Online Supplement

Original Research
Trends in the Use of Triple Therapy in Patients With COPD in the United States, 2019 to 2022

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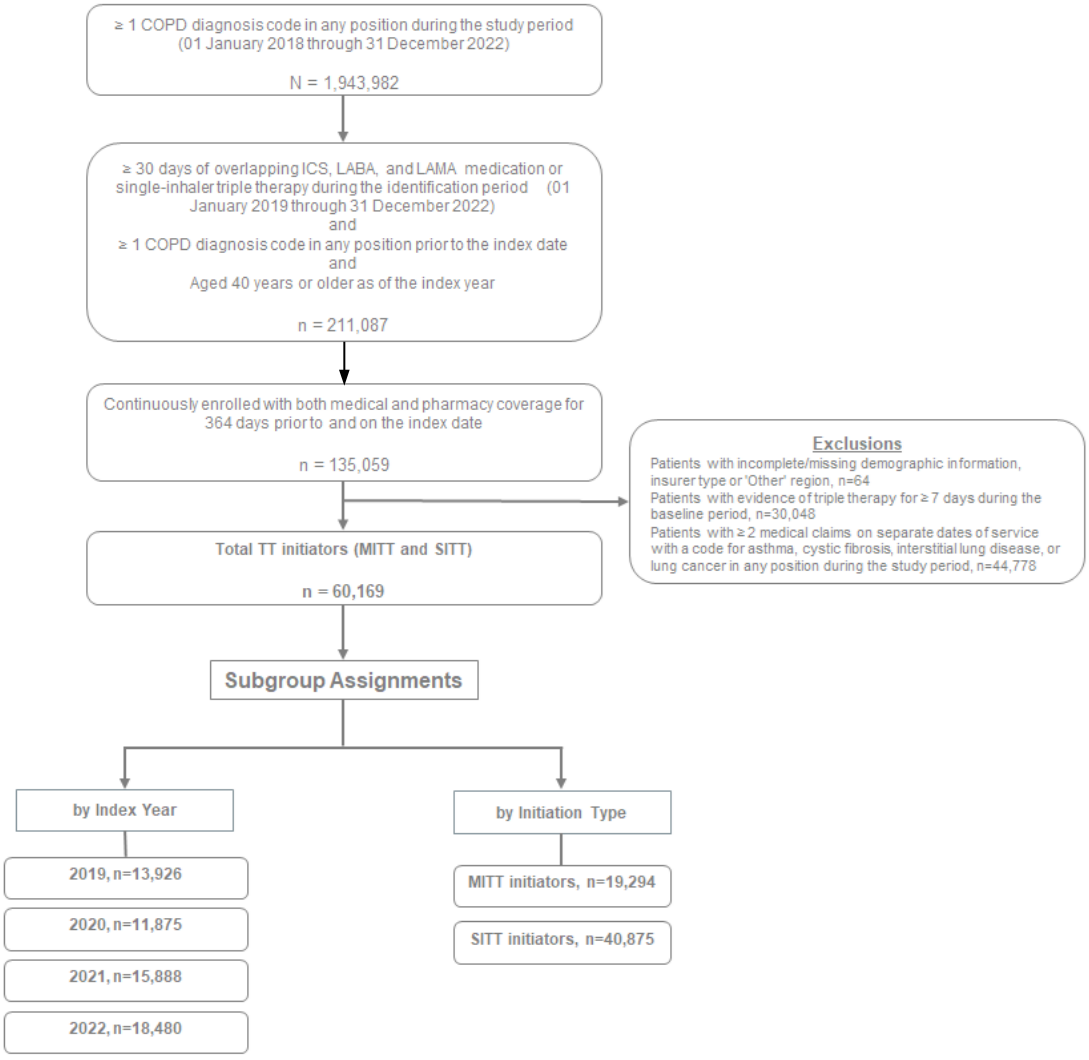
Figure S1. Patient Selection and Subgroups



Abbreviations: COPD, chronic obstructive pulmonary disease; ICS, inhaled corticosteroids; LABA, long-acting beta agonist; LAMA; long-acting muscarinic antagonist

