

Evaluating a Pharmacist Led Chronic Obstructive Pulmonary Disease (COPD) Care Bundle on Provision of Interventions



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Background

- Worldwide prevalence of COPD is 328 million people causing significant morbidity and increased risk of mortality, resulting in substantial resource utilization and healthcare costs¹
- A physician-led COPD care bundle was shown to reduce 30-day hospital readmission rates by 45.4%²
- Pharmacist participation in COPD management shown to increase bundle compliance by 97.1% in an outpatient pulmonary clinic³
- Our quality improvement study aimed to evaluate the impact of a pharmacist coordinated COPD care bundle on compliance to interventions and clinical outcomes in the inpatient acute care setting

Methods

Design: Randomized retrospective review of Burnaby Hospital charts

Bundle Components:

- Respiratory therapist (RT) referral for COPD assessment at discharge:
 - Inhaler technique teaching and adherence assessment
 - Bedside spirometry
 - Smoking cessation education (if applicable)
- Speech language pathologist (SLP) referral for dysphagia/reflux screen
- Respirologist referral (if ≥ 2 hospitalizations in the past 12 months)
- COPD Flare-up Action Plan/Antimicrobial Stewardship Recommendations in discharge package

Study period: May 14, 2019 – Feb 20, 2020

Inclusion Criteria: Patients ≥ 18 y/o admitted with an acute exacerbation of COPD (AECOPD), and 1st admission

Exclusion Criteria: passed away during hospital stay, admitted to and discharged from ICU without being transferred to a lower acuity ward, lung cancer, enrolled in palliative care, and pregnant women

Primary Outcome: Completion of all COPD care bundle components

Secondary Outcomes:

- Compliance to each individual component of the bundle
- Number of patients with repeated Fraser Health (FH) Emergency Department (ED) visit and/or hospitalization for AECOPD
- Average time to repeat FH ED visit and/or hospitalization for AECOPD
- Number of patients with 30-day readmission to FH hospital for AECOPD

Data Analysis: Descriptive statistics, chi-squared, Fisher's exact, and student's t-test

