

JUL 14 2021

Approved

**VIRGINIA BOARD OF DENTISTRY
BUSINESS MEETING MINUTES
March 19, 2021**

TIME AND PLACE: The virtual meeting of the Virginia Board of Dentistry was called to order at 10:00 a.m., on March 19, 2021.

CALL TO ORDER: Dr. Petticolas called the meeting to order.

Consistent with Amendment 28 to HB29 (the Budget Bill for 2018-2020) and the applicable provisions of § 2.2-3708.2 in the Freedom of Information Act, the Board is convening today's meeting virtually to consider such regulatory and business matters as are presented on the agenda necessary for the board to discharge its lawful purposes, duties, and responsibilities.

Dr. Petticolas provided the Board members, staff, and the public with contact information should the electronic meeting be interrupted.

BOARD MEMBERS PRESENT VIRTUALLY: Augustus A. Petticolas, Jr., D.D.S., President
Patricia B. Bonwell, R.D.H., PhD
Nathaniel C. Bryant, D.D.S.
Sultan E. Chaudhry, D.D.S.
Jamiah Dawson, D.D.S.
Perry E. Jones, D.D.S.
Margaret F. Lemaster, R.D.H.
J. Michael Martinez de Andino, J.D.
Dagoberto Zapatero, D.D.S.

BOARD MEMBERS ABSENT: Sandra J. Catchings, D.D.S.

STAFF PRESENT VIRTUALLY: Sandra K. Reen, Executive Director of the Board
Jamie C. Sacksteder, Deputy Executive Director
Donna Lee, Discipline Case Manager
David C. Brown, D.C., Director, Department of Health Professions
Barbara Allison-Bryan, M.D., Chief Deputy Director, Department of Health Professions
Elaine Yeatts, Senior Policy Analyst, Department of Health Professions
Richard Archer, D.D.S., M.S. Board Consultant

COUNSEL PRESENT VIRTUALLY: James E. Rutkowski, Assistant Attorney General

ESTABLISHMENT OF A QUORUM: A roll call of the Board members and staff was completed. With nine members of the Board present, a quorum was established.

Dr. Petticolas welcomed the new Board member, Dr. Zapatero.

PUBLIC COMMENT:

Dr. Petticolas explained the parameters for public comment and opened the public comment period. He stated that written comments were received from Mr. Trey Lawrence, Kannan Ramar, M.D., and Ms. Jessica Bui, which were included in the agenda package. He further stated that written comments received from Mr. Brett Seigel, Dr. James Watkins, Ms. Jessica Bui, Dr. Dag Zapatero, Dr. Erika Mason, Dr. David Schwartz, and Dr. Alexander Vaughan were sent by email to Board members and the Public Participation list and will be posted with the draft minutes.

Jessica L. Bui, Executive Director, Southern Regional Testing Agency, Inc. (SRTA) – Ms. Bui stated that SRTA has a long standing history with Virginia and it does fulfill the requirements that Virginia has for licensure. She stated that competition is good for students and it allows them to choose which examination they would like to take. Ms. Bui also stated that by only allowing one testing agency, it could hinder the acceptance of applicants to Virginia and she hoped that Virginia would remain inclusive and accept SRTA as a testing exam.

Brett Seigel, VCU ASDA Chapter President Elect - Mr. Seigel said the ASDA chapter at VCU takes the position of moving dental licensure from live patient board exams to non-live patient exams due to the negative impact of using human subjects in clinical licensing examinations. Mr. Seigel stated that ASDA believes an ideal licensure exam does not use human subjects in a live clinical testing scenario; is psychometrically valid and reliable in its assessment; is reflective of the scope of current dental practice; and is universally accepted.

Dr. Gerry Walker, SRTA President – Dr. Walker stated that competition is good across any endeavor. He also stated that using only one agency to test would make a monopoly; and students should be allowed to choose what testing examination they want to take.

Bruce D. Horn, D.D.S., WREB Dental Examination Director – Dr. Horn commented that WREB has been accepted in Virginia for more than 20 years. He stated that the current WREB exam meets and in some areas exceeds the requirements for Virginia licensure. He emphasized that portability for candidates is not equivalent to accepting just one examination and that the ADEX exam is not given everywhere. He said WREB would like to continue to be accepted in Virginia for initial licensure candidates offered to make a presentation to the Board to answer any questions or concerns.

Jason R. Bierig, General Counsel for WREB - Mr. Bierig said the Board is considering withdrawal of acceptance of the WREB exam because of concerns about WREB's system for scoring the exam; and the proposition that if one licensure exam is accepted in all states there is no reason to accept other exams in Virginia. He stated he believed the Board did not consider the correct score reports WREB sent to the

Board. He explained that accepting only one exam is contrary to the goal of portability and would also eliminate competition. He asked the Board to continue accepting their exam and requested a discussion between WREB and the Board to address their concerns.

Erika Mason, D.D.S. – Dr. Mason addressed her concerns about the letter from the American Academy of Sleep Medicine (AASM) which asks the Board to change or incorporate some rules to not allow dentists to use a home sleep test for the treatment of patients with obstructive sleep apnea. She said the AASM had misrepresented the article the American Academy of Dental Sleep Medicine (AADSM) provided. Dr. Mason said that dentists do not want to use the home sleep test for diagnostic purposes, but as something that would benefit the patient to make sure they receive proper treatment and is good for their health. Dr. Mason encouraged having further discussion about this issue before making any determinations about changing laws or regulations.

Alexander T. Vaughan, D.D.S., Dental Director of Virginia Total Sleep – Dr. Vaughan stated that the AASM letter was sent to all state Boards. The AADSM found that only ordering the home sleep test was within the scope of dentistry. The AASM is focused on testing and the interpretation of that test; however, the AADSM is focused on ordering the administration of testing, which is within the scope of the practice of dentistry. Dr. Vaughan encouraged the Board to either take no action with respect to the letter received from AASM or consider appointing a regulatory advisory panel composed of the stakeholders and specialties so that information could be provided from both sides to address the regulatory issue. Dr. Vaughan offered to assist the Board in discussion of this subject.

APPROVAL OF MINUTES: Dr. Petticolas asked if there were any edits or corrections to any of the four sets of draft minutes included in the agenda package. Dr. Jones moved to approve the four sets of minutes. Following a second, a roll call vote was taken. The motion passed.

DHP DIRECTORS' REPORTS: Dr. Brown reported that the General Assembly passed legislation to allow pharmaceutical processors, which are regulated by the Board of Pharmacy, to distribute cannabis flower or botanical cannabis. This bill is anticipated to be signed into law, which will increase the demand for the product. Legislation was also introduced to legalize possession of marijuana in Virginia.

Dr. Brown said the Governor is relaxing some of the COVID restrictions and added that in the near future the Boards may be able to hold in-person meetings and hearings.

Dr. Allison-Bryan reported that communities in Virginia are now open to the 1C category for vaccination and that the goal of the President and the Governor is to allow any adult who wants to get the vaccine to do so by May 1, 2021.

