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BACKGROUND

- Obstructive Sleep Apnea (OSA) is a common breathing disorder characterized by periodic partial or complete airway obstruction during sleep. The prevalence of OSA ranges from 2% to 9% among the adult population in the United States.^{1,2} The prevalence of OSA is increasing with age, specifically among men.¹
- Positive airway pressure (PAP) therapy is the most widely used treatment for adults with OSA.³ PAP has been shown to improve health-related quality of life,^{4,5} but it has not consistently demonstrated a reduction in certain adverse health outcomes such as cardiovascular events, excessive daytime sleepiness, and mortality.^{4,6,7} There are three types of PAP therapies prescribed for patients with OSA depending on their symptoms and titration tests: automatic positive airway pressure (APAP), continuous positive airway pressure (CPAP), and bilevel positive airway pressure (BiPAP or BPAP).
- There is limited information available about the patient journey from sleep test to diagnosis, initial PAP treatment, and health plan authorization. This study aims to quantify the patient journey through the various pathways towards PAP treatment.

OBJECTIVE

To quantify and describe the patient journey through each stage, from initial sleep test to diagnosis and treatment patterns with different PAP therapies.

STUDY DESIGN

A retrospective observational cohort study among patients tested and/or treated for OSA.

Date source

This study was conducted using administrative medical and pharmacy claims within the Healthcare Integrated Research Database (HIRD[®]) from January 2019 – September 2022 and integrated Carelon Medical Benefits Management (CMBM) PAP pre-authorization data.