Results

Figure 1: Consort diagram

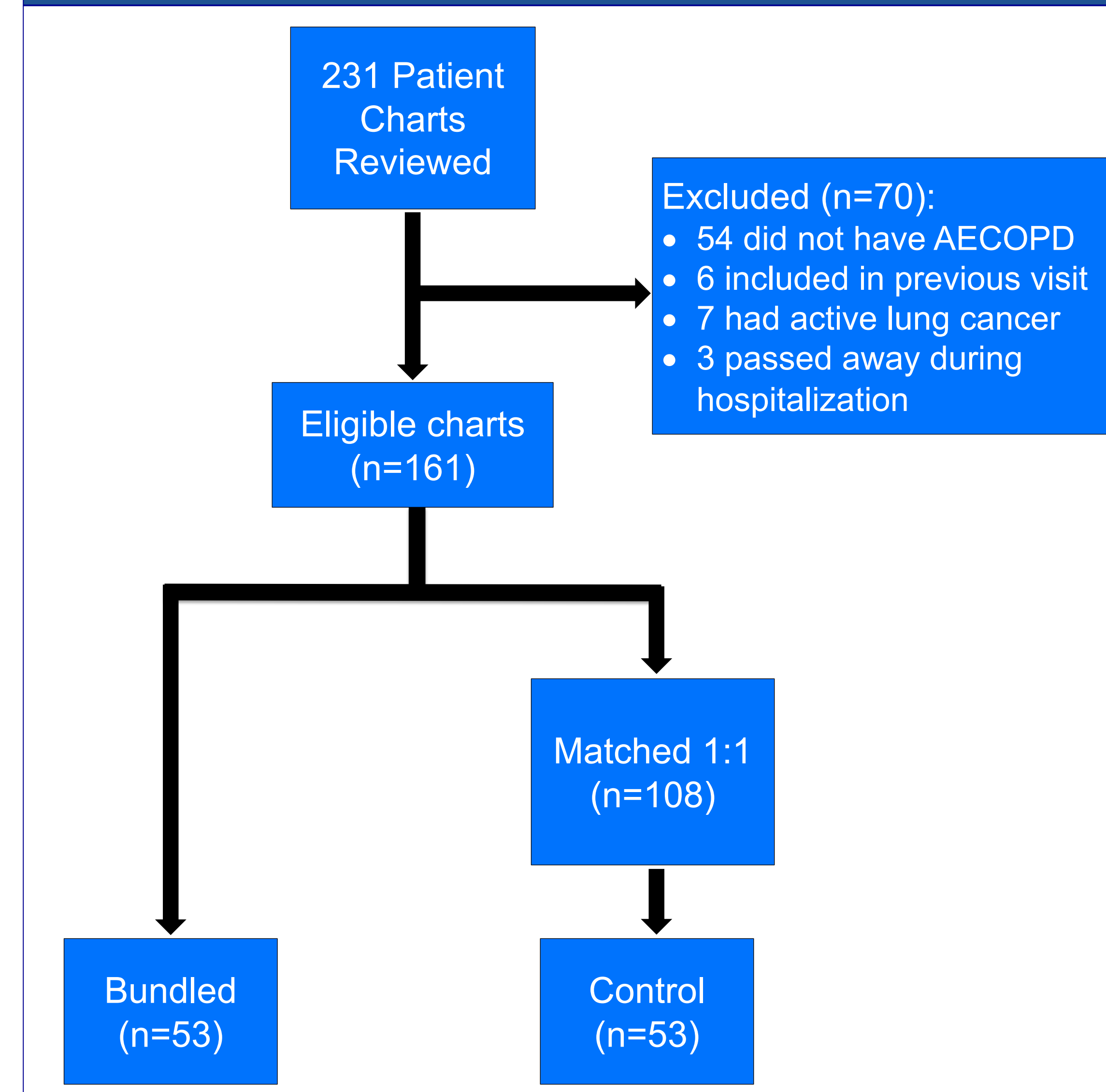


Table 1: Baseline data

	Bundled (n=53)	Control (n=53)
Age (years), median (IQR)	77 (18)	75 (12)
Male, n (%)	24 (45)	26 (49)
Current Smoker, n (%)	14 (26)	12 (23)
FEV ₁ /FVC	0.5	0.5
FEV ₁ (%)	52	54
# of COPD presentations in previous 12 mo., median (range)	0 (0, 10)	0 (0, 12)

