

Closing the Gap: How Oral Health and Sleep Health Are Imperative to Overall Health

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The healthcare landscape has long been characterized by a noticeable separation between the medical and dental fields, influencing how both oral and overall health are perceived and managed today. Long ago, tooth extraction was perceived as a form of entertainment, with barber-surgeons conducting procedures in front of crowds.¹ Dentistry's transformation into a profession in the mid-1800s established a separate educational path, intensifying the divergence between medical and dental healthcare.^{2,3}

The US Surgeon General's *Oral Health in America* reports in 2000 and 2021 highlighted the need to close the gap between dental and medical healthcare. Oral health is crucial to reducing chronic inflammation, affecting patients' overall health and quality of life.⁴ In fact, the Centers for Disease Control and Prevention (CDC) reported in 2019 that among the leading causes of death in the United States are heart disease, cancer, chronic lower respiratory disease, stroke, Alzheimer's disease, diabetes, kidney disease, and influenza and pneumonia.⁵ Many of these causes have been linked to inflammation, enzymes, and bacteria in the oral cavity, and five are linked to sleep-related breathing disorders, including untreated obstructive sleep apnea (OSA) (dreamsleep.rest/resources/).⁶ Dental-medical integration is imperative for collaborative care addressing chronic inflammation, overactive sympathetic responses, and oxidative stress. (Figure 1 indicates the effects of oral pathogens on overall health.^{7,8} To view Figure 1, visit compendiumlive.com/go/cced2071.)

As dentistry advances and technologies evolve, a preventive, comprehensive whole-body health model supports dentists in identifying and treating sources of chronic inflammation early, impacting both the patient's oral health and overall health. A successful clinical culture, focusing on dental-medical integration, relies on objective data. In such a model, every patient undergoes a comprehensive examination that includes a medical history review, oral cancer screening, salivary diagnostics, including active matrix metalloproteinase (aMMP)-8 and OralDNA® Labs testing, cone-beam computed tomography (CBCT) scanning, and home sleep

apnea testing. These components inform a tailored treatment plan, addressing abnormalities and quantifying tissue degradation. Such testing aids in identifying pathogens, genetics, or a combination causing gingival inflammation, allowing clinicians to individualize treatment plans, collaborate with medical providers, and contribute to patients' overall health and well-being.

Dentists play an integral role in identifying patients with untreated and undiagnosed OSA. Utilizing the patient's comprehensive medical history and intraoral findings, including indicators like bruxism, crowded teeth, mandibular tori, erosion, abfraction, a large, scalloped tongue, a high palatal vault, large tonsils, and variations in nasal anatomy, dentists can screen for sleep-related breathing disorders. This proactive approach, coupled with referrals for further evaluation when indicated, significantly contributes to reducing the prevalence of undiagnosed OSA, which stands at 80%.⁹

Routine sleep screenings during dental exams are essential for reducing early mortality associated with OSA. Untreated mild to moderate sleep apnea can decrease life expectancy by 10 to 15 years, while untreated severe sleep apnea can ultimately be fatal, although the timing is uncertain.¹⁰ The correlation between untreated OSA and early mortality stems from apneic events heightening the body's sympathetic response, disrupting sleep and adversely impacting its quality and duration. This cascade intensifies the comorbidities associated with OSA, such as stroke, diabetes, heart failure, hypertension, and others, leading to increased healthcare costs, a shortened lifespan, and a diminished quality of life.

Patients diagnosed with mild to moderate OSA, or those intolerant to continuous positive airway pressure (CPAP) machines, have other treatment alternatives available. Physicians can prescribe oral appliance therapy (OAT), and dentists with specialized training can administer oral appliances and ensure their effectiveness through follow-up care. Data shows that while only 50% of patients remain compliant with PAP therapy at long-term follow-up,¹¹ 90% of OAT patients maintain compliance after 5 years.¹² This underscores the positive impact that dentists can have on their patients' overall health through effective OSA treatment.

Advancements in technologies, diagnostics, and understanding of the impacts of oral inflammation and untreated OSA are bridging the gap between dental and medical healthcare. Inflammation's role in major diseases is evident.¹³ Periodontal pathogens (ie, bacteria that cause periodontal disease), caries, endodontic infections, and untreated OSA contribute to serious medical conditions, including heart attack, stroke, and diabetes.¹⁴ Incorporating screenings for diabetes, high blood pressure, and high cholesterol in the dental

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setting could potentially save the US healthcare system up to \$100 million annually.¹⁵

Dentists today are integral healthcare professionals, no longer confined to the role of performance artists, but rather seen as physicians of the mouth. Their role in identifying and treating inflammatory disease and OSA contributes to reducing chronic inflammation and oxidative stress, improving overall population health, and lowering annual healthcare costs. Dentists serve as quarterbacks on a patient’s care team, educating patients on the consequences of untreated inflammation and guiding them toward further intervention. This proactive role is instrumental in improving overall health and quality of life within our communities.

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