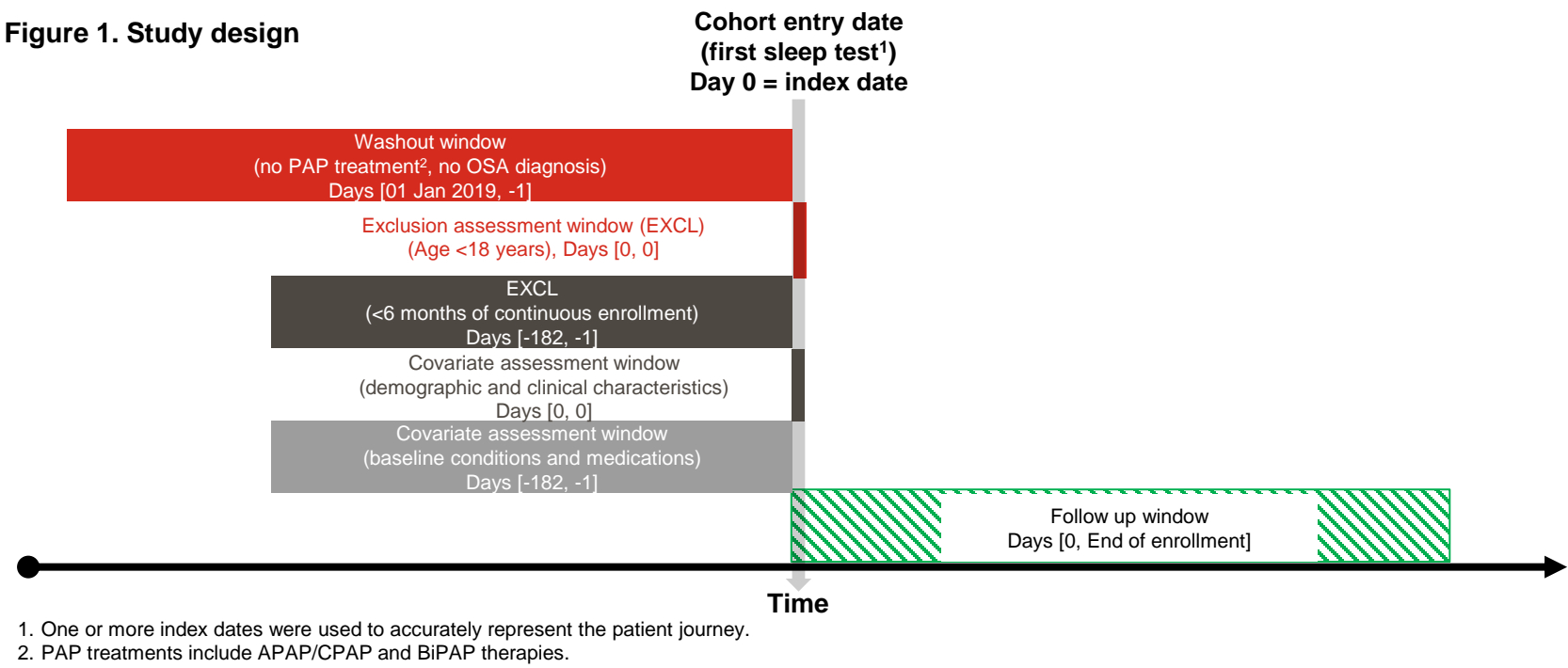
Patient population

Commercially- or Medicare Advantage-insured patients within the HIRD[®] linked with CMBM pre-authorization data to identify patients tested and/or treated for OSA. Patients identified from CMBM pre-authorization data were aged 18+ years, with at least 6 months baseline continuous enrollment between 01/01/2019-02/28/2022.

