

Prevalence and Unmet Needs of Obstructive Sleep Apnea in the United States

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INTRODUCTION

- Obstructive sleep apnea (OSA) is a serious, chronic sleep-related breathing disease, leading to disrupted breathing, sleep fragmentation, impaired sleep quality, and reduced oxygenation.¹
- OSA is caused by sleep-related neuromuscular dysfunction and predisposing anatomic abnormalities of the upper airway.²
- Failure to effectively treat OSA can increase risk of long-term health consequences and reduced quality of life, including increased risks of cardiovascular disease, depression, fatigue, daytime sleepiness, and death.¹
- Positive airway pressure (PAP) is the standard treatment for OSA, but its use is limited by patient satisfaction, convenience, comfort, and OSA underdiagnosis.

OBJECTIVE

Develop an epidemiologic model to estimate the number of adults aged ≥20 years with OSA in the United States (U.S.) with a current unmet need for OSA treatment due to PAP therapy intolerance, refusal, or absence of a treatment offered.

METHODS

- An epidemiologic model was developed in Excel to characterize the population and treatment patterns of OSA in the U.S.
- The number of U.S. adults (aged ≥ 20 years) was estimated using U.S. Census data.³
- The prevalence of OSA was calculated from U.S. Census and published age, sex, and BMI-based prevalence rates projected to the year 2024.⁴
- The OSA diagnosis rate was obtained from the 2016 AASM study of clinical and economic burden of OSA in the U.S., which utilized data from the Wisconsin Sleep Cohort Study.⁵
- Treatment rates were obtained from analyses of real-world data from commercial, Medicare and Medicaid medical and pharmacy claims, and clinical practice settings.
 - The proportion of patients who refuse PAP treatment was based on a retrospective study of OSA patients preauthorized for PAP treatment who did not initiate therapy.⁶
 - The proportion of patients intolerant to PAP treatment was estimated from treatment adherence at 3-months from initiation in a prospective randomized study.^{7,8}
- Long-term adherence to PAP was estimated from a two-year retrospective study using the CMS criteria of PAP usage for ≥4 h/night for ≥70% of nights in a 30-day period.⁹
 - Patients meeting CMS criteria in all eight follow-up quarters were defined as adherent, those meeting criteria in one to seven quarters as under-utilizers, and those meeting criteria in none of the quarters as discontinuers.

ABBREVIATIONS
AASM – American Academy of Sleep Medicine, BMI – body mass index, CMS – Centers for Medicare & Medicaid Services, M – million, OSA – Obstructive sleep apnea, PAP – positive airway pressure, U.S. – United States

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DISCLOSURES
NFW is an employee at Ensodata and advisor for Jazz Pharmaceuticals and React Health. KSY, JY, JC, and ASA are employees at Apnimed, Inc. DC, LB, and NB are employees at Curta Inc.

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KEY TAKEAWAY:

- OSA remains a substantial challenge in the U.S., with significant proportion of diagnosed patients not achieving optimal benefit with currently available treatment options

RESULTS

- Based on a prevalence estimate of 32.2%⁴, the model estimates up to 80.6M adults in the U.S. have OSA (AHI ≥5), of whom 80% are undiagnosed.
- Among the 1 in 5 individuals with OSA who are diagnosed (~16.1M), up to 4.2M (26%) remain untreated.
- Additionally, of those who initiate PAP therapy, more than half (63%; ~7.5M) either discontinue treatment or fail to meet Medicare treatment adherence criteria.
 - 40% (4.8M) underutilize PAP treatment, 23% (2.7M) discontinue PAP treatment
- Among the 20% of patients who are diagnosed with OSA, 11.7M may not be adequately managed with PAP
- Model results are limited by availability of published data and assumptions including long-term adherence, obesity prevalence and OSA severity based on clinic versus community settings

