

Advancing the Patient Experience in COPD

Characterization of COPD in U.S. Primary Care: Data from a Real-Life COPD Registry

Wilson Pace,^{1,2} Ku-Lang Chang,³ Chester Fox,^{1,4} MeiLan K. Han,⁵ Alan Kaplan,⁶⁻⁸ Janwillem Kocks,^{6,9} Cathy Mahle,¹⁰ Barry Make,¹¹ Asif Shaikh,¹⁰ Neil Skolnik,^{12,13} Barbara P Yawn,^{14,15} Elias Brandt,¹ Victoria Carter,¹⁶ Chelsea Edwards,¹⁷ Alexander Evans,¹⁶ Gabriela Gaona,¹ Rachel Kent,¹ Maja Kruszyk,¹⁷ Chantal Le Lievre,¹⁷ Tessa Li Voti,¹⁶ Amanda Ratigan,¹ Brooklyn Stanley,¹⁶ David Price^{6,18}

¹DARTNet Institute, Aurora, USA, ²University of Colorado, Denver, USA, ³University of Florida College of Medicine, Gainesville, FL, USA, ⁴University at Buffalo, Buffalo, NY, USA, ⁵University of Michigan, Ann Arbor, MI, USA, ⁶Observational and Pragmatic Research Institute, Singapore, Singapore, ⁷Family Physician Airways Group of Canada, Stouffville, Ontario, Canada, ⁸University of Toronto, Toronto, Canada, ⁹General Practitioners Research Institute, Groningen, Netherlands, ¹⁰Boehringer Ingelheim, Ridgefield, CT, USA, ¹¹Department of Medicine, National Jewish Health, Denver, CO, USA, ¹²Thomas Jefferson University, Jenkintown, PA, USA, ¹³Abington Jefferson Health, Jenkintown, PA, USA, ¹⁴University of Minnesota, Minneapolis, USA, ¹⁵COPD Foundation, Washington DC, USA, ¹⁶Optimum Patient Care, Cambridge, UK, ¹⁷Optimum Patient Care, Queensland, Australia, ¹⁸Centre of Academic Primary Care, Division of Applied Health Sciences, University of Aberdeen, Aberdeen, UK

Conflict of interest statement:





To improve COPD management in primary care, it is first necessary to describe these patients using clinically relevant variables that can be collected practically and monitored longitudinally.



Aim to describe the demographic and clinical characteristics of COPD patients managed in U.S. primary care and assess the generalizability of these data against a large COPD registry.



An observational registry study using patient data from the COPD Optimum Patient Care Research DARTNet Research Database (COPD-RD) from which the APEX in COPD registry is derived.

- The APEX in COPD registry is the first U.S. primary care, based registry, with both retrospective and prospective electronic health record (EHR) data and patient reported information/outcomes (PRIO).
- APEX COPD registry contains all COPD-RD variables but also links these with PRIO data



EHR data was extracted from 5 U.S. primary care medical groups, from December 2019 to January 2020

- Patients were included if they had a COPD Diagnosis code [ICD9CM, ICD10CM] or a COPD monitoring review code and were 35 years old or older at time of COPD diagnosis
- The study population had a total of n=17, 192 patients from COPD-RD with 1,354 being included in the APEX COPD registry

Disclosures

Presenter's conflict of interest disclosure: Wilson Pace is on the advisory board for Mylan; stock from Novo Nordisk, Pfizer, Novartis, Johnson & Johnson, Stryker, Amgen, Gilead, and Sanofi.