Supplemental Table S1. COPD ICD-10 Codes

J41.0	ICD-10 Dx	Simple chronic bronchitis
J41.1	ICD-10 Dx	Mucopurulent chronic bronchitis
J41.8	ICD-10 Dx	Mixed simple and mucopurulent chronic bronchitis
J42	ICD-10 Dx	Unspecified chronic bronchitis
J43.0	ICD-10 Dx	Unilateral pulmonary emphysema (MacLeod's syndrome)
J43.1	ICD-10 Dx	Panlobular emphysema
J43.2	ICD-10 Dx	Centrilobular emphysema
J43.8	ICD-10 Dx	Other emphysema
J43.9	ICD-10 Dx	Emphysema, unspecified
J44.0	ICD-10 Dx	Chronic obstructive pulmonary disease with acute lower respiratory infection
J44.1	ICD-10 Dx	Chronic obstructive pulmonary disease with (acute) exacerbation
J44.9	ICD-10 Dx	Chronic obstructive pulmonary disease, unspecified

Supplemental Table S2. Baseline Patient Characteristics of the Maintenance-naive subgroup: 2019 to 2022

	Maintenance-naive (N=20,523)
Demographics	
Age (years), mean (SD)	70.6 (9.1)
Age group (years), n (%)	
40-49	331 (1.6)
50-59	2,051 (10.0)
60-69	6,740 (32.8)
70-74	4,285 (20.9)
75+	7,116 (34.7)
Gender, n (%)	
Female	9,971 (48.6)
Male	10,552 (51.4)
Race/ethnicity, n (%)	
Non-Hispanic White	15,238 (74.3)
Non-Hispanic Black	2,753 (13.4)
Non-Hispanic Asian	223 (1.1)
Hispanic	1,055 (5.1)
Missing/unknown	1,254 (6.1)
Region, n (%)	
Northeast	2,492 (12.1)
Midwest	4,800 (23.4)
South	11,970 (58.3)
West	1,259 (6.1)
Insurance type, n (%)	
Commercial	2,553 (12.4)
Medicare Advantage Part D	17,970 (87.6)
Baseline Blood Eosinophil count[1,2], n (%)	5,731 (27.9)
<100 cells µL	872 (15.2)
100 - < 300 cells/µL	3,278 (57.2)
≥300 cells/µL	1,581 (27.6)

Additional categories	
<300 cells/uL	4,150 (72.4)
≥100 cells/uL	4,859 (84.8)
Index medication characteristics	
Index single inhaler TT, n (%)	17,542 (85.5)
fluticasone furoate/umeclidinium/vilanterol	14,666 (71.5)
budesonide/glycopyrrolate/formoterol fumarate	2,878 (14.0)
Index multiple inhaler TT, n (%)	2,981 (14.5)
LABA/ICS + LAMA	2,822 (13.8)
LAMA/LABA + ICS	5 (0.0)
ICS + LABA + LAMA	24 (0.1)
LABA/ICS + LAMA/LABA	47 (0.2)
Index prescribing provider specialty, n (%)[1,2]	
Pulmonology	5,069 (24.7)
Primary Care[3]	5,267 (25.7)
Internal medicine	5,178 (25.2)
Cardiology	326 (1.6)
Allied health professional	4,489 (21.8)
Allergy and immunology	90 (0.4)
Other specialty	1,284 (6.3)
Unknown specialty	936 (4.6)
Exacerbation history, n (%)	
GOLD A/B	14,101 (68.7)
0 exacerbations	9,070 (44.2)
1 moderate exacerbation	5,357 (26.1)
1 severe exacerbation not leading to hospitalization	1,212 (5.9)
GOLD E	6,422 (31.3)
2+ exacerbations	4,626 (22.5)
1+ severe exacerbation with hospitalization	3,388 (16.5)

Supplemental Table S3. Multivariable Logistic Regression of Maintenance Naive and GOLD A/B Status among all Patients

