Real-World Treatment Patterns Following Chronic Obstructive Pulmonary Disease (COPD) Exacerbation in Patients with Commercial or Medicare Insurance in the United States

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Introduction

- The Global Initiative for Chronic Obstructive Lung Disease (GOLD) clinical management guidelines recommend an escalation to triple therapy (inhaled corticosteroid [ICS]+long-acting β_2-agonist [LABA]+long-acting muscarinic antagonist [LAMA]) for patients with COPD with persistent symptoms or exacerbations.[1]
- In 2017, once-daily single-inhaler triple therapy (SITT) with fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI) was approved by the US Food and Drug Administration for the long-term maintenance treatment of patients with COPD.[2]
- In 2020, twice-daily SITT with budesonide/glycopyrrolate/formoterol fumarate was approved for the maintenance treatment of patients with COPD.[3]
- There is limited literature on treatment patterns in patients with COPD since the introduction of SITTs, particularly regarding medication switching around a COPD exacerbation.

Objective

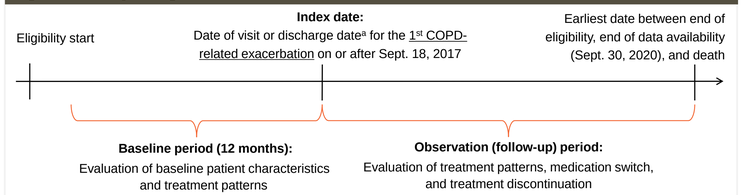
- To evaluate real-world treatment patterns of patients with COPD before and after a first exacerbation.

Methods

A retrospective descriptive study using medical and pharmacy claims data and enrolment information from the Optum® Clinformatics® Data Mart database from September 2016 to September 2020 (**Figure 1**).

Treatment patterns were evaluated during baseline and follow-up, with a focus on medication switching in the 90 days pre- and post-COPD exacerbation.

Figure 1. Study design



[a]The date of visit defined the index date for moderate exacerbations, and the date of discharge defined the index date for severe exacerbations

Core inclusion criteria	Core exclusion criteria
• ≥1 moderate[a] or severe[b] COPD exacerbation on or after September 18, 2017 • ≥1 diagnosis of COPD during the baseline period or on the index date • ≥12 months of continuous health insurance coverage (with both medical and pharmacy coverage) prior to the index date • ≥3 months of continuous health insurance coverage after the index date • ≥40 years of age at the index date	• ≥1 COPD exacerbation during the 12-month baseline period and prior to the index exacerbation episode[c]

[a]Moderate COPD exacerbations were defined as an outpatient or ER visit with a COPD exacerbation diagnosis code in the primary position and at least one dispensing/administration of a systemic corticosteroid or guideline-recommended antibiotic within five days following, or prior to, the visit. [b]Severe COPD exacerbations were defined as an inpatient stay with a COPD exacerbation diagnosis code in the primary position. [c]Exacerbations occurring within 14 days of each other were considered as a single exacerbation episode and classified according to the highest severity.

Results

Table 1. Baseline characteristics

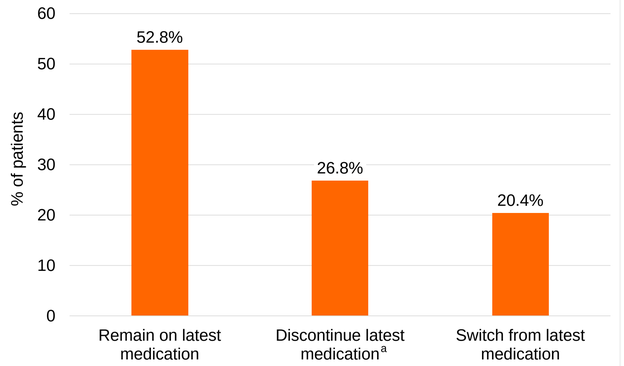
Baseline characteristics	Overall (N=307,727)	Moderate COPD exacerbation (n=181,785)	Severe COPD exacerbation (n=125,942)
Age, years, mean (SD)	72.8 (10.1)	71.3 (10.0)	74.9 (9.9)
Female, n (%)	173,313 (56.3)	104,232 (57.3)	69,081 (54.9)
Quan-CCI score, mean (SD)	3.1 (2.3)	2.3 (1.9)	4.1 (2.4)
All-cause total healthcare costs ($US 2020), mean (SD)	49,406 (71,991)	26,776 (44,153)	82,070 (89,686)
COPD-related total healthcare costs ($US 2020), mean (SD)	26,412 (49,589)	8,854 (20,603)	51,757 (65,638)

SD, standard deviation; Quan-CCI, Quan Charlson comorbidity index

≥1 controller medication among overall population	Baseline (pre-exacerbation)	Follow-up (post-exacerbation)
	37.7%	48.2%

Among the overall population, 24.5% of patients filled ≥1 controller medication (i.e., ICS, LABA or LAMA) in the 90 days pre-COPD exacerbation

Figure 2. Controller treatment patterns 90 days post-COPD exacerbation

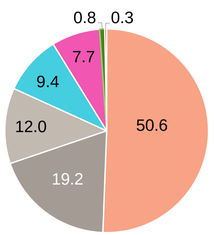


[a]Discontinuation was defined as a gap of >45 days between the end of the days supply of dispensing and the start date of the next fill, or between the end of the days supply of the last dispensing and the end of the observation period

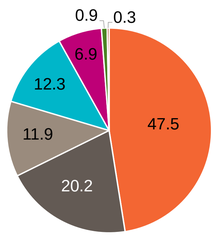
Figure 3. Treatment patterns 90 days pre- and post-COPD exacerbation

Among patients treated in the 90 days post-exacerbation, triple therapy was used by 2.9% more patients

Latest controller medication pre-COPD exacerbation, %



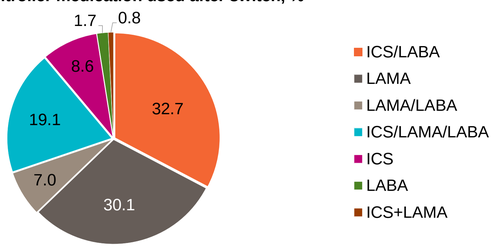
First controller medication post-COPD exacerbation, %



Among the 20.4% of patients who switched to a different controller therapy post-COPD exacerbation, 19.1% switched to triple therapy

The most common switches were from ICS/LABA to LAMA (21.8%) and LAMA to ICS/LABA (21.3%)

First controller medication used after switch, %



ICS, inhaled corticosteroid; LABA, long-acting β_2 agonist; LAMA, long-acting muscarinic antagonist

Limitations

- A dispensed medication does not indicate that the patient took the medication as prescribed on that date.
- Requiring the study population to have ≥3 months of continuous health insurance coverage after the index date could introduce a survival bias.
- Specific clinical measures (e.g., lung function) and patient characteristics (e.g., tobacco use) were not available in the claims database.
- Medications not recorded in the claims data, such as those received during an inpatient stay or over the counter, were not captured in the database.
- Results may have limited generalizability to segments of the US population with no insurance/other types of public insurance.

Conclusions

- Many COPD exacerbations occur among patients who are not treated with controller medications.
- Although the proportion of patients receiving a controller medication increased following a first exacerbation, less than half of the patients in this study were using controller medications.
- Of the patients receiving controller medications prior to an exacerbation, only a small proportion escalated to triple therapy after an exacerbation.
- Healthcare providers should consider initiating controller therapy for patients with evidence or symptoms of exacerbation.

References

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Disclosures

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