Dr. Allison-Bryan reviewed legislation which increased the type of eligible vaccinators in the Commonwealth. She explained that dentists are not able to give the vaccine in their dental office, and she encouraged anyone interested in participating as a volunteer vaccinator to go to the Virginia Department of Health's website to read about the qualifications and guidelines.

**CONSIDERATION OF
PUBLIC COMMENT:**

Dr. Petticolas deferred discussion of the written comments received regarding the **American Association of Dental Boards (AADB)** to Ms. Reen's report on the AADB mid-year meeting later on the agenda.

Dr. Petticolas called for discussion of the comments received from **AASM** and **AADSM** regarding ordering home sleep tests. Mr. Rutkowski advised the Board to consider the definition of the practice of dentistry in the Code of Virginia. Ms. Reen said the Board's position has been that a dentist can refer patients for a sleep study, but only a medical doctor can make a diagnosis; then the medical doctor can refer a patient for dental treatment to address sleep apnea. Ms. Yeatts confirmed that sleep studies fall within the scope of the practice of medicine and dentists are allowed to make referrals, but not a diagnosis. After discussion, Dr. Bonwell moved to refer this matter to the Regulatory-Legislative Committee for discussion. Following a second, a roll call vote was taken. The motion passed.

Dr. Petticolas deferred discussion of the written and verbal comments regarding licensure examinations received from representatives of **ASDA**, **SRTA** and **WREB** to the Exam Committee report later on the agenda.

**LIAISON & COMMITTEE
REPORTS:**

Update on ADEX - Dr. Bryant stated he had no updates to present.

Exam Committee Report – Dr. Bryant provided an overview of the Committee's work on exam acceptance including the difference between conjunctive and compensatory scoring then addressed each motion advanced by the Committee for Board action.

Dr. Bryant moved that the Board only accept examination results which meet the scoring content, passing score and the listed required components for licensure by examination as stated in the second recommendation on page 46 of the agenda. Following a second, Dr. Petticolas called for discussion. Discussion followed on delaying action on the motion to follow up on the comments received from testing agencies on compensatory scoring. Then a roll call vote on the Committee's motion was taken. The motion passed.

Dr. Bryant moved that the Board only accept the ADEX Dental Exam for licensure by examination as address in the recommendation on page 46 of the agenda. Following a second, Dr. Bryant asked Ms. Sacksteder and Dr. Archer to address this motion. Ms. Sacksteder explained that

the testing agencies' testing booklets were the source of the information she provided to the Committee for discussion. Dr. Archer stated there would be enough lead time for dental students to be aware of the change in Virginia and that dental students will have access nationwide with most being able to take the exam at their respective dental schools. Discussion followed about accepting all exams that meet the content requirements adopted in the first motion then a roll call vote on the Committee's motion was taken. The motion passed.

Dr. Bryant introduced the next motion by reading the requirements for a passing score, exam content and practice experience for licensure by endorsement as specified in the third recommendation on page 46 and continued on page 47 of the agenda. He then moved that the Board continue to accept, for dental licensure by endorsement, passage of the exams given by the 5 testing agencies which meet the specified requirements. Following a second, the floor was opened for discussion. Hearing none, a roll call vote was taken. The motion passed.

Dr. Bryant stated the Committee is recommending a grace period then moved that the Board adopt January 1, 2023 as the effective date for acceptance of only ADEX exam results for dental applicants by examination. Following a second, the floor was opened for discussion. Hearing none, a roll call vote was taken. The motion passed.

Dr. Bryant reviewed the information considered by the Committee on the equivalency of the dental hygiene exams administered by the 5 testing agencies which he said should be considered before addressing the motion on accepting only the ADEX exam. He went on to address the scoring and content requirements addressed on page 47 and 48 of the agenda. Then Dr. Bryant moved that the Board only accept the ADEX exam as recommended. The motion was seconded and the floor was opened for discussion. Questions about limiting acceptance to one exam were raised and addressed. Ms. Sacksteder said the motion to be addressed is the recommendation on required components and scoring. Dr. Petticolas agreed and the motion on the ADEX exam was withdrawn.

Dr. Bryant moved that the Board only accept the exam results for dental hygiene licensure by exam which include the required components and scoring requirements addressed at the bottom of page 47 and on page 48 of the agenda. The motion was seconded and the floor was opened for discussion. A question about the possibility of licensing challenges was addressed, then a roll call vote was taken. The motion passed.

Dr. Bryant moved to only accept the ADEX examination for dental hygiene licensure by examination as addressed in the recommendation on page 47. The motion was seconded. Discussion followed regarding accepting tests from all five testing agencies since they are currently equivalent, being restricted by law to being a member of only one testing agency and about having a voice in exam development. The discussion

included Mr. Rutkowski's explanation that the testing agencies are all corporations and there would be a conflict in being a member of two organizations delivering the same product. A roll call vote was taken. The motion passed.

Dr. Bryant moved that the Board continue to accept for dental hygiene licensure by endorsement passage of the exams given by the 5 testing agencies which meet all the requirements specified in the first full recommendation on page 48, including the practice requirement. Following a second, the floor was opened for discussion. Hearing none, a roll call vote was taken. The motion passed.

Dr. Bryant moved that the Board adopt January 1, 2023 as the effective date for acceptance of only ADEX exam results for dental hygienists applying by examination. Following a second, the floor was opened for discussion. Hearing none, a roll call vote was taken. The motion passed.

Dr. Bryant read the proposed definitions advanced by the Committee for "Clinical Competency Exam", "Compensatory Scoring", "Conjunctive Scoring" and "Substantially Equivalent" as addressed at the bottom of page 48 and the top of page 49 to be addressed in a guidance document for applicants. Dr. Bryant moved adoption of the definition of each of these terms. Following a second, the floor was opened for discussion. Hearing none, a roll call vote was taken. The motion passed.

Dr. Bryant asked if the terms needed to be addressed in regulations. Ms. Yeatts said that definitions in regulations can only define terms that are actually used in the regulations. Since these terms are not in the regulations, she recommended that a comprehensive guidance document be completed to include these definitions and presented to the Board for review at its next meeting. Dr. Petticolas requested that Ms. Yeatts, Ms. Reen and Ms. Sacksteder create a guidance document with the definitions to present to the Board at its next meeting.

Dr. Bryant read the recommendation on page 49 which addresses the proposed requirements for score cards then asked Ms. Yeatts if this information should be provided in a guidance document. Ms. Yeatts confirmed that would be appropriate. Dr. Bryant then moved that the Board adopt the recommendations for acceptable score cards as addressed on page 48 of the agenda for dental and dental hygiene applications. Following a second, the floor was opened for discussion. Hearing none, a roll call vote was taken. The motion passed.

Ms. Yeatts recommended that a guidance pertaining to the acceptable score cards be addressed in a guidance document and presented to the Board at its next meeting. Mr. Rutkowski agreed, explaining that the Board has the authority to address the exams it will accept.

