

**Table 1. Studies Design and Detail**

<u>Author &amp; Country</u>	<u>Year</u>	<u>Objective</u>	<u>Methods</u>	<u>Role of dentists and Dental clinical procedures</u>	<u>Additional information Results /Conclusion</u>
American Association of Orthodontics <sup>33</sup>  USA	2019	Guideline for the dentist's role in sleep apnea	Guideline proposed by American Association of Orthodontics	<ul style="list-style-type: none"> <li>• Screening for OSA;</li> <li>• Multidisciplinary management of OSA</li> </ul>	Orthodontists should be familiar with the signs and symptoms of OSA in adult patients. Orthodontists also should include assessment of the patient's height, weight, and neck size to screen adult patients for OSA. Rapid maxillary expansion in patients with constricted maxilla and mandibular advancement correction in patients with class II may change upper airway dimension.
Addy et al. <sup>4</sup>  USA	2018	AADSM guideline for the dentist's role in treating SDB	Guideline supported by the AADSM	<ul style="list-style-type: none"> <li>• Screening for SDB;</li> <li>• Only qualified dentists should screen and treat SDB patients;</li> <li>• Manage OA treatment efficacy and patient follow-up</li> </ul>	Screening for SDB by dentists can collaborate in reducing undiagnosed and untreated patients. AADSM recommends postgraduate training in dental sleep medicine for dentists who intend to work in this field.
Levine et al. <sup>34</sup>  USA	2018	Guidelines for the qualified dentist screen, apply OA and manage patients with OSA	Standardized proposition for patient examination, screening and education, treatment management and follow-up care.	Screening for SDB/OSA signs; Manage OA treatment	The final diagnosis of SDB or OSA should be done by a physician. The physician will prescribe the OA then the dentist will apply, manage, and follow up. Oral and facial anatomic considerations, including pharyngeal crowding, sleep bruxism, and enamel erosion associated with gastroesophageal reflux are also associated with SDB and should be evaluated by the dentist.
Ranieri et al. <sup>20</sup>  Italy	2018	To provide the orthodontist an evidence-based recommendation for the diagnosis and treatment of snoring and OSA in adults.	A literature review of OSA literature in PubMed. Limited to 10 years.	For the orthodontists: <ul style="list-style-type: none"> <li>• Intercept potential OSA patient and approach to the correct process.</li> <li>• Evaluate airway through radiographic exams</li> <li>• Recognize early stages of OSA signs and symptoms.</li> <li>• Refer to the sleep physician.</li> <li>• Apply OA when indicated.</li> <li>• Collaborate with the surgeon in case of maxilla-facial surgery.</li> </ul>	The multidisciplinary approach in which the sleep physician coordinates the team of specialists is indispensable.
A position statement adopted by the ADA <sup>11</sup>  USA	2017	To provide the role of dentistry in the treatment of sleep-related breathing disorders	A position statement adopted by ADA's House of Delegates	Screening for SDB; Apply OA therapy when indicated; Follow up the OA treatment; Update knowledge in dental sleep medicine; The dentist may assess the portable monitoring interim results while following up the OA treatment.	The indication for OA should be made by the physician and the dentist will confirm, apply, and follow up the treatment.