Independent variables	Maintenance naive + GOLD A/B status			
	odds ratio	lower 95% CI	upper 95% CI	p-value
Cohort				
MITT on index date	ref.	–	–	–
SITT on index date	5.0	4.8	5.3	<0.001
Age group				<0.001
40-49	ref.	–	–	–
50-59	0.7	0.6	0.8	<0.001
60-64	0.6	0.5	0.7	<0.001
65-69	0.6	0.5	0.7	<0.001
70-74	0.6	0.5	0.7	<0.001
75+	0.6	0.5	0.7	<0.001
Gender				
Female	ref.	–	–	–
Male	1.2	1.2	1.3	<0.001
Geographic region				<0.001
West[1]	ref.	–	–	–
Northeast	1.0	0.9	1.1	0.9
Midwest	1.0	0.9	1.1	0.6
South	1.2	1.1	1.3	<0.001
Insurance type				
Commercial	ref.	–	–	–
Medicare Advantage Part D	0.9	0.9	1.0	0.0
Index season				
Fall	ref.	–	–	–
Winter	0.9	0.8	1.0	<0.001

Spring	0.9	0.9	1.0	0.0
Summer	0.9	0.9	1.0	0.0
Baseline Charlson comorbidity score excluding COPD (continuous)	1.0	1.0	1.0	0.2
Other baseline comorbidities				
Allergic rhinitis	0.9	0.8	0.9	<0.001
Dyspnea	0.7	0.7	0.8	<0.001
Pneumonia or acute bronchitis/bronchiolitis	0.6	0.5	0.6	<0.001
Index prescribing provider specialty				<0.001
Pulmonology	0.7	0.7	0.8	<0.001
Primary care	ref.	–	–	–
Internal medicine	1.1	1.0	1.1	0.0
Allied health professional	0.8	0.7	0.8	<0.001
Other or unknown specialty	0.9	0.8	1.0	0.0

Supplemental Table S4. Multivariable Logistic Regression of Maintenance-naive and GOLD A/B Status among Patients with Eosinophil Lab Results

Independent variables	Maintenance naive + GOLD A/B status			
	odds ratio	lower 95% CI	upper 95% CI	p-value
Cohort				
MITT on index date	ref.	–	–	–
SITT on index date	4.6	4.1	5.2	<0.001
Value of last eosinophil blood count test prior to index date				<0.001
< 100 cells/μL	ref.	–	–	–
100 - < 300 cells/μL	1.1	1.0	1.2	0.1
300+ cells/μL	0.9	0.8	1.0	0.1
Age group				0.0
40-49	ref.	–	–	–
50-59	0.7	0.5	1.0	0.0
60-64	0.6	0.5	0.9	0.0
65-69	0.6	0.5	0.9	0.0
70-74	0.6	0.4	0.8	0.0
75+	0.6	0.5	0.9	0.0
Gender				
Female	ref.	–	–	–
Male	1.2	1.2	1.3	<0.001
Geographic region				0.0
West[1]	ref.	–	–	–
Northeast	1.1	0.9	1.3	0.3
Midwest	1.1	0.9	1.3	0.5
South	1.2	1.0	1.4	0.0
Insurance type				
Commercial	ref.	–	–	–
Medicare Advantage Part D	0.9	0.8	1.0	0.2

Index season				
Fall	ref.	–	–	–
Winter	0.8	0.7	0.9	<0.001
Spring	0.9	0.8	1.0	0.0
Summer	0.9	0.8	0.9	0.0
Baseline Charlson comorbidity score excluding COPD (continuous)	1.0	1.0	1.0	0.0
Other baseline comorbidities				
Allergic rhinitis	0.9	0.8	1.0	0.0
Dyspnea	0.7	0.7	0.8	<0.001
Pneumonia or acute bronchitis/bronchiolitis	0.6	0.5	0.6	<0.001
Index prescribing provider specialty				<0.001
Pulmonology	0.8	0.7	0.9	0.0
Primary care	ref.	–	–	–
Internal medicine	1.1	1.0	1.2	0.1
Allied health professional	0.9	0.8	1.0	0.1
Other or unknown specialty	1.0	0.9	1.2	0.9