Analysis

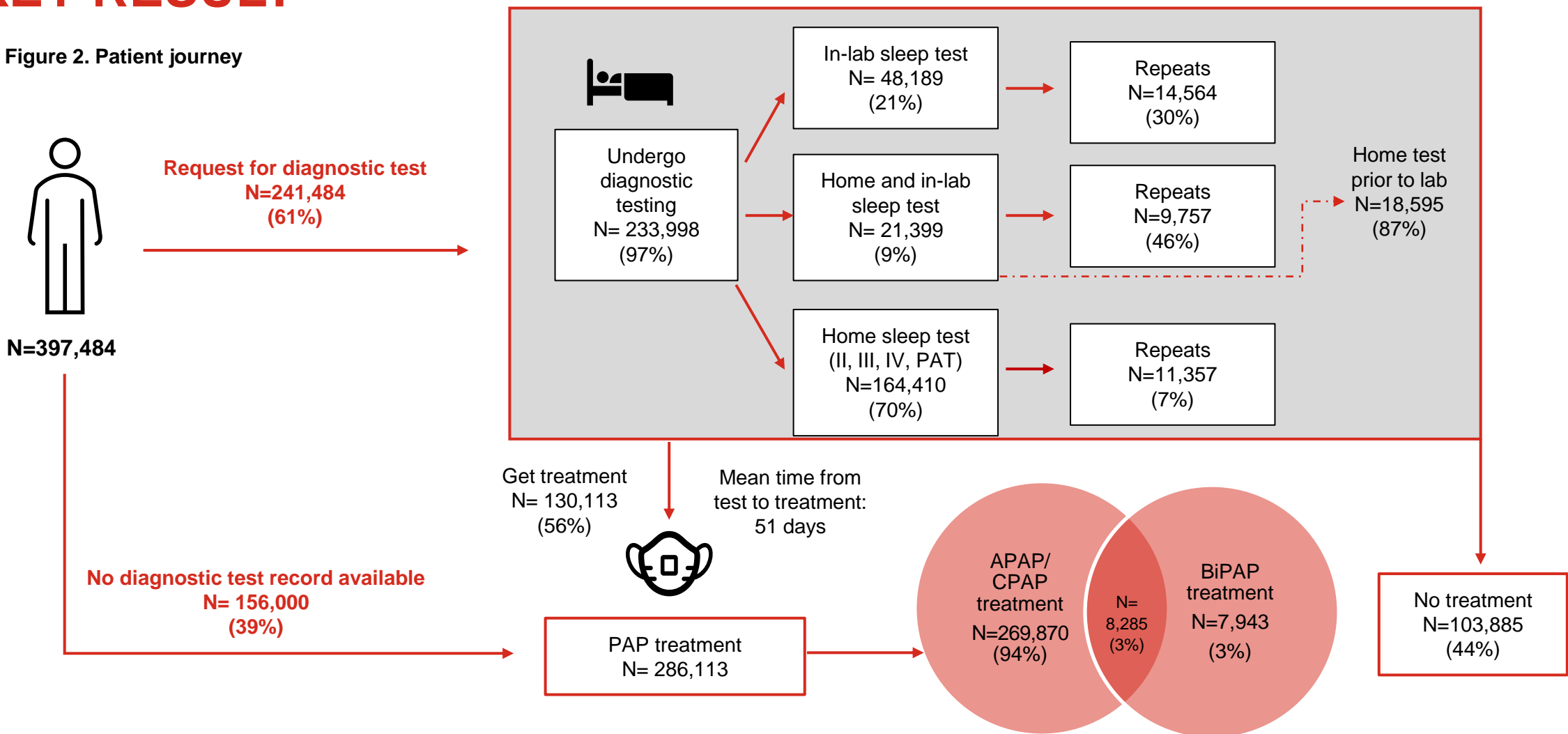
Demographic and clinical characteristics were assessed during the baseline period (6 months to 1 day prior to index date) and descriptive statistics including means and standard deviations for continuous variables and frequencies for categorical values were analyzed.

