

Will AI Finally Allow Dentists to Participate in Sleep Testing?

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Artificial intelligence is advancing at a pace that is reshaping diagnostic medicine. In barely three years, large language models have progressed from experimental novelties to highly accurate diagnostic tools supported by unprecedented computational resources and rapidly expanding medical benchmarks. These developments are not theoretical. They will force sleep medicine to reconsider who can, and who must, participate in the diagnostic workflow. Dentists who are treating OSA should be part of that reconsideration.

For years, skepticism about AI revolved around reliability. That position is becoming increasingly difficult to defend. In 2025, Microsoft released the AI Diagnostic Orchestrator (MAI-DxO), evaluated on 304 complex case challenges from the New England Journal of Medicine. When paired with an advanced reasoning model, MAI-DxO reached approximately 85% diagnostic accuracy, compared with roughly 20% for experienced physicians under the same conditions, while reducing unnecessary testing by 28%¹⁻³. Additional independent research reinforces this trend. A randomized study from the University of Virginia showed that clinicians using ChatGPT Plus improved diagnostic accuracy modestly (from 73.7% to 76.3 %), whereas ChatGPT Plus alone exceeded 90% accuracy on the same vignettes, suggesting ChatGPT Plus does better in certain situations without physicians than with⁴. Other evaluations demonstrate that GPT-4 performs at or above physician level for differential diagnosis and case-resolution tasks⁵⁻⁷. AI is rapidly evolving from an optional resource to a credible second opinion that patients, insurers, and regulators will soon expect clinicians to use.

The urgency of integrating AI is nowhere greater than in sleep medicine. Workforce limitations are longstanding. Collen estimated a ratio of roughly 43,000 patients per board-certified sleep physician in the United States, a gap that shows no sign of closing⁸. Meanwhile, the burden of obstructive sleep apnea (OSA) is expanding. Recent modeling projects that by 2050 nearly 77 million U.S. adults will have OSA, a 35% increase from 2020 and impacting approximately 46% of adults aged 30-69⁹⁻¹¹. These projections align with epidemiologic studies documenting a rise in moderate to severe sleep-disordered breathing over the past two decades^{12,13}.

The medical workforce is also tightening. The Association of American Medical Colleges forecasts a national physician shortfall of up to 86,000 clinicians by 2036 including significant deficits in primary care—the very clinicians to whom simpler OSA cases are increasingly considered for delegation¹⁴⁻¹⁶. If prevalence rises, specialists remain scarce, and primary care contracts, the current diagnostic model becomes untenable. AI alone cannot compensate unless the system is redesigned around it.

Compounding this pressure is the growing recognition that single-night testing underestimates disease burden¹⁷. Punjabi et al. demonstrated that three-night portable monitoring frequently reclassifies OSA severity¹⁸. Lechat and colleagues confirmed striking night-to-night variability in AHI in large community samples, showing that diagnostic category can shift between nights and that this variability carries cardiometabolic consequences^{19,20}. If multi-night testing is ever required for proper diagnosis, the current interpretive capacity of sleep medicine is insufficient. Telemedicine may improve access but cannot create additional clinician hours for reviewing multi-night data.

Dentists are uniquely positioned to help address this gap—if the profession is willing to consider a modernized, AI-supported diagnostic workflow. Millions of patients are examined weekly in dental practices, where clinicians routinely assess craniofacial structure, tongue posture, mandibular position, and other anatomic indicators associated with sleep-disordered breathing²¹. Oral appliance therapy is already recognized as a first-line treatment for many patients with mild to moderate OSA or CPAP intolerance²². Dentists regularly participate in collaborative models of care and increasingly play a role in sleep-related assessment and therapy.

As the sleep world is changing and some sleep physicians openly talk about leaving diagnosis of simple cases to general practitioners in medicine, it is time for dentists who are treating OSA to think about what we can offer and step in.

If the sleep community does not lead in defining this new workflow, external forces will. Insurers, regulatory bodies, and technology companies are already developing frameworks for AI-supported diagnostics²³⁻²⁵. Without proactive guidance from clinicians, the system may be redesigned based on cost rather than care.

As the AASM just published their new position statement on the use of AI in sleep medicine²⁶, a joint initiative between the American Academy of Sleep Medicine and the American Academy of Dental Sleep Medicine should be considered to establish training standards, outline ethical and practical applications of AI in diagnostic workflows, and launch pilot programs evaluating AI-supported, dentist-assisted models.

Artificial intelligence has already changed what is possible. The prevalence of obstructive sleep apnea continues to rise, the diagnostic burden is increasing, and multi-night testing is moving toward necessity rather than luxury. With appropriate training and oversight, dentists—supported by AI—can help deliver timely, accurate evaluation to millions of patients who will otherwise face delays or remain undiagnosed. Sleep medicine is entering a period of transformation. Dentists must have a place at that table. This is not about taking the sleep doctor's place, but rather about being more involved as part of their team.

CITATION

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