

Position paper by Canadian dental sleep medicine professionals regarding the role of different health care professionals in managing obstructive sleep apnea and snoring with oral appliances

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The present Canadian position paper contains recommendations for the management by dentists of sleep-disordered breathing in adults with the use of oral appliances (OAs) as a treatment option for snoring and obstructive sleep apnea (OSA). The recommendations are based on literature reviews and expert panel consensus. OAs offer an effective, first-line treatment option for patients with mild to moderate OSA who prefer an OA to continuous positive airway pressure (CPAP) therapy, or for severe OSA patients who cannot tolerate CPAP, are inappropriate candidates for CPAP or who have failed CPAP treatment attempts. The purpose of the present position paper is to guide interdisciplinary teamwork (sleep physicians and sleep dentists) and to clarify the role of each professional in the management of OA therapy. The diagnosis of OSA should always be made by a physician, and OAs should be fitted by a qualified dentist who is trained and experienced in dental sleep medicine. Follow-up assessment by the referring physician and polysomnography or sleep studies are required to verify treatment efficacy. The present article emphasizes the need for a team approach to OA therapy and provides treatment guidelines for dentists trained in dental sleep medicine. Many of the dentists and sleep physicians who contributed to the preparation of the present article are members of the Canadian Sleep Society and the authors reached a consensus based on the current literature.

Key Words: *Bruxism; Dental sleep medicine; Obstructive sleep apnea; Oral appliances; Position paper; Sleep-disordered breathing; Snoring*

Oral appliances for sleep-disordered breathing (SDB) are dental devices that maintain the tongue or jaw in position to relieve or improve SDB and snoring. Oral appliances are also known as dental orthotics, tongue retaining devices, mandibular advancement appliances, splints or devices.

In Canada, there are currently no guidelines or established protocols to guide dentists in the treatment of SDB. There is an emerging need to regulate the role of dentists and other health professions in the treatment of obstructive sleep apnea (OSA) and snoring with oral appliances. We understand that the lack of official documents (prepared and recognized by peers across Canada) issued by provincial or national authorities is unusual, and that the present article may be the foundation for future documents.

Un document de principes des professionnels canadiens de la médecine dentaire du sommeil au sujet du rôle de divers professionnels de la santé dans la prise en charge de l'apnée obstructive du sommeil et du ronflement au moyen d'appareils dentaires

Le présent document de principes canadien contient des recommandations sur la prise en charge, par les dentistes, des troubles respiratoires du sommeil chez les adultes qui utilisent des appareils dentaires (AD) pour traiter le ronflement et l'apnée obstructive du sommeil (AOS). Ces recommandations se fondent sur des analyses bibliographiques et le consensus de groupes d'expert. Les AD constituent un traitement de première ligne efficace chez les patients atteints d'AOS légère à modérée qui préfèrent l'AD à une thérapie par pression positive continue (PPC) ou chez les patients ayant une AOS importante qui ne peuvent tolérer la PPC, ne peuvent pas être candidats à la PPC ou ont échoué des tentatives de traitement par PPC. Le présent document de principes vise à orienter le travail des équipes multidisciplinaires (médecins du sommeil et dentistes du sommeil) et à clarifier le rôle de chaque professionnel dans la prise en charge de la thérapie par AD. Le diagnostic d'AOS devrait toujours être posé par un médecin, et les AD devraient être installés par un dentiste qualifié formé et chevronné en médecine dentaire du sommeil. Une évaluation du suivi par le médecin traitant et une polysomnographie ou des études de sommeil s'imposent pour vérifier l'efficacité du traitement. Le présent article souligne la nécessité d'un travail d'équipe à l'égard du traitement par AD et contient des lignes directrices de traitement aux dentistes formés en médecine dentaire du sommeil. De nombreux dentistes et médecins du sommeil qui ont collaboré à la préparation du présent article sont membres de la Société canadienne du sommeil, et les auteurs sont parvenus à un consensus d'après la documentation scientifique à jour.

The present position paper was prepared based on evidence-based consensus by an expert panel comprised of members of the Canadian Sleep Society and the Canadian Academy of Dental Sleep Medicine. The guidelines in the present article were derived from a thorough review of the literature (1-3) as well as numerous position articles on dental sleep medicine practices in the United States and Germany. The present article is also consistent with the guidelines of the American Academy of Sleep Medicine and the recommendations of the American Academy of Dental Sleep Medicine for the use of oral devices in the treatment of OSA and snoring. The final version of the manuscript was approved and supported by the Canadian Sleep Society.