Dr. Bryant stated that the Exam Committee wanted to ask Board Counsel and Ms. Yeatts if the changes in requirements adopted by the Board for clinical exam acceptance need to be addressed in regulations or in a guidance document and application instructions. Ms. Yeatts clarified the difference between a guidance document and a regulation and advised that it is not necessary to take regulatory action because the Board has the authority to determine which clinical exams are acceptable for licensure. Mr. Rutkowski concurred with Ms. Yeatts and added there is a statute that requires a candidate to pass a clinical examination acceptable to the Board. He stated that the Board can approve the examination and it does not have to go through regulations. Dr. Bryant moved that the changes in examination requirements adopted by the Board for clinical exam acceptance be addressed in a guidance document and application instructions. Following a second, the floor was opened for discussion. Dr. Bryant clarified for new members that guidance documents can be changed. A roll call vote was taken. The motion passed.

Dr. Petticolas asked if the motions adopted on dental hygiene exam content and on only accepting ADEX for licensure by examination were in conflict. Ms. Yeatts responded that she sees them as complementary.

Board of Health Professions – Ms. Reen reported that Dr. Catchings attended her first meeting and the draft minutes are provided for review.

Regulatory-Legislative Committee – Ms. Reen said the Committee recommended initiating a fast-track action to remove pulp capping from the scope of practice for DAs II. She added that there are 32 DAs II with approval to perform pulp capping who will need to be addressed. Ms. Yeatts pointed out that a fast track action would not be appropriate in this situation and the standard process will take about 2 years. Mr. Rutkowski agreed. After discussion, Dr. Chaudhry moved that a NOIRA be initiated to remove pulp capping from the scope of practice and training requirements of DAs II. The motion was seconded and the floor was opened for further discussion. Ms. Yeatts said that she was concerned about removing the ability to do pulp capping from people already authorized to do this function. She said the process can be started. Opposition to grandfathering and a question about increasing the education requirements were discussed. Ms. Yeatts said the process could be started now and added that new regulations for DAs II will go into effect March 31, 2021. A roll call vote was taken. The motion passed.

Update on CITA – The annual meeting will be in October in Florida. Dr. Petticolas suggested that a Board member should attend who intends to administer this exam. Ms. Lemaster indicated she would be interested in attending the CITA meeting.

Executive Committee Report - Dr. Petticolas referred to the draft minutes of the March 5, 2021 Committee meeting then moved to adopt

the following 2 amendments to the Bylaws on pages 61 and 65 which address conducting Board business during an emergency:

- **Article V. Committees, #1-Executive Committee** – add letter “f” to read “Address urgent matters which adversely affect either the timely licensing of applicants or the continuity of board operations while a State of Emergency is in effect and documented efforts to convene a quorum of the Board have failed due to disruption of electronic communications and/or the ability to safely travel in the Commonwealth.”
- **Article VI. Executive Director, #2 Duties** – modify subsection “e” to add “Keep a record of efforts to convene a meeting of the Board during a State of Emergency to include methods of contact; a summary of the information provided; a summary of the responses of each member; and an explanation of why efforts to contact a member were unsuccessful.”

Following a second, the floor was opened for discussion. Dr. Bonwell asked about the duplicate lettering on page 64 in number 4. Special Conference Committees which should read “a, b, c, d, e, and f”. There was consensus to include this change in the motion. A roll call vote was taken. The motion passed.

LEGISLATION AND REGULATION:

Status Report on Regulatory Actions Chart. Ms. Yeatts reviewed the status of Regulatory Actions, noting that the sedation and anesthesia regulations went into effect on February 17, 2021 and the comment period for the 2 NOIRAs - on training and supervision of digital scan technicians and on training of DAs in infection control - ends on March 31, 2021. She gave an overview of the standard 3-stage process for the adoption and promulgation of regulations. She also described the steps in the approval process and stated that sometimes it can take up to 2 years before a regulation is final.

Petition for Rulemaking – Regulations Governing the Practice of Dental Assistants. - Ms. Yeatts reviewed the petition to amend regulations to create a pathway for dental assistants with 5-10 years of experience to take the Certified Restorative Functions Dental Assistant exam and have the employing dentist observe and approve their capabilities to practice as a Dental Assistant II. She explained the possible actions and responded to questions. Mr. Martinez moved to deny the petitioner’s request for rulemaking at this time. Following a second, the floor was opened for further discussion. Hearing none, a roll call vote was taken. The motion passed.

BOARD COUNSEL REPORT:

Mr. Rutkowski did not have any report for the Board.

**DEPUTY EXECUTIVE
DIRECTOR'S REPORT:**

Ms. Sacksteder reviewed her disciplinary report on case activity for January 1, 2020 to December 31, 2020 and for January and February of 2021, giving an overview of the actions taken and a breakdown of the cases closed with violations.

**EXECUTIVE DIRECTOR'S
REPORT:**

AADB Mid-Year Meeting – Ms. Reen stated the meeting was held virtually and was well organized with a focus on continuing education, adding that there was no business conducted. She noted the public comments received from three organizations expressing concerns regarding the new for-profit corporation sponsorships instituted by the AADB and the potential conflicts of interest these appear to have created. Dr. Bryant expressed concerns about maintaining the relationship. Dr. Brown commented that all DHP boards have national associations where each state has a representative except dentistry because AADB is not organized to represent the boards. He said that there needs to be a meeting of boards to create a national association for boards. Dr. Petticolas said the letter raised a significant issue. Discussion followed on actions the Board could take. The consensus of the Board was to send a letter to every state and a copy to the 3 organizations, AADB and the ADA expressing concerns about AADB serving the interests of companies rather than the Boards. Ms. Reen was directed to draft a letter outlining the Board's concerns, share it with the Board members for review, and then provide the final letter for signature by Dr. Petticolas.

CODA Accreditation Site Visit Scheduled in Virginia – Ms. Reen informed the Board that when CODA does an accreditation in Virginia, they like to have a Board representative present. She reported that Dr. Dawson was selected by CODA to be the Board representative for the site visit in Abingdon which will be conducted in April.

Dentistry's Licensees and Registrants – Ms. Reen reviewed the number of licensees and license types that make up the total number of 15,181 licensees.

When a Dentist Dies Guide – Ms. Reen asked if the Board would be interested in creating a guidance document to explain what to do with patient records and other factors to consider if a dentist dies. Mr. Rutkowski confirmed there is no statutory provisions on how to handle the records when a licensee passes away. By consensus the Board asked Ms. Reen, along with Mr. Rutkowski and Mr. Martinez, to prepare a guidance document to present to the Board at its next meeting.

Board Member Training - Ms. Reen invited recommendations on possible training topics of interest to the Board members that could be addressed in future board meetings.

Board, but not Boring:

Dr. Allison-Bryan was unable to make her presentation due to technical difficulties. Dr. Allison-Bryan agreed to provide the presentation at the Board's next meeting.

Virginia Board of Dentistry
Board Business Meeting
March 19, 2021

ADJOURNMENT: With all business concluded, the Board adjourned at 2:09 p.m.

Augustus A. Petticoles, Jr., D.D.S.
Augustus A. Petticoles, Jr., D.D.S., President

Sandra K. Reen
Sandra K. Reen, Executive Director

July 13, 2021
Date

July 15, 2021
Date

PUBLIC COMMENTS RECEIVED FOR MARCH 19, 2021 BOARD MEETING

Sandra Reen

From: Brett Siegel <siegelb2@mymail.vcu.edu> on behalf of Brett Siegel
Sent: Tuesday, March 16, 2021 12:41 PM
To: Sandra.reen@dhp.virginia.gov
Subject: Public comment for BOD
Attachments: Letter to the Board of Dentistry .pdf

Hey Sandra,

I would like to make a public comment on 3/19 at 10am. Below is the attached comment I will be making.

