

BACKGROUND & OBJECTIVES

- Spirometry is required for chronic obstructive pulmonary disease (COPD) diagnosis and follow-up assessment.
- This study aimed to examine spirometry utilization among commercially insured individuals with COPD.

METHODS

Data source

- IQVIA PharMetrics® Plus for Academics claims dataset

Study population (Figure 1)

- Individuals with COPD between 2006 and 2015 were identified. COPD diagnosis was defined as ≥ 2 claims for COPD in the outpatient setting or ≥ 1 claim in the inpatient or emergency room setting. The index date was the date of the first COPD claim.
- Individuals under 40 years of age or not continuously enrolled in their medical and pharmacy plans for 12 months before and after the index date were excluded.
- The cohort was split into two groups according to COPD maintenance medication utilization during the study period identified using NDC codes (inhaled corticosteroid (ICS), long-acting $\beta 2$ -agonist (LABA), long-acting muscarinic antagonist (LAMA), or phosphodiesterase-4 (PDE4) inhibitors).

Study Outcome

- Spirometry performed within 90 days before or after the index date, identified used procedure codes (CPT code: 94010, 94060, 94375, 94150, 94200, 94726, 94070, 94620).

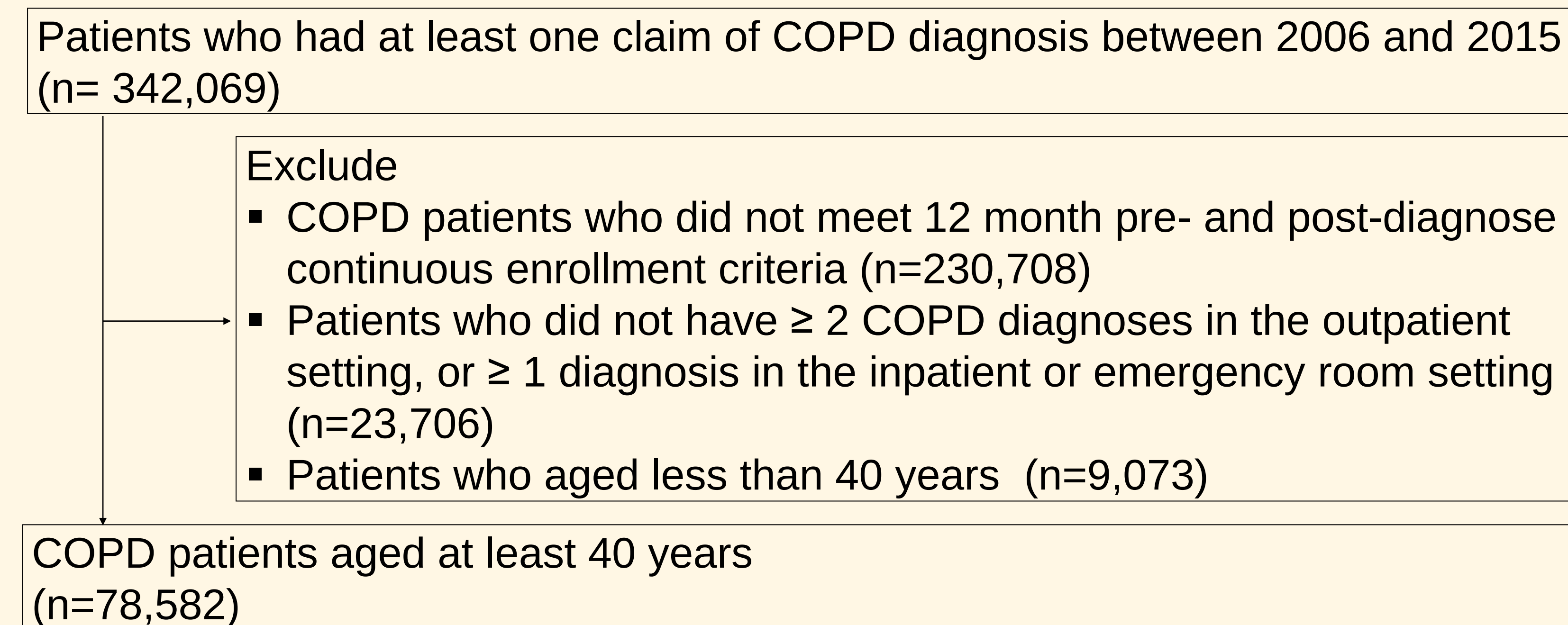
Clinical and Demographic Characteristics

- Patient enrollment data were used to identify sex and age. Diagnostic codes were used to identify key comorbid conditions and Charlson Comorbidity Index (CCI).

Statistical Analysis

- The Chi-squared test was used for comparing categorical variables between patients with COPD maintenance medications and patients without medications. The T-test was used for continuous variables.

Figure 1 Diagram of study cohort selection



RESULTS

- A total of 78,582 individuals with COPD were identified. The cohort was 50.62% female, and the mean age was 60 years. The mean CCI was 1.8 (**Table 1**).
- 23,374 (29.74%) individuals had spirometry utilization.
- Of 30,808 (39.20%) who used COPD maintenance medication (ICS/LABA/LAMA/PDE4 inhibitors), 12,246 (39.75%) had spirometry versus 11,128 (23.29%) with spirometry out of 47,774 (60.80%) who never used COPD medication ($p < 0.01$) (**Figure 2**).

CONCLUSIONS

- Spirometry was utilized by less than 30% of the cohort.
- Those using COPD maintenance medication (ICS/LABA/LAMA/PDE4 inhibitors) were more likely to have spirometry than patients without medication use.
- Further studies are needed to examine the interplay between spirometry and COPD medication prescriptions, especially focusing on how spirometry can be increased to ensure medications are being prescribed appropriately.

ACKNOWLEDGMENTS

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Table 1 Characteristics of COPD patients

Characteristics	All (n=78,582)	Without maintenance medication (n=47,774)	With maintenance medication (n=30,808)	P-value
Age, mean +/- SD	60.0 $\pm$ 10.2	60.2 $\pm$ 10.5	59.6 $\pm$ 9.7	<0.01
Sex, n (%)				
Male	38,797 (49.4)	24,765 (51.8)	14,032 (45.6)	
Female	39,775 (50.6)	23,002 (48.2)	16,773 (54.4)	<0.01
Unknown	10 (0.01)	7 (0.01)	3 (0.01)	
CCI, mean $\pm$ SD	1.8 $\pm$ 1.6	1.9 $\pm$ 1.7	1.7 $\pm$ 1.5	<0.01
Having allergic rhinitis, n (%)	2,064 (2.6)	832 (1.7)	1,232 (4.0)	<0.01
Having asthma, n (%)	5,195 (6.6)	1,294 (2.7)	3,901 (12.7)	<0.01
Having esophageal reflux, n (%)	2,368 (3.0)	1,345 (2.8)	1,023 (3.3)	<0.01
Having sleep apnea, n (%)	1,224 (1.6)	619 (1.3)	605 (2.0)	<0.01

Figure 2 Spirometry utilization among COPD patients