According to the guidelines of the Canadian Thoracic Society and the American Academy of Sleep Medicine, oral appliances are

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recommended as a first-line therapy option for patients with mild to moderate OSA, OSA-hypopnea syndrome or primary snoring (without apnea) (4-7). Oral appliances also provide an alternative therapy for patients with severe OSA who cannot tolerate continuous positive airway pressure (CPAP) therapy. The use of an oral appliance for sleep-related therapy should be initiated only by a dentist who is trained in the field. Moreover, the dentist's main role in the management of SDB is to screen for potential SDB and to provide therapy, but not to diagnose SDB.

For the purposes of the present position paper, a dentist is a doctor in dentistry who holds a permit (or license) (DMD or DDS) to practice dentistry in Canada. A sleep physician is a medical doctor (MD) with a specialization in respirology, neurology, psychiatry, internal medicine or otolaryngology and with training in sleep medicine who holds a permit to practice medicine in Canada. Family physicians may belong in this group if they hold board certification in sleep medicine or equivalent. All of the above-mentioned physicians are responsible for their acts according to their provincial and national jurisdiction. None of the above persons should receive financial benefit from a sleep-related company (eg, CPAP, oral appliance, services, third-party payer) that may influence the decision process in patient diagnosis or therapeutic recommendations and management. Furthermore, the provincial authorities are responsible for ensuring that the guidelines set forth in the present position paper are met.

SHARING EXPERTISE IN RECOGNIZING SDB

When the patient's complaint is primary snoring with no sleepiness, the dentist must, before providing oral appliance therapy, refer the patient to a sleep physician or family physician to review the patient's overall medical history and to exclude the presence of OSA.

For individuals who experience daytime sleepiness and in whom sleep apnea syndrome is suspected, the dentist must refer the patient to a sleep medicine physician, who will be responsible for assessing the risk and severity of sleep apnea. If an appropriate sleep medicine physician is unavailable, the patient can be referred to a family physician for referral to an appropriate medical specialist.

Sleep bruxism and orofacial pain (as a temporomandibular disorder formerly known as 'TMJ') are conditions for which the dentist has diagnostic and management expertise. However, if sleep bruxism and related orofacial pain are concomitant with sleepiness, snoring or sleep apnea/hypopnea, the sleep physician is responsible for making the diagnosis and advising the patient to consult a professional trained in orofacial pain or temporomandibular joint (TMJ) disorder (otolaryngologist), neurologist, oral medicine specialist or dentist).

DENTISTRY ROLES

A dentist with adequate training and expertise in sleep medicine has several roles and responsibilities:

1. Recognize the symptoms of SDB.
2. As appropriate, refer the patient to a physician with training in sleep medicine.
3. Assess oral health and the sleep disruption consequences of concomitant bruxism (tooth grinding and/or clenching), gastroesophageal reflux disease (GERD), orofacial pain and/or temporal headache.
4. Manage, within his or her expertise, SDB, sleep bruxism, and the dental consequences of GERD and orofacial pain using the following:
 - 4.1. Sleep hygiene, a weight control and exercise program, and cognitive and behavioural approaches in collaboration with a psychologist and/or an MD, as indicated.
 - 4.2. Orthodontics, oral and maxillofacial surgery, or otolaryngologist, as appropriate.
5. Propose various oral appliances to the patient according to the patient's oral health status and craniofacial morphology (occlusal splint, mandibular advancement appliance, tongue retaining device

or equivalent), neurostimulation therapy (eg, biofeedback) and other appropriate therapies.

6. With a sleep physician, jointly monitor changes in sleep disorders and mental as well as physical health.
7. Monitor the efficacy and safety of the treatment effected with surgery, orthodontics or oral appliances using valid tools that the dentist can accurately interpret. It is important to emphasize that level III and IV portable monitoring devices (type III: Modified portable sleep apnea testing, minimum of four channels monitored, including ventilation or airflow [at least two channels of respiratory movement, or respiratory movement and airflow], heart rate or electrocardiogram and oxygen saturation; type IV: Continuous single or dual bioparameters, one or two channels, typically including oxygen saturation or airflow) (8) should be interpreted by physicians according to their diagnostic expertise. A dentist working with portable monitors should be able to accurately assess the results, which means the dentist will mainly observe changes in respiratory sleep parameters with treatment, but will not diagnose them as a final follow-up.
8. Manage side effects of oral appliance therapy as they develop.