Figure 2: Primary outcome – completion of all COPD care bundle components

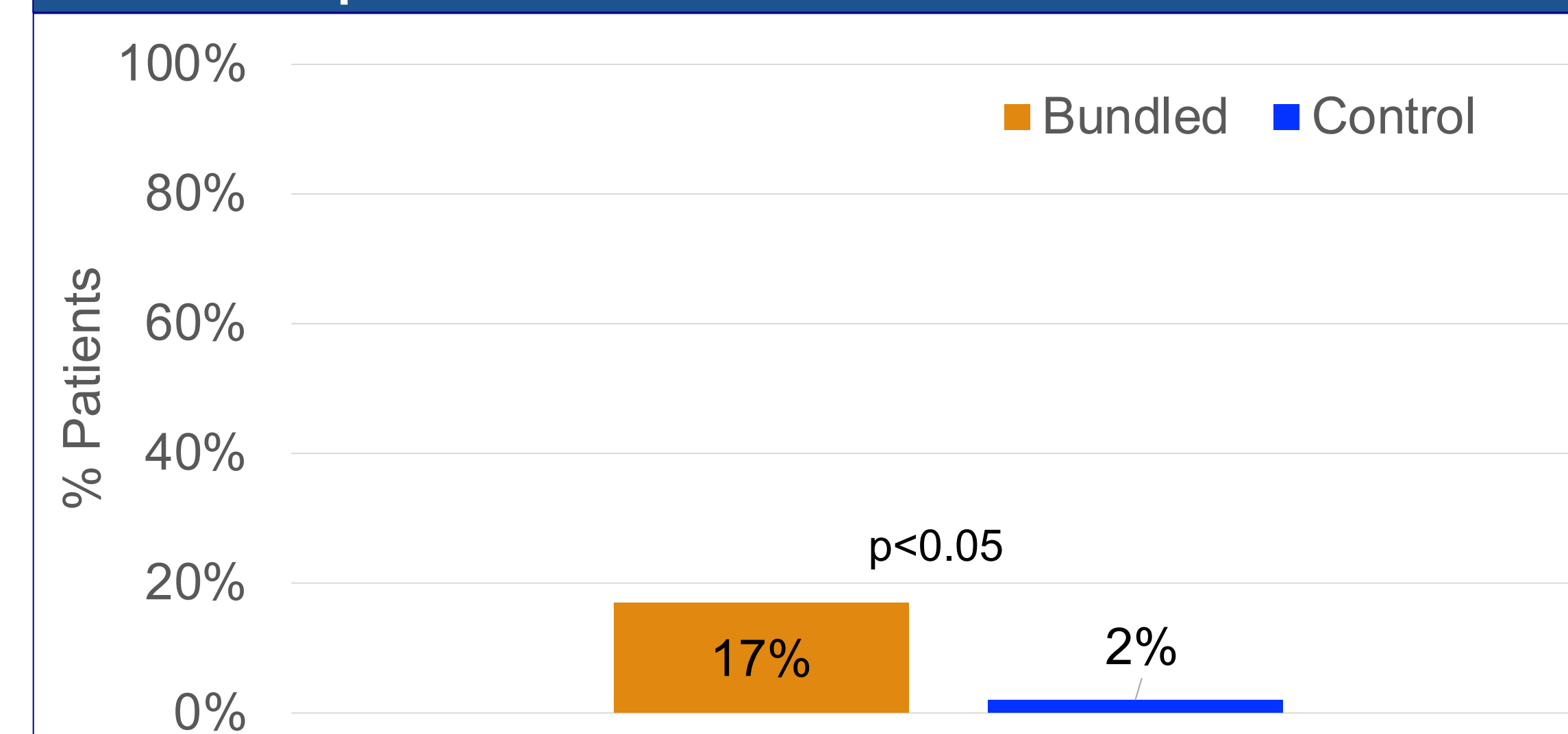


Figure 3: Secondary outcomes – completion of each individual COPD care bundle component

