

The Tools for Those Who Need Them

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In the Stone Age the first “prehuman” tools appeared during a period that began in Africa 2.8 million years ago. They were natural stones with sharp cutting edges for preparing food. Subsequently, they were artificially sharpened and became more efficient in their function. They allowed humans to perform tasks more aptly and overall made things more precise and comfortable, and increased the likelihood of success when using them. As humans evolve, so must their tools and currently these tools are more advanced than ever. Some human groups never developed “metal smelting technology” and were left behind in the Stone Age until they encountered and/or were absorbed by other more technologically developed cultures. For each job there is a “suitable” tool that makes life easier. Physicians and dentists trained, both in sleep medicine and dental sleep medicine must speak the same language, just as those publishing this document needed to collaborate in English and Spanish. This collaboration is mutually beneficial to patients. The synergy between physicians, dentists, and patients allows more successful management of these patients. This is why dentists trained in dental sleep medicine must be able to use Home Sleep Apnea Tests (HSATs) and be able to communicate with the physicians regarding both HSATs and polysomnography, all the while acknowledging that HSATs have their limitations. Obstructive sleep apnea (OSA) is a public health problem, and a global prevalence of almost one billion affected people has been reported. This prevalence contributes to myriad health and quality-of-life issues, which in some cases are fatal. The lack of proper diagnosis and delays in treatment and access to care are causing silent havoc and rising healthcare costs.

Dentists train at a postgraduate level and obtain a higher university degree to practice in a vocational health profession. This advanced training incorporates many medical disciplines and therefore provides another source for general medical evaluations for multiple health concerns. Evaluation for hypertension, administration of vaccines, and oral cancer screenings are just a few ways that dentists help the population. It should not be forgotten that, in developed societies, although almost everyone goes to the doctor, inevitably everyone goes to the dentist.

What can dentists contribute and with what tools? Annually a huge percentage of the population pass through waiting rooms for preventative dental treatments, many with undiagnosed pathologies where the dentist does a service to society by screening. Given the suspicion of any pathology, dentists must refer patients to the health specialist considered appropriate. OSA is no exception. Within the healthcare realm dentists can provide the first possibility of detection in these millions of children and adults when they visit the dental clinic. Thus, the dentist trained in dental sleep medicine may be the first to have a clinical suspicion of OSA (clinical symptoms, questionnaires, orofacial examination, etc.), which can be reinforced by the positive result of a validated HSAT. In these cases, these patients must be referred to the primary care physician and / or the sleep physician. Once the definitive diagnosis by the doctor has been made, many of these patients will return to dentists’ offices to be treated when it is indicated for multidisciplinary management such as treatment with mandibular advancement devices (MAD), maxillary expansion-disjunction devices, or functional orthopedic appliances for stimulation of mandibular growth.

In March 2021, the Spanish Society of Pulmonology and Thoracic Surgery (SEPAR) in collaboration with 17 scientific societies published an International Consensus Document (DIC) on OSA, providing guidelines based on a critical analysis of the most recent literature to help healthcare professionals make the best decisions in the care of adult patients with this disease. The dentists represented by the Spanish Society of Sleep Dental Medicine (SEMDeS) participate in this DIC. The DIC recommends: “After evaluating the suitability of the patient from the oral health point of view, the implementation of the treatment and its follow-up should be carried out by a certified dentist or expert in respiratory sleep disorders that characterize OSA, and that work should be done in coordination with a sleep unit. The dentist trained in dental sleep will be able to use respiratory polygraphy as a titration tool for mandibular advancement.”

This HSAT titration is also recommended in *Obstructive Sleep Apnea and Orthodontics: An American*

Association of Orthodontists White Paper. "Oral appliance titration: Unattended (type 3 or 4) portable monitors may be used by the orthodontist to help define the optimal target position of the mandible." SEMDeS also recommends using the HSTs for the titration of MADs. In addition, it facilitates close communication with medical healthcare colleagues. That is why at SEMDeS, training courses are organized on the use and interpretation of HSATs for members.

Let's face it, to help close to one billion people there must be a screening system where professionals such as sleep dentists are included. Expert dentists must contribute their knowledge and experience to that 'big data' with which everyone must be working and advancing together. No medical or dental specialty has all the answers to all OSA-related questions. Therefore, physicians and dentists must work together in a close, respectful, and collaborative way. If physicians and dentists all speak the same language, synergy will make it easier to go further and be able to offer the best solutions to patients with OSA-related issues.

Dentists must remain relevant and not succumb to mediocrity or obsolescence, as happened with some prehistoric populations. Utilization of technologically advanced tools, such as HSATs, cone beam computed tomography, and wearables, along with the material and manufacturing marvels that will appear soon, will help facilitate and improve the diagnosis and management of patients with OSA. Technology continues to advance and new tools are emerging from artificial intelligence with intelligent oximetry and biomedical signal processing and analysis systems that are viewable via the Cloud. Thanks to 'big data' and highly sophisticated algorithms (signal patterns) it may soon be possible for these data points to be automatically translated into a diagnosis--providing a very fast, simple, and effective method for greater access to the almost one billion people affected by OSA who need it and

are waiting for answers and help.

The key point is not to rely solely on the use of artificial intelligence and automatic scoring. The most important things are the decisions that made with these results and the collaboration it fosters among dentists and sleep physicians. To make these decisions, both doctors and dentists must be well trained. No dentist should handle these technologies without having received adequate education and training in dental sleep medicine and HSATs. This will allow them to handle them judiciously and collaborate proactively with doctors so that both doctors and dentists can offer diagnostic solutions and treatment alternatives that improve patients' health and quality of life.

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Dr. Schwartz declares investments in ProSomnus Sleep.