

Impact of a Pharmacy Bundle on Chronic Obstructive Pulmonary Disease (COPD) Outcomes at an Urban Teaching Hospital

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BACKGROUND

- COPD is the third leading cause of hospital readmissions in the United States and results in nearly 700,000 hospitalizations each year¹
- Pharmacist-led transitions of care counseling could fill gaps within the health care system that lead to readmissions through device education, smoking cessation counseling, and answering questions
- The Global Initiative for Chronic Obstructive Lung Disease guidelines recommend patients with a COPD exacerbation be counseled upon discharge, checked for understanding of therapy, assessed for inhaler technique, and provided with a management plan for follow-up²
- Numerous studies have established the value of pharmacist participation during hospitalization and transitions of care, but no single intervention has been shown to reliably reduce readmissions³⁻⁵

OBJECTIVE

To evaluate the impact of an intervention bundle performed by a pharmacist on 30-day readmission rates for patients hospitalized with a COPD exacerbation

METHODOLOGY

- Inclusion criteria:** Adult patients admitted to general medicine units at Newark Beth Israel Medical Center for a COPD exacerbation discharged between November 4, 2019 and February 29, 2020
- Exclusion criteria:** Patients who declined to participate in the study/refused components of the Pharmacy Bundle
- Design:** IRB approved, single-centered, prospective study
- Primary outcome:** 30-day COPD readmission rates
- Intervention Group:** Daily census report run on weekdays on patients admitted for COPD exacerbation. Patients screened to determine eligibility and flagged for discharge status within next 24 hours. These patients then received the Pharmacy Bundle.
- Control Group:** Patients retrospectively assigned to this group if they did not receive the Pharmacy Bundle
- Pharmacy Bundle Components:**
 - Inpatient counseling on disease state, medications, and vaccinations
 - Inpatient smoking cessation counseling
 - Bedside counseling on inhaler technique
 - Printed reference material
 - Patient-specific COPD action plan
 - Medication reconciliation upon discharge
 - Medication bedside delivery service referral
 - Phone call 48-72 hours post-discharge

RESULTS

Table 1: Baseline Characteristics

Characteristic	Control Group (N=73)	Intervention Group (N=30)	P-value
Age (years), Median [IQR]	67 [60-73]	71.5 [63.5-77.5]	0.2319
Sex (female), n (%)	51 (70)	18 (60)	0.3626
Current smoker, n (%)	19 (26)	9 (30)	0.8079
LACE index, Median [IQR]	11 [10-13]	11.5 [10-13.25]	0.8449