The Best,

Brett Siegel

Dear Board of Dentistry and Exam Committee,

My name is Brett Siegel I am the current President Elect of the American Student Dental Association Chapter at VCU. I am a 2nd year and I am speaking on behalf of my peers at the SOD that this committee recommendation will affect. The ASDA chapter at VCU takes the position of pro of moving dental licensure from live patient board exams to non live patient exams.

I am going to be reading state from ASDAs white paper regarding licensure reform

Each year thousands of Americans are used as test subjects in clinical licensing examinations by candidates seeking a dental license. Irreversible surgical procedures are performed on these patients without the same comprehensive supervision they typically receive within an accredited dental school setting to ensure their protection. The outcomes of these clinical exams never result in a 100 percent pass rate; and failure rates have been as high as 80 percent in some years. These failed procedures left patients with substandard dental surgery outcomes and the need to seek follow-up care from a licensed dentist to restore the failed procedures. Despite the best efforts of the dental candidates and those proctoring the examinations, not all test subjects receive follow-up care and could suffer from permanent damage to their teeth. The use of human subjects in clinical dental licensing examinations began in the early 1900s; and the debate over the validity, reliability and ethical nature of this practice has been widespread within dentistry for more than half a century. Despite the dialogue, thousands of Americans are still being used each year as test subjects in these examinations. Alternatives exist, though the vast majority of state dental boards have ignored the glaring reliability, validity and ethical issues that accompany the administration of clinical licensure examinations. Members of the American Student Dental Association (ASDA)—the students who are required to perform irreversible surgical procedures on our fellow man—stand firm in our conviction that the practice of using human subjects in clinical licensing examinations is flawed and unethical. Patients should not be put into a situation where there is a possibility they will receive substandard treatment that may irreparably harm them. We stand by the American Dental Association (ADA), the American Dental Education Association (ADEA), the Student Professionalism and Ethics Association in Dentistry (SPEA) and many dental school deans across the country, among others, who believe that to protect the public, maintain the integrity of the profession of dentistry and ensure that only competent dental school graduates can gain a dental license, performing exams on human subjects in a high-stakes, one-shot scenario must end.

ASDA understands alternatives that are preferable to the current process exist, however the Association believes an ideal licensure exam:

- Does not use human subjects in a live clinical testing scenario
- Is psychometrically valid and reliable in its assessment
- Is reflective of the scope of current dental practice
- Is universally accepted

The Best,

Brett Siegel

VCU ASDA Chapter President Elect

Adex is used for last 5 years

- Relate exams to what they teach at school
- Mannequin exams have evolved - research is valid it has the same rates of failure and criteria without all the ethical problems and logistical problems.
- Support!!! - adex - tooth only uses adex very realistic

Terra

- What are the costs
- Expense -
- Month of clinical education → 30% ahead of experience due to non live patient exam
- Enamel dentin and pulp
- Gingiva
- Biggest opposition is the other companies →
-



Lee, Donna <donna.lee@dhp.virginia.gov>

Letter to the Board President for meeting on Friday

1 message

James Watkins <ddsjdw@aol.com>
Reply-To: James Watkins <ddsjdw@aol.com>
To: sandra.reen@dhp.virginia.gov
Cc: donna.lee@dhp.virginia.gov

Tue, Mar 16, 2021 at 4:00 PM

Please add this letter to the package for the next Board meeting under the topic that addresses the Report of the Board Exam committee.

Thanks & Hello!

Jim Watkins

 **Board ltr-3-19-21.docx**
15K

March 19, 2021

From: James D. Watkins, DDS
Hampton, Virginia 23666

To: Dr. Augustus Petticolas
President, Va Board of Dentistry

Dear Dr. Petticolas:

I have been made aware that at the most recent Exam Committee meeting, a motion was made to recommend to the Board that **ONLY** the ADEX examination be accepted for licensure of dentists and dental hygienists in our state. I would like to speak in opposition of taking that approach to licensure in Virginia.

As we are aware, at one time SRTA was the only licensure exam accepted by Virginia and after years of looming promises of a NATIONAL licensing exam, this Board decided to accept ALL regional boards for licensure; thus creating for Virginia its own version of a National exam.

I applaud the Board in its decision to establish criteria that it has deemed necessary to obtain licensure in our state, but a decision to return to the ONE AGENCY EXAM creates less opportunity to again pursue the goal that has always been present for all jurisdictions which is having a true National exam. If you leave the window open to other agencies to meet the criteria of your Board, you provide competition within the regional board community which may continue to lead to that goal of National licensure. Also, when there is "one Virginia Board-selected agency" the goals or positions over time seem to be less state desired as agency desired; leaving the door open for other agencies to possibly provide those services because you have selected CRITERIA for acceptance and NOT a particular agency. Remember: all licensees are not graduates of my alma mater, VCU-MCV and the Board should desire those licensees that other agencies may provide.

As it stands right now, there are still at least TWO agencies that provide the Selected Criteria our Board seeks. They are the SRTA and the ADEX Exam agencies. SRTA provides licensure exams in Tennessee and West Virginia and is accepted by 35 jurisdictions. Those candidates should NOT lose their ability to obtain licensure in Virginia when they are taking the same exam based on the criteria as requested by our Board. **THE RESPONSE OF OUR BOARD SHOULD NOT BE TO RETURN TO THOSE DAYS OF THE PAST which was to say: *if you want a license here, then go take the "XYZ" exam!*** If you return to that mentality, the day will come when you will DENY licensure to a dental professional from another agency who presents credentials that EACH OF YOU will agree is "more challenging" than the "XYZ" exam that you have chosen. Then you will look around the table at each other and wonder how this happened. The answer is simple. YOU CHOSE AN AGENCY OVER THE CREDENTIALS!

Lastly, before the Board considers such a vote based on a particular agency representative's request (as I am sure the thoughts around the room are that I am the "SRTA guy" who is making a request for SRTA); I will say to you that I am NOT requesting that you accept ANY PARTICULAR AGENCY. I am requesting that you only accept those agencies that meet the criteria that you have set and to remember that it should not matter to the Virginia Board how many jurisdictions that accept an agency. It should only matter to our Board that you are protecting the citizens of Virginia by making sure the agency examines the CRITERIA that YOU desire for practice in the Commonwealth!

Sandra Reen

From: Dr. Dag Zapatero <dag@starfishdental.com> on behalf of Dr. Dag Zapatero
Sent: Tuesday, March 16, 2021 7:46 PM
To: Sandra Reen
Cc: Sacksteder, Jamie; Lee, Donna
Subject: Request to include additional material about sleep medicine and the AADSM
Attachments: State Dental Board Home Sleep Apnea Testing Regulations Table.pdf; HSAT By State Map.pdf; HSAT_Special_Article_Proof.pdf; Policy_statement_on_role_of_dentists_2017.pdf; Blue Starfish Logo copy.jpeg

Greeting Sandy,

In reading the letter from Dr. Kannan Ramar and colleagues, I found it to misrepresent the American Academy of Dental Sleep Medicine (AADSM) own policy statement. Virginia is one of 8 states that restricts dentists from ordering at-home sleep apnea tests (HSAT). Most other states do not specifically address dentists prescribing of HSAT by dentists, and the lack of restriction deems the practice as "within the scope of practice for dentists to order and administer HSATs in states where it is not specifically prohibited."