Figure 1. Study design



KEY RESULT

Figure 2. Patient journey



LIMITATIONS

- For approximately 54% of patients who received PAP treatment, diagnostic testing information was missing in the dataset, due to left-censoring as these patients switched health plans.
- This study included patients with commercial health insurance coverage, who are more likely to be of working age (30-64 years), which could limit the generalizability of the results.

CONCLUSIONS

- Higher proportion of patients with severe Obstructive Sleep Apnea (OSA) in the treatment cohort, indicating these patients may be more likely to go through process to get or continue to use PAP treatment.
- The journey towards receiving PAP therapy authorization involves multiple steps that often span several months, with some patients going through multiple diagnostic tests.

Results: Diagnostic Testing

Figure 3. Types of home sleep test

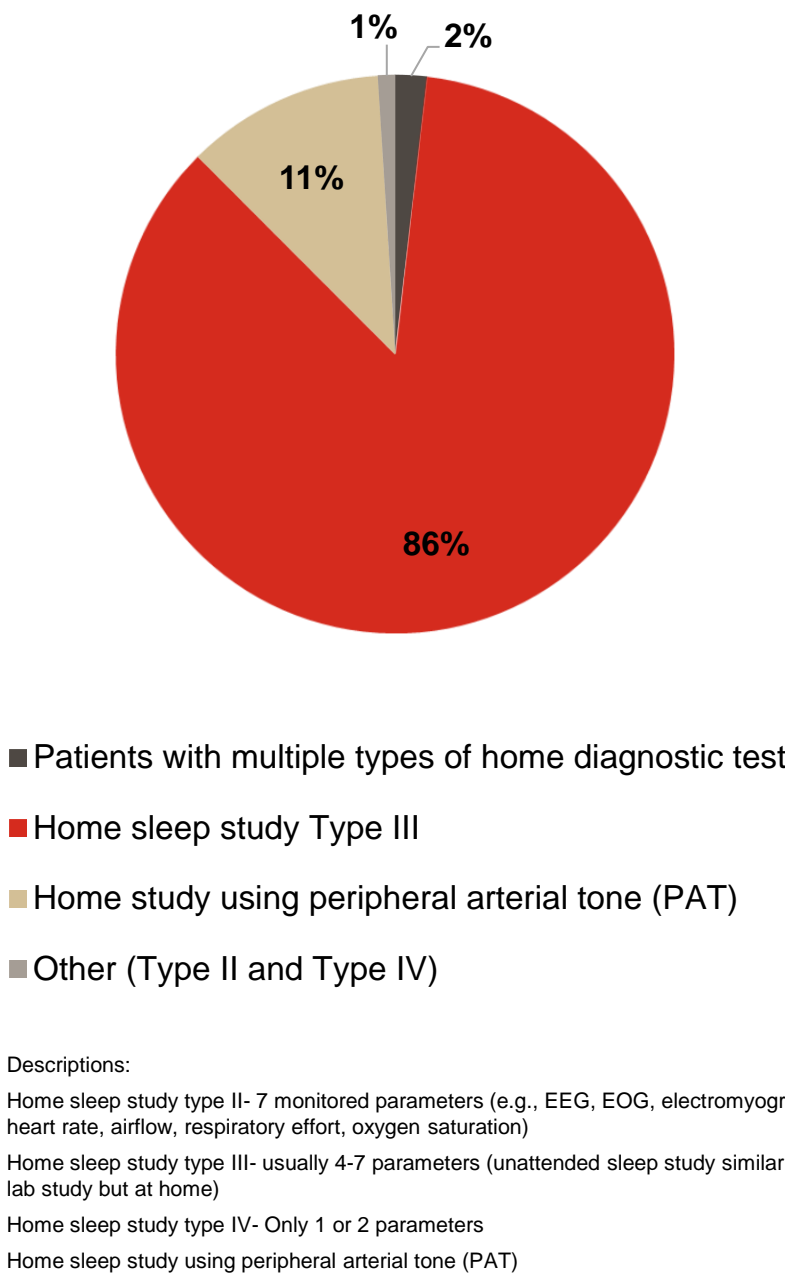


Figure 4. Diagnostic test prescribing physician specialty

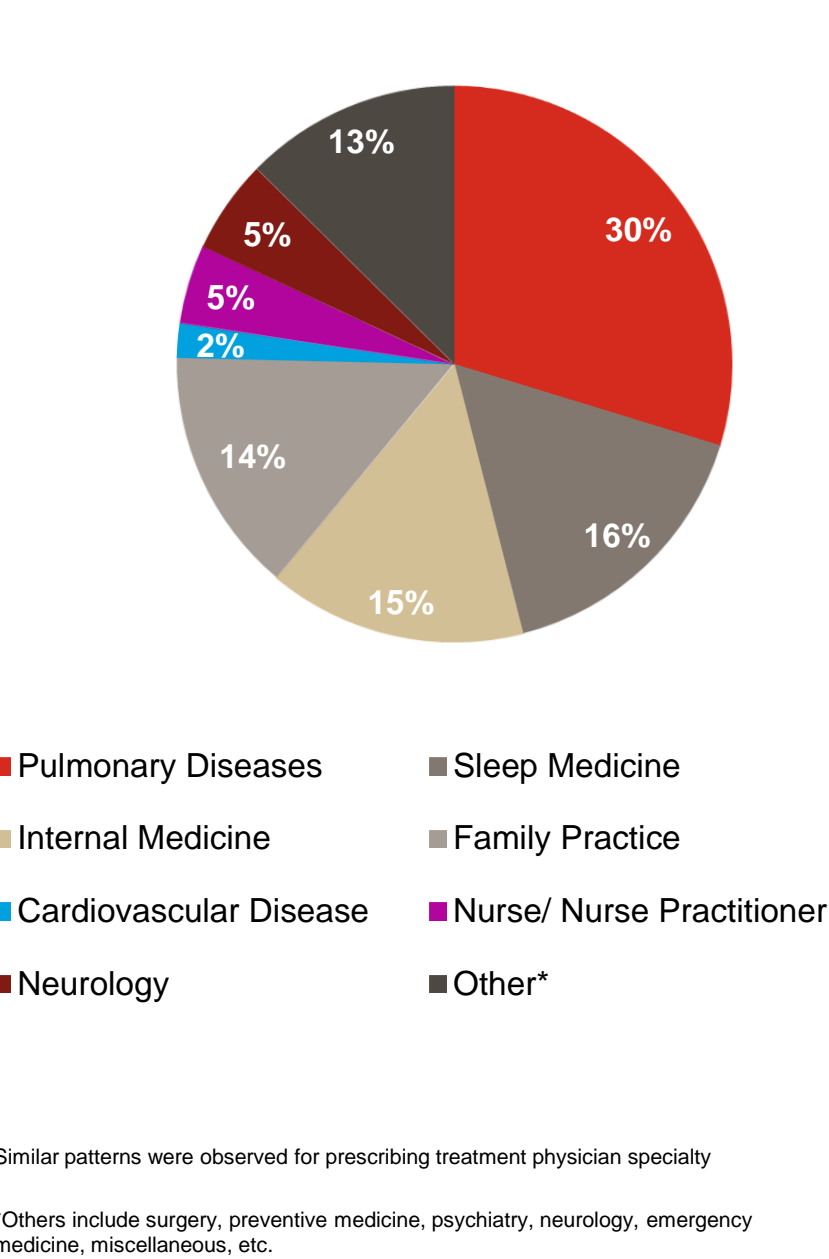


Table 1. Patient demographic and clinical characteristics

	Patients with diagnostic test (indexed on earliest diagnostic test)	Patients with PAP treatment (indexed on earliest treatment date)
Demographic characteristic		
Number of patients, N	231,906	275,818
Age on index date, years		
Mean (SD)	49.9 (12.70)	53.2 (11.76)
18-44	76,513 (33.0%)	63,044 (22.9%)
45-64	131,647 (56.8%)	175,230 (63.5%)
65-74	18,003 (7.8%)	28,517 (10.3%)
75+	5,742 (2.5%)	9,027 (3.3%)
Gender, male, n (%)	130,024 (56.1%)	173,497 (62.9%)