Figure 1: 30-Day COPD Readmissions

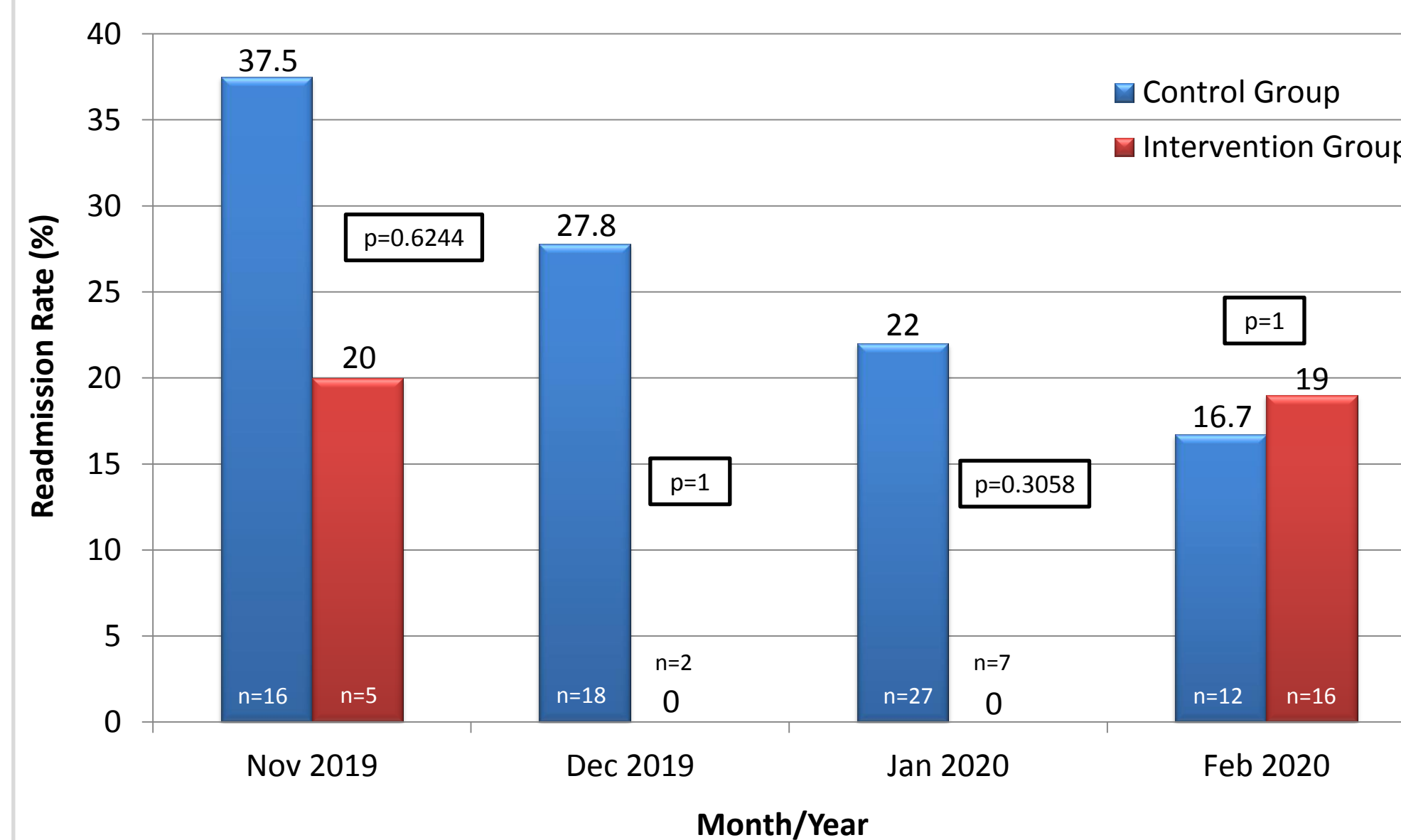


Table 2: Readmission Data

Endpoint	Control Group (N=73)	Intervention Group (N=30)
30-day COPD rate of readmission, n (%)	19 (26)	4 (13)
30-day all-cause rate of readmission, n (%)	19 (26)	8 (27)
Heart Failure Exacerbation, n (%)	0 (0)	2 (7)
Influenza, n (%)	0 (0)	1 (3)
Pneumonia, n (%)	0 (0)	1 (3)

Endpoint	Control Group (N=61)	Intervention Group (N=15)
90-day COPD rate of readmission, n (%)	25 (41)	5 (33)
90-day all-cause rate of readmission, n (%)	28 (46)	7 (47)
Heart Failure Exacerbation, n (%)	1 (2)	0 (0)
Influenza, n (%)	1 (2)	1 (7)
Pneumonia, n (%)	0 (0)	1 (7)
COVID-19, n (%)	1 (2)	0 (0)

RESULTS

Table 3: Pharmacy Bundle Opportunities

Intervention	Eligible (N=30)	Accepted	Rejected
Inhaler Change, n (%)	9 (30)	4 (44)	5 (56)
Smoking Cessation Initiation, n (%)	4 (13)	3 (75)	1 (25)
Influenza Vaccination, n (%)	6 (20)	2 (33)	4 (67)
Pneumococcal Vaccination, n (%)	5 (17)	0 (0)	5 (100)
Inhaler Technique Modification, n (%)	17 (57)	17 (100)	0 (0)

Table 4: Follow-Up Assessment

Questions Assessed	N=30
Patient reported symptoms:	
Improved, n (%)	15 (50)
Unchanged, n (%)	14 (47)
Worsened, n (%)	1 (3)
Picked up medications, n (%)	22 (73)
Scheduled follow-up appointment, n (%)	19 (63)
Correct use of medications, n (%)	22 (73)

DISCUSSION

- Only 13% of patients who received the Pharmacy Bundle were readmitted for COPD within 30 days of the index visit
- Sample size limits ability to detect pharmacist impact
- Delayed communication with prescribers for interventions given close proximity to discharge
- Social factors affected ability to reach patients post-discharge

CONCLUSION

- Study suggests that bundled pharmacist services for COPD may improve patient medication adherence after discharge and can help identify medication-related problems prior to discharge

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Disclosures: Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation: Morgan V. Esordi: Nothing to disclose. Kayla Torppey: Nothing to disclose.