Figure 1. Unmet Need of Obstructive Sleep Apnea in the United States

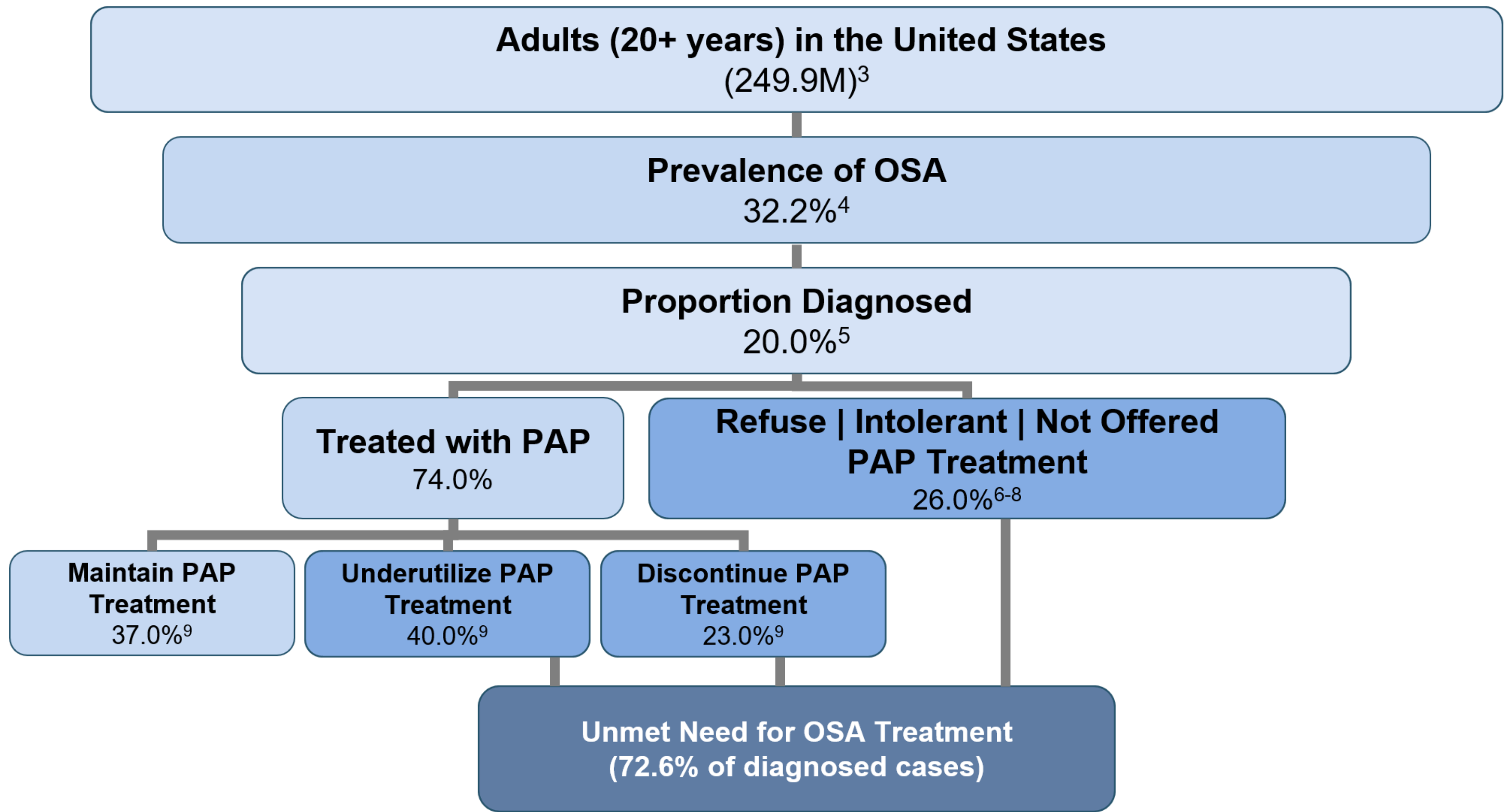


Table 1. Burden by Weight and OSA Severity Groups

OSA Burden by Weight Groups	OSA Burden by Disease Severity
The proportion of OSA patients who are not obese has been estimated at 34.0% and 67.0% in clinic- and community-based settings, respectively. ^{10,11} <ul style="list-style-type: none">An estimated 4.0–7.8M non-obese people diagnosed with OSA may not be adequately managed with current treatments	Mild OSA (AHI 5 to <15 events/h) accounted for 36.0% – 54.8% of diagnosed cases. Moderate to severe OSA comprised 45.2% – 64.0% of cases, depending on clinical vs. community-based settings. ^{10,11} <ul style="list-style-type: none">An estimated 4.2 – 6.4M people diagnosed with mild OSA may not be adequately managed with current treatments