US geographic region, n (%)		
Northeast	29,722 (12.8%)	30,805 (11.2%)
Midwest	64,134 (27.7%)	86,708 (31.4%)
South	103,882 (44.8%)	119,666 (43.4%)
West	31,540 (13.6%)	35,121 (12.7%)
Plan type, n (%)		
HMO	67,058 (28.9%)	81,368 (29.5%)
PPO	114,007 (49.2%)	137,951 (50.0%)
CDHP	50,841 (21.9%)	56,498 (20.5%)
Payor, n (%)		
Commercial	207,707 (89.6%)	240,601 (87.2%)
Medicare Advantage	24,197 (10.4%)	35,212 (12.8%)
Clinical characteristic		
AHI/RDI available, n (%)	117,825 (50.8%)	158,548 (57.5%)
Mean (SD)	30.3 (24.48)	31.2 (25.44)
Normal (0-4.9 events/hour)	235 (0.1%)	303 (0.1%)
Mild sleep apnea (5 - 14.9 events/hour)	35,941 (15.5%)	46,825 (17.0%)
Moderate sleep apnea (15 - 29.9 events/hour)	38,183 (16.5%)	51,169 (18.6%)
Severe sleep apnea (≥ 30 events/hour)	43,466 (18.7%)	60,251 (21.8%)
Quan-Charlson Comorbidity Index (QCI) score, mean (SD)	0.6 (1.23)	0.7 (1.25)
OSA related comorbidities		
Type 2 Diabetes Mellitus	42,192 (18.2%)	64,685 (23.5%)
Hypertension	113,615 (49.0%)	150,958 (54.7%)
Dyslipidemia	94,418 (40.7%)	124,602 (45.2%)
Depression	65,700 (28.3%)	68,254 (24.8%)
Anxiety	51,009 (22.0%)	50,542 (18.3%)
Cardiac arrhythmias	32,262 (13.9%)	36,944 (13.4%)

Note: The cohort sample sizes in the tables above differ from those in the patient flowchart as patients were re-indexed for the characteristics analysis.

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MG and KD are shareholders of Elevance Health.

JB and SS are employees and shareholders of Eli Lilly and Company.

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