Leibovitz et al. <sup>9</sup>  Israel	2017	The role of dentists in the snoring and OSA treatment in children	A comprehensive literature search of publications from 1973 to 2017 in PubMed.	Dentists play a significant role in the early detection of OSAS and referring to an ear, nose, and throat physician. A multidisciplinary treatment team, which manages and treats OSAS, is the most appropriate approach. Evaluate through sleep questionnaire.	Pediatric SDB may reach 30% of children. Dentists' evaluation should include mouth breathing, nasal speech, recurrent airway infections, lack of concentration, elongated face, crowded teeth, high-arched palate, obesity, adenotonsillar hypertrophy. Dentists have an important role in a multidisciplinary team for the diagnosis and treatment of snoring and OSA in children.
Quan et al. <sup>24</sup>  USA	2017	The role of dentists in patients with OSA	Descriptive analysis based on the guidelines of the American Academy of Sleep Medicine and American Academy Dental Sleep Medicine	Fabrication of an OA device and its implementation are specialized skills that should be done by a qualified dentist, as advocated by the professional societies of both sleep medicine and dental sleep practitioners.	As part of the routine dental examination, dentists can recognize a small upper airway and other anatomic risk factors for OSA and use the opportunity to identify potential patients through use of simple screening questions and/or questionnaires. This can help reduce the problem of underdiagnosis of OSA. The diagnosis of OSA, however, should be reserved for physicians, especially sleep specialists, whose training prepares them to explore the interaction of OSA with other medical diagnoses. To accomplish these tasks, it is essential that dentists work collaboratively with the referring sleep medicine physician. Both sleep physicians and qualified dentists have essential roles in the treatment of OSA with OA. The sleep physician must confirm the diagnosis and may recommend OA. The dentist will confirm that OA is appropriate and initiate therapy. Follow-up should be performed by a dentist and physician, each contributing their special expertise.
Masoud et al. <sup>30</sup>  Saudi Arabia USA	2017	To review the key literature relevant to sleep-disordered breathing (SDB) characteristics and diagnosis, including history, examination, and investigation with an emphasis on radiographic airway analyses.	Review of literature	Dentists can be the first professionals to recognize a patient's potential sleep problem since they typically have more frequent contact with their patients than do physicians. Besides first screening, Mandibular advancement devices are within the role of dentists.	Before the treatment plan, the dentist should perform an anamnestic and clinical examination and refer to a sleep study if necessary. The radiographic airway analyses may be inconclusive in this diagnosis. More research in pediatric dentistry is utmost.

Wu and Dubois <sup>15</sup>  USA	2016	American College of Prosthodontists position statement elaborated in 2005, revised and approved in 2015 and 2016	Association guideline	The prosthodontists may screen for SDB/OA, refer the patient to a sleep physician for a diagnosis. To monitor and manage any occlusal changes that can occur with OAs. Prosthodontists may provide OAs only if they have had training in dental sleep medicine.	Prosthodontists should include a mandatory questionnaire screening for OSA. The final diagnosis should be made by the physician.
Stuck et al. <sup>28</sup>  Germany	2015	Diagnosis and treatment of snoring in adults. Developed by the German Society of Otorhinolaryngology, Head and Neck surgeons revised and designed according to the specifications of the Association of the Scientific Medical Societies in Germany	A systematic review of the literature with the latest research published. The review of the literature was performed in June 2012 using Medline.	Intra-oral appliance for snoring. Examination of the oral cavity evaluating the size of the tongue, mucosal status, and dentition as well as facial skeleton especially retrognathia and narrow maxilla.	Snoring can be successfully treated with intraoral devices. Mandibular advancement devices are used to enlarge the pharynx in the anterior-posterior dimension by protruding the mandible. These intraoral devices are also used in patients with OSA.
Ramar et al. <sup>21</sup>  USA	2015	Clinical practice guideline for the treatment of OSA and snoring with the OA by the AADSM	3 sleep medicine physicians, 2 dentists with expertise in OA and 2 research staff members with expertise in guidelines developed questions to be discussed through RCTs published.	Recommendations for the efficacy for the use of OA based on the quality of evidence and counterbalanced by an assessment of the benefits versus the risks. 'Qualified dentists' should provide OA therapy	The recommendation should also be made by patients' preference and cost evaluation. OAs can significantly reduce the AHI; respiratory disturbance index; respiratory event index across all levels of OSA severity in adult patients. There was no difference in the mean reduction AHI before and after OA treatment versus CPAP across all levels of OSA severity.
Levrini <sup>13</sup>  Italy	2015	To present a set of proposed clinical recommendations aimed at Italian dentists involved in the management of patients with OSA or snoring	Delegates of Italian scientific societies operating in fields relevant to the issue of sleep medicine in dentistry, proposed questions regarding the clinical management of OSAS and snoring patients. Società Italiana Medicina del Sonno Odontoiatrica; Associazione Italiana Medicina del Sonno; Surgical commission, Associazione Italiana Medicina del Sonno (ENT representative) and Associazione	Screening patients with snoring or OSAS. In interdisciplinary management, dentists can decide with the sleep specialist to treat or not patients with snoring or OSAS if he or she has characteristics defined by clinical recommendations. OA treatment. Evaluation of clinical and radiographic characteristics commonly associated with SDB. If a diagnosis of snoring or OSAS moderate or mild, is confirmed, the dental analysis and the decision regarding the application of an OA, as well as its characteristics, are exclusively within the competence of	OAs can be used to treat simple snoring; mild to moderate OSA, in patients who prefer OAs to CPAP or who are not suitable candidates for CPAP, because of its failure or failure of behavioral approaches such as weight loss or positional therapy; patients with severe OSAS who do not respond to or do not tolerate CPAP and in whom no indication for either maxillofacial or ear, nose, and throat surgery appears applicable. The application of OAs is highly desirable in cases of simple snoring or mild to moderate OSA, whereas