The AADSM advocates that only "qualified dentists" be allowed to order and administer HSAT, while only a physician can interpret, diagnose, and determine treatment efficacy. Dr. Ramar comments are in stark contrast to policies. The AADSM discourages non-qualified dentists from practicing sleep dentistry and encourages education to identify patients suffering from obstructive sleep apnea (OSA).

The ADA's policy states, "In 2017, the ADA recognized that dentists should play an essential role in addressing the public burden of OSA.4. n their policy, the ADA suggests that all dentists screen patients for OSA as part of a comprehensive medical and dental history and refer as needed to the appropriate physicians for diagnosis. The policy indicates that dentists may use HSATs to define the optimal target position of the mandible." The AADSM position is to further restrict the treatment of OSA to "qualified dentists", who have received specific education or have been board certified by the AADSM. *American Academy of Dental Sleep Medicine Position on the Scope of Practice for Dentists Ordering or Administering Home Sleep Apnea Tests David Schwartz, DDS1; Michael Adame, DDS2; Nancy Addy, DDS3; Michelle Cantwell, DMD4; James Hogg, DDS5; Nelly Huynh, PhD6; PaulJacobs,DDS7; MitchellLevine,DMD8;KevinPostol,DDS9; RosemarieRohatgi,DMD10

I have attached several papers that best articulated the position of the AADSM and the legislative landscape of HSAT in the United States for the consideration of the Board.

Sincerely,
Dr. Dag Zapatero



Starfish Dental

Dag Zapatero, DDS | [3020 Shore Drive | Virginia Beach, VA 23451](https://www.starfishdental.com)
office. 757.481.3893 | fax 757.481.3898 | www.starfishdental.com

Master in the Academy of General Dentistry
Fellow of the American College of Dentists
Adjunct Professor UNC Adams School of Dentistry
Scholar and Visiting Faculty at L.D.Pankey Institute

The content of this email was intended solely for the recipient, and should not be forwarded or disseminated without the consent of the sender. It may contain information that is privileged, confidential and exempt from disclosure under applicable law.

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

Disclaimer: This material reflects responses provided by state dental boards to the AADSM and is offered as information only and not as practice, legal or other professional advice. Dentists must contact their own professional advisors for such advice.

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
AL	Alabama Dental Practice Act	Dental Scope of Practice Citation: Section §34-9-6	Board of Dental Examiners of Alabama 5346 Stadium Trace Pkwy, Suite 112 Hoover, AL 35244 1-205-985-7267	is prohibited dental scope of practice to order to administer home sleep apnea test	Statement from Board of Dental Examiners: "The Board opines that it is outside the scope of practice for a dentist to order a sleep study or prescribe a CPAP as a result of interpreting a sleep study."
AK	Statutes and Regulations Dentists and Dental Hygienists	Dental Scope of Practice Citation: Sec.08.36 .360	Alaska Board of Dental Examiners 550 West Seventh Avenue, Suite 1500 Anchorage, AK 99501-3567 1-907-269-8160	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from Board of Dental Examiners: "We have always allowed dentists to make sleep appliances as long as their patient has had a sleep study from an MD or other reputable source and been diagnosed with sleep apnea. We haven't felt the need to regulate it at this point."
AZ	Arizona Statutes affecting Dental Board Licensees	Dental Scope of Practice Citation: ARS – 32- 1202	Arizona State Board of Dental Examiners 4205 North 7th Avenue, Suite 300 Phoenix, AZ 85013 1-602-242-1492	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from Board of Dental Examiners: "The Arizona Board does not have any specific statutes or rules regarding sleep apnea." "The Board's statutes and rules would still apply to licensees who engage in unprofessional conduct."

***Dentists are prohibited from ordering home sleep apnea test in only 8 states**
AL, GA, HI, NJ, NY, NC, OH, VA

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
AR	Arkansas Dental Practice Act	Dental Scope of Practice Citation: A.C.A. § 17-82-102	Arkansas State Board of Dental Examiners 101 East Capitol Avenue, Suite 111 Little Rock, AR 72201 1-501-682-2085	Dentists are not prohibited from ordering home sleep apnea tests.	In response to AADSM inquiry, the Board of Dental Examiners referred to the law stated in ACA 17-82-102: “(j) The evaluation, diagnosis, prevention, and treatment by nonsurgical, surgical, or related procedures of diseases, disorders, and conditions of the oral cavity, maxillofacial area, and the adjacent and associated structures and their impact on the human body, but not for the purpose of treating diseases, disorders, and conditions unrelated to the oral cavity, maxillofacial area, and the adjacent and associated structures” Comment from Dental Board:
CA	Dental Practice Act - California Business & Professions Code	Dental Scope of Practice Citation: Section 1625-1636.6	Dental Board of California 2005 Evergreen Street, Suite 1550 Sacramento, CA 95815 1-877-729-7789	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from Dental Board: “The scope of practice for dentists in California is defined in Business & Professions Code Section 1625. It has been understood that the Medical Board of California views the diagnosis and treatment of sleep apnea to be the practice of medicine; but that a physician may refer a patient with sleep apnea to a dentist for treatment if the physician determined that the sleep apnea was the result of a problem with the teeth, gums, jaws, and associated structures.”

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
CO	Colorado Revised Statutes - Dentists and Dental Hygienists Practice Act	Dental Scope of Practice Citation: § 12-35-103	Colorado Dental Board 1560 Broadway, Suite 1360 Denver, CO 80202 1-303-894-7690	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from Dental Board: The response referred providers to board website here . "We don't have any further information on the topic." AADSM is currently working with the State Dental Commission which is considering whether to clarify its guidance on the ordering of HSATs.
CT	Connecticut Statutes - Chapter 379 Dentistry	Dental Scope of Practice Citation: Chapter 379: Sec. 20-123	Connecticut State Dental Commission 410 Capitol Avenue, MS #13PHO P.O. Box 340308 Hartford, CT 06134-0308 1-860-509-7603 (Menu Option 4)	Dentists are not prohibited from ordering home sleep apnea tests.	
DE	Delaware Code, Title 24, Chapter 11 Dentistry and Dental Hygiene	Dental Scope of Practice Citation: Title 24: §1101	Board of Dentistry and Dental Hygiene 861 Silver Lake Blvd. Dover, DE 19904 1-302-744-4500	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from Board of Dentistry and Dental Hygiene: The response referred to website here . "Currently, the Delaware Board of Dentistry and Dental Hygiene does not have any law or regulations regarding sleep medicine."