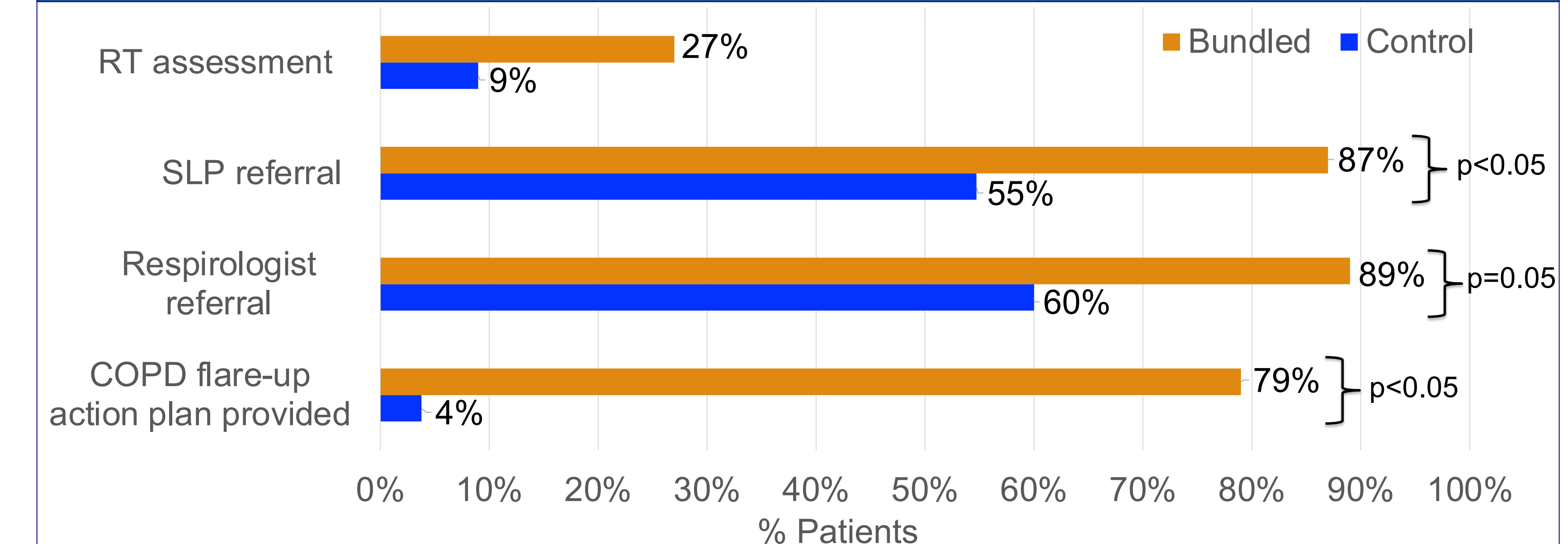


Figure 4: Completion of each individual RT assessment component

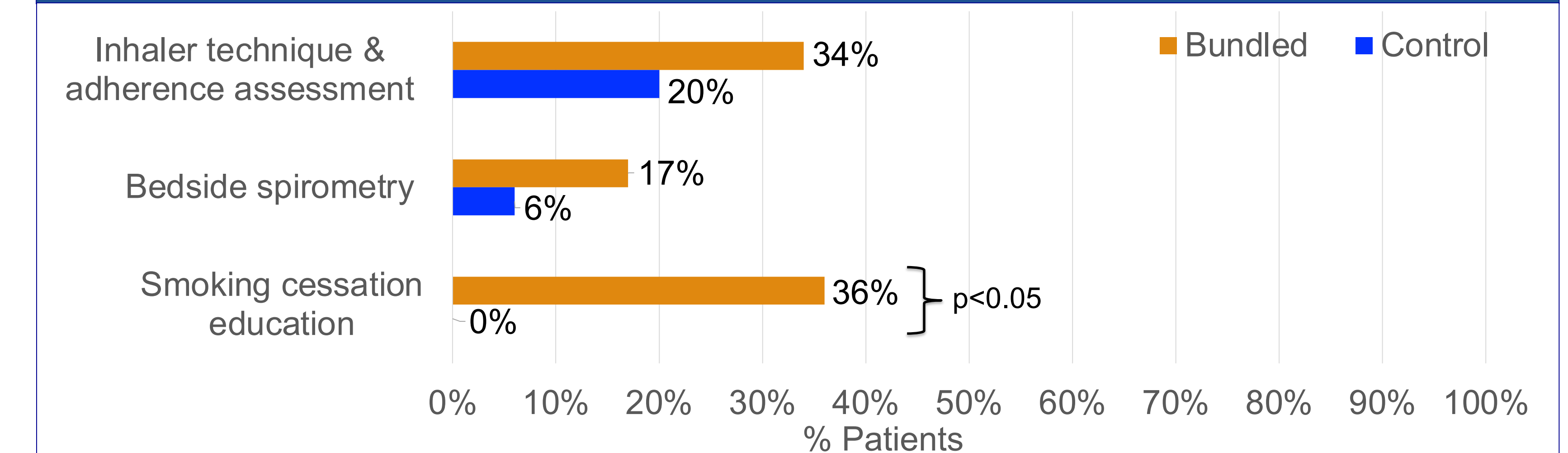


Table 2: Secondary outcomes – clinical outcomes

	Bundled (n=53)	Control (n=53)
Repeat Hospitalization	# of Patients with Repeat Hospitalization (%) 14 (26)	7 (13)
	Average Time to Repeat Hospitalization (days)	69
Repeat ED Visit	# of Patients with Repeat Visit (%) 8 (15)	3 (6)
	Average Time to Repeat Visit (days)	71
# of Patients with 30-Day Hospital Readmission (%)	2 (4)	2 (4)

Limitations

- Readmissions to non-FH sites not captured
- Small sample size due to premature study conclusion from COVID-19
- Patients discharged prior to receiving bundle components

Conclusions

- Compliance to the primary outcome increased by 15% in the bundled group with pharmacist driven intervention
- RT assessment was not statistically significant; pharmacists may improve compliance to quality measures by assisting in provision of inhaler technique and adherence assessments
- No difference in clinical outcomes were seen in this study

References

- López-Campos J, Tan W, Soriano J. Global burden of COPD. *Respirology*. 2015;21(1):14-23.
- Parikh R et al. COPD exacerbation care bundle improves standard of care, length of stay, and readmission rates. *IJCOPD*. 2016;:577.
- Smith AL et al. Hospital-Based Clinical Pharmacy Services to improve Ambulatory Management of COPD. *Sage*. 2017;33(1).