			Otorinolaringologi Ospedalieri Italiani; Collegio dei Docenti di Odontoiatria; Associazione Nazionale Dentisti Italiani; • Associazione Italiana Odontoiatri; Associazione Italiana Pazienti con Apnee del Sonno.	the dentist, irrespective of his or her academic training.	considerable caution is warranted when treating severe OSAS. It is fundamental to ensure that the patient understands his problem and, at the same time, to present all the various treatment options.
Almeida et al. <sup>32</sup>	2014	College of Dental Surgeons of British Columbia Standards and Guidelines for Obstructive Sleep Apnea -	Guideline for the Role of Dentists in the Treatment of Snoring and Obstructive Sleep Apnea with Oral Appliances prepared by the College of Dental Surgeons of British Columbia	Screen for potential OSA; Refer these patients to the sleep physician; Provide OA therapy	It is important to be aware of the multidisciplinary teamwork between dentists and sleep physicians that is required for the OA when treating patients with a diagnosis of snoring and/or OSA; as well as clarify the role and responsibilities of each professional.
Canada					
Ngiam et al. <sup>31</sup>	2013	Guidelines for the use of OA for the treatment of OSA and snoring	Review of the literature by a multidisciplinary team	Recognize the signs of SDB; to refer to a physician; prescribe, manage and follow up OA treatment; manage possible side effects on tooth and TMJ.	Important to evaluate long-term effects of OA treatments. OA may or may not have positive results in OSA and snoring
Australia					
Spencer et al. <sup>26</sup>	2013	Guidelines for the use of OA for snoring and OSA treatment by the American Academy of Craniofacial Pain	Consensus-based on their review of the current evidence published guidelines and clinical experience of the authors.	Dentists should have the proper training to provide OA and TMD treatment and craniofacial pain.	OA may result in exacerbation of previous asymptomatic TMDs and craniofacial pain. Specialized training is essential to deliver therapy for snoring, OSA, and TMD.
USA					

