimately decrease frequency of readmission, length of stay, and improve overall outcomes

Points to Remember

- PTs play a role in patient's length of stay by assessing if the patient is mobile and functionally independent to return home
- PTs communicate with physician and may recommend next level of care
- PTs can help prevent readmissions by becoming aware of the modifiable risk factors found within these studies, and then taking steps to decrease risk
  - Patient’s length of stay
  - Educating patient on importance of follow up visits, signs of infection, signs of acute exacerbation, how to manage comorbidities, smoking
  - Watch for signs of depression, refer if necessary

Sources