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
DC	DC Municipal Regulations for Dentistry	Dental Scope of Practice Citation: Chapter 12 Section 3-1201.02	District of Columbia State Board of Dentistry 899 North Capitol Street, NE Washington, DC 20002 1-202-442-5955	Dentists are not prohibited from ordering home sleep apnea tests.	The DC Board of Dentistry has not provided the AADSM with any comments about HSAT use by dentists.
FL	Florida Statutes, Title XXXII, Chapter 466 Dentistry, Dental Hygiene, and Dental Laboratories	Dental Scope of Practice Citation: 466.003	Florida Board of Dentistry 4052 Bald Cypress Way Bin C-08 Tallahassee, FL 32399-3258 1-850-488-0595	Dentists are not prohibited from ordering home sleep apnea tests.	The Florida Board of Dentistry has not provided the AADSM with any comments about HSAT use by dentists.

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
GA	Georgia Dental Law (Title 43, Chapter 11) Georgia Board of Dentistry Policy Manual	Dental Scope of Practice Citation: § 43-11-1	Georgia Board of Dentistry 2 Peachtree Street, NW Atlanta, GA 30303 1-404-651-8000	Academy of General Dentistry Sleep Study Home Sleep Studies Should be ordered and interpreted only by a licensed physician	<p>Comment from the Board of Dentistry:</p> <p>The response referred providers to this text in the Dentistry Policy Manual:</p> <p>Depending upon the diagnosis of the type and severity, one possible treatment option for obstructive apnea is the use of oral appliances. The design, fitting and use of oral appliances and the maintenance of oral health related to the appliance falls within the scope of practice of dentistry. The continuing evaluation of a person's sleep apnea, the effect of the oral appliance on the apnea, and the need for, and type of, alternative treatment does not fall within the scope of dentistry.</p>

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
HI	Hawaii Revised Statutes, Title 25, Chapter 448 – Dentistry	Dental Scope of Practice Citation: 448-1	Hawaii State Board of Dental Examiners King Kalakaua Building 335 Merchant Street, Rm. 301 Honolulu, Hawaii 96813 1-808-586-3000	Dentists are not prohibited from ordering home sleep apnea tests	<p>Comment from the Board of Dental Examiners:</p> <p>“The Board of Dentistry (“Board”) currently does not have any statutes or rules that govern sleep apnea devices/oral appliances. However, the Board has policies which state that a licensed dentist would perform a complete dental examination, take the necessary oral x-rays, take impressions of the teeth, fittings, and a bite record and send this information to a dental laboratory to be constructed.</p> <p>Furthermore, it is the Board’s understanding that the procedures performed in the fitting of the oral appliances are considered within the scope of practice of dentistry. The construction of the oral appliances when sent to a dental laboratory would be exempt from the practice of dentistry.</p>
ID	Idaho Statutes, Title 54, Chapter 9 Professions, Vocations, and Businesses: Dentists	Dental Scope of Practice Citation: Title 54-901	Idaho State Board of Dentistry 350 N. 9th Street, Suite M-100 Boise, Idaho 83720 1-208-334-2369	Dentists can order home sleep apnea tests.	<p>Comment from the Board of Dentistry, responding to AADSM questions on HSAT:</p> <p>“There is nothing in the statutes or the administrative rule which directly addresses the issue. Of course, dentists can provide patients with OAT [Oral Appliance Therapy] but my understanding is it takes a physician to make the diagnosis.”</p>

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
IL	Illinois Compiled Statutes: Illinois Dental Practice Act	Dental Scope of Practice Citation: 225 ILCS 25/1 -- Section 17	Illinois Department of Financial and Professional Regulation -- Dental Professions 320 West Washington Street, 3rd Floor Springfield, IL 62786 1-217-785-0800	Dentists are not prohibited from ordering home sleep apnea tests.	The Illinois Department of Financial and Professional Regulation has not provided the AADSM with any comments about HSAT use by dentists.
IN	Indiana Code Title 25, Professions and Occupations § 25-14-1-23	Dental Scope of Practice Citation: IC 25-14-1-23	Indiana State Board of Dentistry 402 W. Washington Street, W072 Indianapolis, Indiana 46204 1-317-234-2054	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from the Board of Dentistry: "The State Board of Dentistry does not have any statute or rules regarding on treating sleep apnea."
IA	Code of Iowa, Title IV, Chapter 153 Dentistry	Dental Scope of Practice Citation: 153.13	Iowa Dental Board 400 SW 8th Street, Suite C Des Moines, IA 50309-4686 1-515-281-5157	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from Dental Board: "The Iowa Dental Board does not specifically have rules addressing dental sleep medicine. Services provided within the scope of practice of dentistry must fall within the definition of the practice of dentistry as established in Iowa Code Section 153."

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
KS	Kansas Dental Practices Act - Statutes , and Related Laws Pertaining to Dentists And Dental Hygienists	Dental Scope of Practice Citation: 65-1422	Kansas Dental Board 900 SW Jackson, Room 509 Topeka, KS 66612 1-785-296-6400	Dentists are not prohibited from ordering home sleep apnea tests.	AADSM is currently working with the State Dental Board which is considering how to clarify its guidance on the ordering of HSATs.
KY	Kentucky Revised Statutes Chapter 313 Dentists and Dental Specialists	Dental Scope of Practice Citation: 313.010	Kentucky Board of Dentistry 312 Whittington Parkway, Suite 101 Louisville, Kentucky 40222 1-502-429-7280	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from the Board of Dentistry: "Kentucky's rules are pretty silent on the issue of sleep apnea." Refer to Chapter 313 of the Revised Statutes for more information.

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
LA	Louisiana Laws Governing the Practice of Dentistry as Authorized Under Chapter 9 Title 37 Dental Practice Act	Dental Scope of Practice Citation: §751	Louisiana State Board of Dentistry 365 Canal Street, Suite 2680 New Orleans, LA 70130 1-504-568-8574	Dentists can order home sleep apnea tests.	Comment from the Board of Dentistry: “The Louisiana State Board of Dentistry met on July 10, 2020 and addressed the four questions you posed in your January 10, 2020 letter. The Board answered all four questions in the affirmative.” <ul style="list-style-type: none"> ▪ Dispense portable monitors when ordered by physicians for patients at risk for sleep apnea? ▪ Order portable monitors for patients identified by the dentist as being at risk for sleep apnea? ▪ Use a portable monitor to help determine the optimal effective position of a patient’s oral appliance? ▪ To order a portable monitor to verify the effectiveness of an oral appliance?