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Supplementary
information

Key Demographics and Clinical Characteristics

Table 1: Demographics characteristics of COPD patients in the COPD-RD and APEX COPD registry

Variable	COPD-RD N (%)	APEX in COPD registry N (%)
	N=17,192	N=1,354
Gender		
Female	9,689 (56.4)	759 (56.1)
Age (years)		
Mean (sd)	67.4 (11.3)	69.3 (10.1)
BMI (kg/m²)	N=16,849	N=1,338
Mean (SD)	29.6 (11.1)	29.2 (8.3)
Overweight (25-<30)	4,670 (27.7)	382 (28.6)
Obese (≥30)	6,958 (41.3)	543 (40.6)
Race and ethnicity	N=15,225	N=1,113
White	9,732 (63.9)	749 (67.3)
African American	3,613 (23.7)	165 (14.8)
Hispanic	1,744 (11.5)	194 (17.4)
Other races/multi-race	136 (0.9)	5 (0.5)
Smoking status		N=1,327
Smokers	6,428 (41.2)	414 (31.2)
Ex-Smokers	7,356 (47.1)	751 (56.6)

Table 2: Clinical characteristics of COPD patients in the COPD-RD and APEX COPD registry

Variable	COPD-RD N (%)	APEX in COPD registry N (%)
	N=17,192	N=1,354
Steady state Eosinophils (cells/μL)	N=8,882	N=468
Mean Eosinophil (SD)	212.8 (226.8)	232.8 (181.8)
Not elevated (<300)	7,164 (80.7)	365 (78.0)
Elevated (≥300)	1,718 (19.3)	103 (22.0)
Patients with key spirometry variables	517 (3.0)	517 (38.2)
Comorbidities		
Hypertension	12488 (72.6)	993 (73.3)
Diabetes	7724 (44.9)	575 (42.5)
Depression	7240 (42.1)	554 (40.9)
GERD	6758 (39.3)	529 (39.1)
OSA	6295 (36.6)	531 (39.2)
Asthma	5713 (33.2)	472 (34.9)
Anxiety	5403 (31.4)	390 (28.8)
Osteoporosis	4757 (27.7)	439 (32.4)
Heart Failure	4385 (25.5)	312 (23.0)
Rhinitis	5827 (33.9)	547 (40.4)

GERD: gastroesophageal reflux disease; OSA: obstructive sleep apnea.

- Most patients were predominantly female (56.4%), white (63.9%), current/ex-smokers (80.2%) and over-weight/obese (69.1%) with similar findings noted in the APEX registry.
- Most predominant comorbidity was hypertension (72.6% in COPD-RD and 73.3% in APEX registry) followed by diabetes mellitus and depression.

Key Clinical Characteristics

Table 3: Disease management therapy of COPD patients in COPD-RD

Inhaled therapy n (%)	COPD-RD N (%)	APEX in COPD Registry N (%)
	N=17,192	N=1,354
No therapy	565 (3.3)	103 (7.6)
SABA, SAMA, SABA+SAMA	1587 (9.2)	66 (4.9)
LAMA (+/- add-on)	2127 (12.4)	55 (4.1)
LABA + LAMA (+/- add-on)	2265 (13.2)	240 (17.7)
ICS (+/- add-on)	756 (4.4)	47 (3.5)
ICS + LABA (+/- add-on)	5070 (29.5)	325 (24)
ICS + LABA + LAMA (+/- add-on)	4658 (27.1)	509 (37.6)

Table 4: Additional PRI/PRO data of COPD patients in the APEX in COPD registry

Variable	APEX in COPD registry (n=1,354)
COPD Assessment Test (CAT) n (%)	N=1,322
<10 (low)	238 (18.0)
10-20 (Medium)	504 (38.1)
21-30 (High)	453 (34.3)
>30 (Very high)	127 (9.6)
Modified Medical Research Council Dyspnea Scale (mMRC) n (%)	N=1,315
Grade 0	258 (19.6)
Grade 1	469 (35.7)
Grade 2	325 (24.7)
Grade 3	195 (14.8)
Grade 4	68 (5.2)
GOLD Characteristics n (%)	N=1,236
Fewer symptoms, Low risk (GOLD A)	178 (14.4)
More symptoms, Low risk (GOLD B)	586 (47.4)
Fewer symptoms, High risk (GOLD C)	37 (3.0)
More symptoms, High risk (GOLD D)	435 (35.2)