CONCLUSIONS

- Despite growing awareness, OSA poses a substantial challenge in the U.S., with a significant portion up to 80% of OSA cases remaining undiagnosed.
- Among individuals diagnosed with OSA, millions may not be receiving adequate treatment with currently available treatment options.
- The wide variability in published OSA prevalence rates underscores the need for more precise data to accurately characterize and address the true extent of unmet needs in OSA.

Figure 2. Unmet Need for OSA Diagnosis

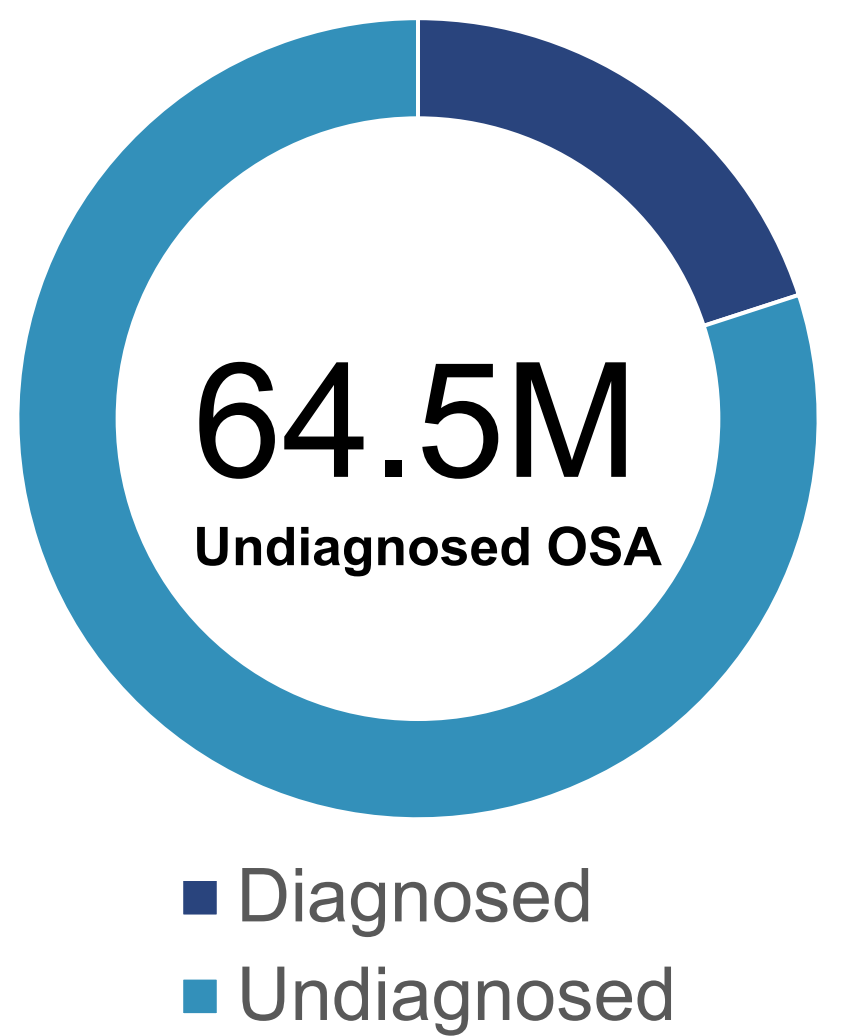


Figure 3. Unmet Need for OSA Treatment