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
ME	<p>Maine Revised Statutes, Title 32, Chapter 143:</p> <p>Dental Professions</p>	<p>Dental Scope of Practice Citation: §18371</p>	<p>Maine Board of Dental Practice 143 State House Station 161 Capitol Street Augusta, Maine 04333-0143 1-207-287-3333</p>	<p>Dentists are not prohibited from ordering home sleep apnea tests.</p>	<p>Comment from the Board of Dental Practice:</p> <p>“At its March 13, 2020 meeting, the Maine Board of Dental Practice (“the Board”) reviewed and discussed correspondence received by Dr. Nancy Addy, President of the American Academy of Dental Sleep Medicine, dated January 10, 2020, requesting clarification regarding a dentist’s scope of practice to treat sleep apnea with oral appliance therapy.</p> <p>It may be helpful to note that the Board does not provide practice or legal advice; however, it does attempt to highlight and clarify its existing statutes and rules when appropriate. To that end, the Board considered in detail your questions related to a dentist ordering and dispensing portable monitors to treat patients for sleep-related breathing disorders in consultation/coordination with physician care.</p> <p>A dentist’s scope of practice is identified in statute and licensees are required to provide services in a competent and ethical manner (see: 32 M.R.S. §18371). There are a variety of dentally-related products on the market, but it is up to the individual licensee to make sure that the use of the product is within their scope of practice and that they are competent to utilize the product in the delivery of care.”</p>

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
MD	Dental Practice Act	Dental Scope of Practice Citation: § 4-101	Maryland State Board of Dental Examiners 55 Wade Avenue/Tulip Drive Catonsville, MD 21228 1-410-402-8501	Dentists can order home sleep apnea tests.	Comment from Board of Dental Examiners: "DDS/DMD may order screening tests including sleep study. The diagnosis of sleep apnea must be done by a physician. Appliances constructed for sleep apnea treatment must be under physician order."
MA	Dental Practice Act	Dental Scope of Practice Citation: 2.03	Massachusetts Board of Registration in Dentistry 239 Causeway St., Suite 500, 5th Floor Boston, MA 02114 1-800-414-0168	Dentists are not currently prohibited from ordering home sleep apnea tests.	Comment from Board of Registration in Dentistry: "The Board's governing statutes and regulations do not address the use of oral appliances to treat dental sleep apnea as it is more a standard of care question than regulatory. However, to my knowledge the Board has not been asked to address this issue during my seven-year tenure as ED nor has it considered a complaint filed against a dentist for inappropriately prescribing or fabricating a defective oral appliance, etc."
MI	Michigan Public Health Code, Part 166 Dentistry	Dental Scope of Practice Citation: 333.1660 1	Michigan Board of Dentistry P.O. Box 30004 Lansing, MI 48909 517-373-1820	Dentists are not prohibited from ordering home sleep apnea tests.	The Michigan Board of Dentistry has not provided the AADSM with any comments about HSAT use by dentists.

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
MN	Minnesota Statutes, Chapter 150A, Dentistry	Dental Scope of Practice Citation: § 150A.05	Minnesota Board of Dentistry 2829 University Ave SE, Suite 450 Minneapolis MN 55414-3249 1-612-617-2250	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from the Board of Dentistry: "Minnesota allows dentists to make and monitor appliances and treatments, but we require a MD diagnosis of the sleep apnea."
MS	Mississippi Dental Practice Act	Dental Scope of Practice Citation: § 73-9-3	Mississippi State Board of Dental Examiners 600 East Amite Street, Suite 100 Jackson, MS 39201-2801 1-601-944-9622	Dentists can order home sleep apnea tests.	Comment from Board of Dental Examiners: "Is it within the scope of practice for dentists to order and overnight pulse oximetry to determine the presence of sleep apnea? Yes. At its 07/31/2015 meeting, the Board determined that it is within the scope of practice for dentists to order an overnight pulse oximetry to determine the potential presence of sleep apnea."
MO	Missouri Revised Statutes, Chapter 332, title XXII, Occupations and Professions	Dental Scope of Practice Citation: 332.071	Missouri Dental Board 3605 Missouri Boulevard P.O. Box 1335 Jefferson City, MO 65102-1335 1-573-751-0293	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from the Missouri Dental Board: "I have attached a link to the Missouri Dental Board's statute regarding the practice of dentistry. A dentist cannot diagnose sleep apnea, but they can create appliances used to treat sleep apnea. Regarding the equipment used by dentists, the Board does not regulate equipment."

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
MT	Montana Code Annotated, Title 37 Chapter 4 Dentistry and Dental Hygiene	Dental Scope of Practice Citation: 37-4-101	Montana Board of Dentistry P.O. Box 1728 Helena, MT 59624-1728 1-406-444-5711	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from Board of Dentistry: The Board of Dentistry indicated that they have no additional clarification to the rules and statutes already published and refer to the <u>Definitions -- Practice of Dentistry</u> .
NE	Nebraska Statutes Relating to Dentistry Practice Act	Dental Scope of Practice Citation: 38-1115	Nebraska Board of Dentistry 301 Centennial Mall South Lincoln, Nebraska 68509 -5026 1-402-471-2118	Dentists are not prohibited from ordering home sleep apnea tests.	The Nebraska Board of Dentistry has not provided the AADSM with any comments about HSAT use by dentists.
NV	Nevada Revised Statute Chapter 631 - Dentistry, Dental Hygiene, and Dental Therapy	Dental Scope of Practice Citation: 631.215	Nevada State Board of Dental Examiners 6010 S. Rainbow Blvd., Suite A-1 Las Vegas, NV 89118 1-702-486-7044	Dentists are not prohibited from ordering home sleep apnea tests.	The Nevada State Board of Dental Examiners has not provided the AADSM with any comments about HSAT use by dentists.
NH	New Hampshire Statutes Chapter 317-A – Dentistry	Dental Scope of Practice Citation: 317-A:20	New Hampshire Board of Dental Examiners 121 South Fruit Street Concord, NH 03301 1-603-271-2152	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from Board of Dental Examiners: “Our rules do not currently address dental appliances for sleep apnea. It may have been discussed briefly, but currently nothing to warrant any rule changes.”

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
NJ	New Jersey State Board of Dentistry Laws	Dental Scope of Practice Citation: 45:6-19	New Jersey State Board of Dentistry P.O. Box 45005 Newark, New Jersey 07101 1-973-504-6405	Dentists cannot order or interpret the home sleep apnea test, or screen, treat, or diagnose sleep apnea patients.	From the Board of Dentistry: "The Board reviewed correspondence from Sara R. Gallagher, Vice-Chair, Board of Polysomnography, questioning whether the dental scope of practice allows the performance of home sleep testing. The Board repeated its prior determination that a dentist cannot order or interpret the home sleep test, or screen, treatment plan or diagnose sleep apnea patients. The Board noted that the sleep apnea issue has been referred to a committee of the Board to draft a regulatory proposal." Comment from the Board of Dentistry:
NY	New York Education Law, Article 133, Dental Hygiene [and Registered Dental Assisting]	Dental Scope of Practice Citation: § 6601	New York State Board of Dentistry 89 Washington Avenue, 2 nd Floor West Wing Albany, NY 12234 518-474-3817	Dentists cannot order or interpret home sleep tests.	"The physician can request or write orders for the dentist to fabricate an oral appliance for sleep apnea, but the physician would have to order the portable monitor and verify the effectiveness of the oral appliance."

