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The Economic Value of Treating OSA with PAP Therapy

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By reducing acute care costs and improving management of high-cost comorbidities, PAP therapy offers a compelling opportunity to reduce total cost of care.

Obstructive sleep apnea (OSA) affects an estimated 54 million US adults, yet the majority remain undiagnosed or undertreated. Untreated OSA drives substantial and preventable healthcare expenditures through increased hospitalizations, comorbid disease progression, and workplace-related claims. Positive airway pressure (PAP) therapy is the standard of care for OSA and has been shown not only to improve clinical outcomes but also to deliver measurable economic value by reducing healthcare resource utilization, improving productivity, and mitigating long-term risk in high-cost comorbid populations.

Economic burden of untreated OSA

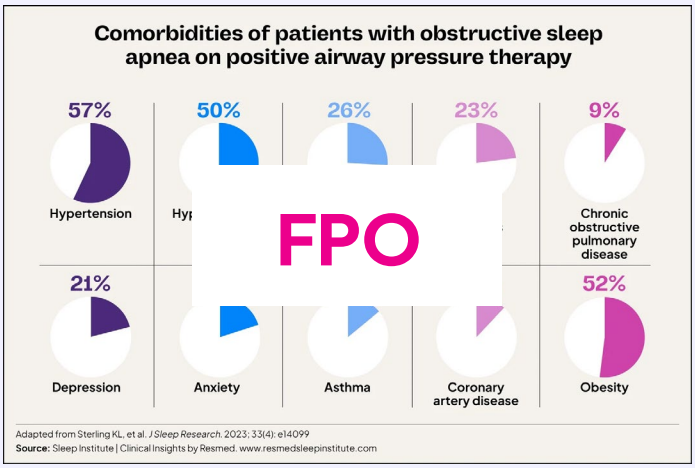
Undiagnosed and untreated OSA imposes a significant and preventable economic burden, estimated at $202.9 billion* annually in the US.[1] Despite affecting over 50 million adults, with prevalence projected to rise to 76 million by 2050, up to 80% of cases go undiagnosed, driven by low public awareness and missed screening opportunities in primary care.[1,2,3,4] Untreated OSA leads to higher rates of cardiovascular and metabolic disease, excessive medical costs ($2,645–$5,288* more per year per patient), increased motor vehicle and workplace accidents, and lost productivity.[1,5] Addressing this unmet need offers a strong return on investment.

Treating undiagnosed OSA would cost an estimated $67.1 billion*, yielding a 3:1 ROI through reduced healthcare utilization and improved workforce performance.[1,6]

Cost effectiveness of PAP therapy in treating OSA

PAP therapy is the standard of care for moderate to severe OSA and is well-established as both clinically effective and cost-effective. Multiple health economic analyses demonstrate that PAP therapy delivers high value, with cost-effectiveness ratios frequently falling below $20,000 per quality-adjusted life year gained, well within accepted thresholds for chronic disease interventions.[7,8] Importantly, these clinical gains translate into real-world cost savings. Within 12 months of initiating and adhering to PAP, all-cause hospitalizations decreased by 31% and emergency services utilization declined by 28%.[9] On average, adherent patients yield at least $480 in net annual savings per patient compared to non-adherent patients, underscoring the financial benefit of supporting early initiation and long-term adherence.[9,10]

Impact of PAP therapy on high-cost comorbidities



Common and costly OSA comorbidities

Many patients with OSA are living with common, and often costly, comorbid conditions.[9] When OSA is untreated in these populations, it can exacerbate the symptoms and negative outcomes associated with those comorbidities, driving up healthcare utilization and costs. As a result, the added healthcare burden is often misattributed to the comorbidity alone, while the underlying OSA remains unrecognized and untreated.

Cardiovascular disease

In cardiovascular disease, OSA is a known contributor to hypertension, heart failure, atrial fibrillation, and stroke.[11] Adherence to PAP therapy has been shown to reduce major adverse cardiac and cerebrovascular events, enhance blood pressure control, and significantly lower cardiovascular-related hospitalizations.[12,13,14] Among patients with high-cost conditions such as heart failure and atrial fibrillation, PAP adherence is associated with annual hospitalization cost savings of approximately $2.2k per patient,[15,16] underscoring its economic value in managing cardiometabolic risk.