- Majority of patients were on some form of a maintenance therapy (ICS/LABA or ICS/LABA/LAMA)
- Approximately 12% of patients coded as COPD are not treated with maintenance medication.
- 60.4% of patients reporting Grade 1 or 2 mMRC rated breathlessness despite being on maintenance therapy

Figure 1: Proportion of patients who experienced 0, 1, 2 and ≥3 EHR and PRIO-derived exacerbations (in the last year)

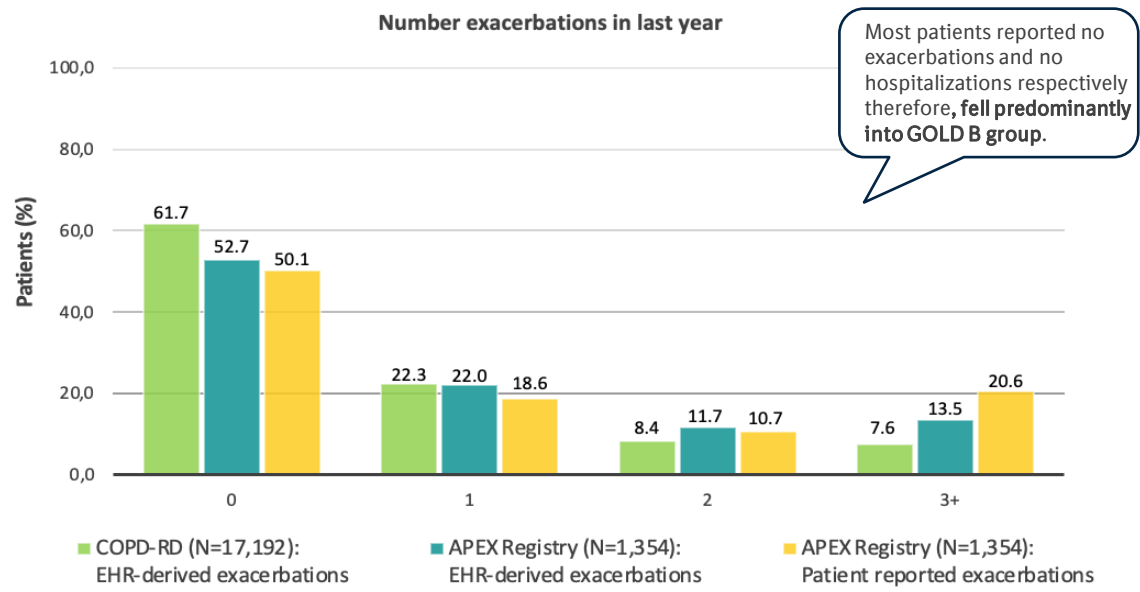


Table 5: COPD exacerbation algorithm definition and hierarchy in the COPD-RD and APEX in COPD datasets

Algorithm	Variable	COPD-RD N (%)	APEX in COPD registry N (%)
		N=17,192	N=1,354
1	Exacerbation code	1119 (11.4)	182 (13.4)
2	COPD code ⁺	3209 (32.8)	468 (34.7)
3	Acute bronchitis code ⁺	982 (10.0)	115 (8.6)
4	LRTI code ⁺	868 (8.8)	95 (7.1)
5	Other lower respiratory codes ⁺	3232 (33.8)	480 (35.5)
6	Influenza ⁺	141 (1.5)	10 (0.8)
7	Uncoded exacerbation ⁺	165 (1.7)	4 (0.3)

⁺ with prescribed antibiotics and/or oral corticosteroids. Scan the QR code to view the full table.

Findings and Opportunities

- Comprehensively describe patients diagnosed with COPD managed in U.S. primary care - emphasizing the high exacerbation, treatment and co-morbidity burden.
- Future studies to examine over and under treatment of patients versus GOLD guidelines