CODE OF PRACTICES

Dentists who offer these services must be able to demonstrate sufficient competence in this field (7,9). Knowledge and previous use of various orthotics are highly recommended. In addition, dentists must continuously update their expertise by participating at diverse meetings and conferences, or by taking continuing education courses on sleep disorders and sleep apnea. Ideally, dentists should complete the board certification requirements for dental sleep medicine as stipulated by the American Academy of Dental Sleep Medicine or the equivalent (by completing continuing education hours or graduate training courses in sleep medicine), or obtain a diploma in the field of sleep medicine (MSc minimum) from a recognized university.

Dentists who offer SDB management must maintain a file containing the patient's complete medical history including age, weight and height, plus neck or waist circumference as indicated, the presence of tonsils, tongue size, palate width and depth, malocclusion classification (including overjet and overbite measures), the presence of tooth erosion or tooth wear, and jaw and TMJ pain or tenderness.

When indicated, assessments of depression, mood and sleepiness (eg, the Epworth Sleepiness Scale) should be kept on file pretreatment and at various time points during treatment, as required by the provincial authorities.

Pretreatment panoramic or cephalometric radiographs or equivalent should be kept on file. Dental casts and models should be saved as required by provincial authorities. This pretreatment record establishes the baseline occlusion and is meant to minimize the need for repeated or unnecessary radiographs.

Dentists must initially provide patients with explanations and information on sleep behavioural therapy, including sleep hygiene, sleeping position and weight control, along with the type of orthotic device considered and all alternatives (eg, CPAP therapy, surgery or positional therapy).

Patients who are treated with an oral appliance must be followed to monitor oral hygiene when wearing the appliance and to ensure regular and correct use as well as any adaptations or side effects. This type of treatment requires close collaboration between the dentist and the sleep physician. For instance, whereas the dentist can perform the screening, the diagnosis must be made by a sleep physician.

DIFFERENT TREATMENT STAGES FOR SDB (4-7)

1. From the sleep physician, obtain a copy of the sleep record or the polysomnographic analysis and the sleep apnea diagnosis, the physician's recommendations, and the assessments of concomitant conditions (eg, bruxism, hypertension or periodic limb movements).

2. Perform a clinical assessment of the patient, including general and oral health, and the prognosis for soft and hard tissues to be affected by the use of the oral appliance. It is also important to assess recent and relevant radiographs as part of this examination.
3. Obtain the patient's written consent before fitting the appliance. The consent form should clearly indicate the potential and probable risks of using the oral appliance (eg, hypersalivation, tooth movement, pain or appliance breakage). The consent form must be signed by both the patient and the dentist.
4. It is mandatory to maintain regular written communication with the patient's physician and other health care professionals concerning the treatment plan, progress and follow-up.
5. After initiating therapy, the dentist must collect information on the resolution of the patient's symptoms to determine the optimal titration of the oral appliance. If the dentist can obtain objective data, for example with a portable monitor, this information should be used for purposes of titration only and not for follow-up assessments.
6. Symptom progress must be monitored from the initiation of treatment with an oral appliance, after a titration period and after

follow-up with the referring physician or sleep physician to determine whether treatment efficacy should be investigated. The dentist must obtain a follow-up report on the treatment efficacy from the referring sleep physician. In the case of unsatisfactory results, the dentist may extend the oral appliance titration or review the treatment plan with the patient. A diagnosed patient who suffers from primary snoring only (without apnea) does not require an objective follow-up assessment.

7. Establish a follow-up protocol after the formal follow-up assessment. An annual follow-up is important to assess the continued efficacy of the treatment as well as treatment compliance, and to assess the side effects as well as the integrity of the oral structures under the influence of the appliance. The oral appliance may need to be replaced, depending on usage and hygiene.
8. Ensure that the patient duly attends control visits and that communications between the referring physician and dentist are kept on file. Should additional titration periods be required, consult with the medical team.

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