Canada	Gauthier et al. <sup>27</sup> 2012	The current Canadian position paper contains recommendations for the management by dentists of SDB in adults with the use of OAs as a treatment option for snoring and OSA.	The recommendations are based on literature reviews and expert panel consensus. 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.	Recognize SDB symptoms; refer the patient to a sleep medicine physician; evaluate other issues such as bruxism, orofacial pain, headache, gastroesophageal reflux; manage SDB, bruxism, dental consequences of reflux, orofacial pain, weight control, exercise program, behavior approaches in collaboration with the psychologist and physician; manage and apply OA. Assess the results of portable polysomnography but without diagnosing.	The diagnosis of OSA should always be made by a sleep 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 physician should interpret level III and IV portable polysomnography devices. The dentist should only use portable monitoring to monitor the titration, not to do follow up the diagnosis of efficacy. That's the role of the sleep physician.
USA	Epstein et al. <sup>22</sup> 2009	Guideline designed to assist primary care providers as well as sleep medicine specialists, surgeons, and dentists who care for patients with OSA by providing a comprehensive strategy for the evaluation, management and long-term care of adult patients	AASM parameters to the evaluation and management of OSA in adults added to the literature review and evidence grading. Plus, consensus-based recommendations.	OA initiation, management and follow-up. However, before the OA therapy, the patient should undergo a complete intraoral examination, TMJ and anamnestic. Request a cephalometry when necessary. The dentist should be qualified to apply OA therapy.	Questions regarding OSA should be incorporated into routine health evaluations. Suspicion of OSA should trigger a comprehensive sleep evaluation. The diagnostic strategy includes a sleep-oriented history and physical examination, objective testing, and education of the patient.
UK	Stradling and Dookun <sup>29</sup> 2009	Screening protocol and recommendation for snoring and OSA's treatment	British Society of Dental Sleep Medicine -	Identify patients with OSA; Refer these patients to the physician; Provide OA treatment;	The regular contact of patients and dentists gives the dentist an important role for screening for OSA and snoring since snoring can be linked to OSA. A multidisciplinary approach is necessary.
Germany	Schwarting et al. <sup>25</sup> 2007	Guide multidisciplinary team (sleep physician and sleep disorder dentist) when to prescribe OA	Summarize the indications MAD in adults with SBD through the guidelines developed by the AASM and the German Sleep Society	MAD is indicated for primary snoring, upper airway resistance syndrome, mild to moderate OSA with AHI up to 25/h and BMI of up to 30 kg/m <sup>2</sup> . MAD also can be used as an alternative to CPAP. This therapy must be done by specialized dentists in sleep disorders.	The final diagnose of OSA must be made by the sleep physician. Inter and intradisciplinary treatment must be taken into account, especially the preliminary medical diagnoses and the medical follow-up.

Kushida et al. <sup>23</sup>  USA Canada	2006	Practice parameters for the treatment of snoring and OSA in adults	Standards of Practice Committee of the AASM develop the practice parameters based on review paper and strength of evidence.	In a patient with OSA, the oral appliance should be fitted by a qualified dentist with training in the TMJ, occlusion and oral structures. The dentist should have taken special training in SDB. Require a cephalometric evaluation when necessary. OA patients should return for follow up after the optimal fit is obtained, the patient should return after 6 months in the first year and then at least once a year.	Follow up sleep testing is not recommended for patients with primary snoring. Patients with OSA should undergo polysomnography or attend cardiorespiratory sleep study with OA in place after the final adjustments. The last judgment regarding any specific treatment is the physician's responsibility.
Schmidt-Nowara <sup>36</sup>  USA	2001	The history and diagnosis of sleep disorders related to the dentist.	Review.	Therapy and management offered by a dentist have become recognized as an important aspect of care for patients with SDB.	Dentists who offer this service need to become acquainted with the multifactorial nature of sleep medicine to better serve their patients and to facilitate their interaction with other sleep medicine clinicians.
Lavigne et al. <sup>37</sup>  Canada Italy The Netherlands	1999	Guideline for dental sleep clinician in the management of SDB	Review of the literature	Manage TMD problems and chronic orofacial pain. Indicate and manage the use of OA	Prior to OA treatment, a diagnosis of OSA must be made by a physician. OA should only be used in primary snoring and mild to moderate OSA, or in cases in which the CPAP is not indicated in patients with severe OSA.

AADSM, American Academy of Dental Sleep Medicine; AASM, American Academy of Sleep Medicine; AHI, apnea-hypopnea index; BMI, body mass index; CPAP, continuous positive airway pressure; MAD, mandibular advancement device; OA, oral appliance; OSA, obstructive sleep apnea; OSAS, obstructive sleep apnea syndrome; RCT, randomized controlled trial; SDB, sleep-disordered breathing; TMD, temporomandibular disorder; TMJ, temporomandibular joint.