Respiratory disease

The coexistence of OSA and COPD (referred to as overlap syndrome) is associated with significantly worse outcomes and a higher burden of comorbidities than either condition alone.[17] Untreated overlap syndrome is linked to lower survival rates compared to patients with COPD alone or treated overlap syndrome.[18,19] Evidence shows that treatment with PAP not only improves survival but also reduces hospitalizations related to COPD exacerbations.[18,19] For patients with COPD, adherence to PAP has been associated with annual savings of approximately $2.7k per patient,[20] highlighting a meaningful opportunity for cost containment within a high-risk, high-cost population.

Metabolic disorders

Studies consistently demonstrate that the prevalence of OSA is up to 60% in patients with type 2 diabetes and even higher in those with coexisting obesity.[21,22] PAP therapy has been shown to improve insulin sensitivity and glycemic control, making it a valuable adjunct to diabetes management programs.[23,24] Adherence to PAP therapy in patients with type 2 diabetes is associated with annual healthcare savings of approximately $675 per patient,[25] offering scalable savings potential across large diabetic populations where comorbidity burden and utilization rates are high.

Mental health conditions

Symptoms of anxiety and depression are increasingly prevalent in the US, with recent estimates indicating that one in five adults has experienced symptoms in the past 2 weeks.[26] The bidirectional relationship between disturbed sleep and mental health conditions is well-documented, as each can exacerbate the severity and reduce the treatment efficacy of the other. In depressed patients with coexisting OSA, PAP therapy has been associated with improvements in mental health outcomes, including reductions in depression symptoms and decreased use of antidepressant medications.[27,28,29] These clinical benefits translate into economic value, with PAP adherence linked to lower mental health-related care utilization and annual hospitalization cost savings of approximately $1k per patient.[30]

Impact of positive airway pressure (PAP) on high cost comorbidities in patients with obstructive sleep apnea

PAP adherence has been associated with substantial annual hospitalization savings across common high cost comorbidities

Chronic comorbidity			1 year average ER & hosp cost savings per adherent patient atrial fibrillation
Atrial fibrillation[1]	FPO		ER: ↓$192 Hosp: ↓$2,283
Heart failure (rEF)[2]			ER or hosp: ↓$2,379
Heart failure (pEF)[3]	Hosp or ER ↓34%	↓$2,878	ER: ↓$291 Hosp: ↓$2,381
Chronic obstructive pulmonary disease[4]	Hosp ↓48%, ER ↓32%	↓$2,734	ER: ↓$307 Hosp: ↓$2,687
Type 2 diabetes[5]	Hosp ↓27%, ER ↓27%	↓$675	Not published
Depression[6]	Hosp ↓26%, ER ↓26%	↓$801	ER: ↓$324 Hosp: ↓$1,000

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Barriers to realizing economic value

Despite its strong value proposition, the economic potential of PAP therapy is constrained by system-level barriers. Underdiagnosis remains a critical challenge, driven by low awareness among both patients and providers, worsened by limited sleep assessments in routine care.[1] PAP adherence can be another limiting factor; tools like telemonitoring and patient engagement apps should be utilized to optimize acceptance and regular use of PAP therapy.[32] Moreover, inconsistent coverage policies, burdensome documentation requirements, and fragmented reimbursement pathways discourage both initiation and continuation of therapy. To fully realize the economic and clinical benefits of PAP, targeted actions such as promoting and expanding the use of home-based diagnostic options, incentivizing adherence with value-based benefit designs, and embedding OSA management into broader chronic care frameworks should be taken.

Conclusion

Treating OSA with PAP therapy is not only clinically effective, but a fiscally responsible investment. By reducing acute care costs and improving management of high-cost comorbidities, PAP therapy offers a compelling opportunity to reduce total cost of care. Strategic engagement in screening, access, and adherence optimization is critical to unlocking this value.

* 2015 US $ is converted to 2025 US $. The dollar had an average inflation rate of 3.09% per year between 2015 and today, producing a cumulative price increase of 35.63%.

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