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
NC	North Carolina General Statutes, Chapter 90, Article 2, Dentistry	Dental Scope of Practice Citation: § 90-29	North Carolina State Board of Dental Examiners 2000 Perimeter Park Dr., Suite 160 Morrisville, NC 27560 1-919-678-8223	Dentists cannot use HSA for screening	<p>From NC Dental Board Newsletter:</p> <p>In the Dental Board's opinion, being involved in diagnosing OSA, including dispensing home sleep tests, would fall outside the scope of the practice of dentistry and would violate the Board's statutes and regulations. However, a dentist can perform initial or preliminary screening for OSA, including identifying certain risk factors, and make referrals to other appropriate medical providers to diagnose and treat this potential medical condition.</p> <p>Determining whether to utilize home sleep tests as part of a potential diagnosis should be done by appropriate medical provider to whom the patient is referred. If a physician diagnoses a patient with OSA, a properly trained dentist may work with the physician to fabricate a dental appliance for the patient to treat the condition.</p>

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
ND	North Dakota Century Code, Title 43, Chapter 28 - Dentists	Dental Scope of Practice Citation: 43-28-01	North Dakota Board of Dental Examiners P.O. Box 7246 Bismarck, ND 58507 1-701-258-8600	Dentists are not prohibited from ordering home sleep apnea tests.	<p>Comment from the Board of Dental Examiners:</p> <p>ND laws regarding scope of practice for dentists may be found in the NDCC 43-28-01(7).</p> <p>"7. "Practice of dentistry" means examination, diagnosis, treatment, repair, administration of local or general anesthetics, prescriptions, or surgery of or for any disease, disorder, deficiency, deformity, discoloration, condition, lesion, injury, or pain of the human oral cavity, teeth, gingivae, and soft tissues, and the diagnosis, surgical, and adjunctive treatment of the diseases, injuries, and defects of the upper and lower human jaw and associated structures.</p> <p>Further guidance may be found in NDCC 43-28-18(22).</p> <p>"22. Failed to practice within the scope of that dentist's education or advanced training as recognized by the board, the American dental association, or other professional entity recognized by the board."</p>

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
OH	Ohio Dental Practice Act	Dental Scope of Practice Citation: 4715.01	Ohio State Dental Board 77 S. High Street, 17th Floor Columbus, Ohio 43215-6135 1-614-466-2580	Dentists Cannot Order a Home Sleep Apnea Test.	Comment from the Dental Board "if you are a dentist can you order a take home sleep test? (NO) Can you use a home sleep test to decide if your device is working? (NO)" <u>Position Statement: Role of the Dentist in the Treatment of Sleep-related Breathing Disorders</u> Comment from the Board of Dentistry:
OK	Oklahoma Statutes, Title 59, Chapter 7 - Dentistry, The State Dental Act	Dental Scope of Practice Citation: Title 59, Chapter 7	Oklahoma State Board of Dentistry 2920 N. Lincoln Blvd., Suite B OKC, OK 73105 1-405-522-4844	Dentists are not prohibited from ordering home sleep apnea tests.	"We do not have any specific rules or statutes that specifically refer to "sleep dentistry". A licensed dentist in the State of Oklahoma may treat an individual that has been previously diagnosed with sleep apnea, with appliances as long as they are acting with the general standard of care within dentistry."

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
OR	<u>Oregon Dental Practice Act - Compilation of Statutes and Administrative Rules</u>	Dental Scope of Practice Citation: 679.010	<u>Oregon Board of Dentistry</u> 1500 SW 1st Ave., Suite 770 Portland, OR 97201 1-971-673-3200	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from the Board of Dentistry: "It is the Board's position that the diagnosis of Sleep Related Disordered Breathing (SRDB) or Obstructive Sleep Apnea (OSA) is outside the scope of the practice of dentistry, and the diagnosis must be made by a physician prior to oral appliance therapy by a dentist. ...dentists legally are not in a position to diagnose sleep disordered breathing and sleep apnea; a physician must make the diagnosis and then prescribe oral appliance therapy before the dentist can treat it."
PA	<u>Pennsylvania Dental Law</u>	Dental Scope of Practice Citation: 63 P.S. §120	<u>Pennsylvania State Board of Dentistry</u> One Penn Center 2601 N. 3rd Street Harrisburg, PA 17110 1-717-783-7162	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from the State Board of Dentistry: "The Board's Laws and Regulations are available on our website at www.dos.pa.gov/dent . The Board has no specific regulations addressing sleep apnea."
RI	<u>Rhode Island General Laws, Chapter 5-31.1 - Dentists and Dental Hygienists</u>	Dental Scope of Practice Citation: § 5-31.1-1	<u>Rhode Island Board of Dentistry</u> 3 Capitol Hill Providence, RI 02908 1-401-222-5960	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from the Board of Dentistry: "Rhode Island Dental Rules and Regulations are silent on sleep apnea and oral appliances."

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
SC	South Carolina Code of Laws, Title 40, Chapter 15, Dentists, Dental Hygienists, and Dental Technicians	Dental Scope of Practice Citation: 40-15-70§ 5-31.1-1	South Carolina Board of Dentistry 110 Centerview Dr. Columbia, SC 29210 1-803-896-4300	Dentists are not prohibited from ordering home sleep apnea tests.	The South Carolina Board of Dentistry has not provided the AADSM with any comments about HSAT use by dentists.
SD	South Dakota Laws, Title 36, Chapter 6A - Dentists, Dental Hygienists and Dental Auxiliaries	Dental Scope of Practice Citation: 36-6A-32	South Dakota State Board of Dentistry 1351 N. Harrison Ave. Pierre, SD 57501 1-605-224-1282	It is within the scope of a dentist's practice to order a sleep apnea study.	Comment from the Board of Dentistry: "Pursuant to a diagnosis of sleep apnea by a medical doctor, a dentist may provide dental services in addressing a diagnosis of sleep apnea if it is within the scope of the dentist's relevant education, training, and experience. SDCL § 36-6A-32.4. This advisory opinion was rendered by the Board upon submission of a written request. Although advisory opinions are not judicially reviewable and do not have the force and effect of law, they do serve as a guideline for dentists who wish to engage in safe dental practices. This advisory opinion was adopted at the meeting of the South Dakota Board of Dentistry on June 17, 2016."

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
TN	<u>Tennessee Code Title 63 Professions of the Healing Arts, Chapter 5 Dentists</u>	Dental Scope of Practice Citation: 63-5-108	<u>Tennessee Board of Dentistry</u> 710 James Robertson Parkway Nashville, TN 37243 1-615-532-5073	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from the Board of Dentistry: "This [oral appliance therapy and dental sleep medicine] is not specifically addressed by the statutes and rules of the Board of Dentistry."
TX	<u>Texas Dental Practice Act - Chapter 251. General Provisions Relating to Practice of Dentistry</u>	Dental Scope of Practice Citation: 251.003	<u>Texas State Board of Dental Examiners</u> 333 Guadalupe, Tower 3, Suite 800 Austin, TX 78701-3942 1-512-463-6400	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from the Board of Dental Examiners: Referred to <u>Texas Admin. Code Rule §108.12. Dental Treatment of Obstructive Sleep Apnea</u>
UT	<u>Utah Code Title 58, Chapter 69 - Dentist and Dental Hygienist Practice Act</u>	Dental Scope of Practice Citation: 58-69-102	<u>Utah Dental Board</u> 160 East 300 South Salt Lake City, Utah 84111 1-801-530-6628	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from the Dental Board: "Utah law and rule does not specifically address specific health conditions. The scope of practice for licensees is defined within the practice acts and the definitions of the practice. I would refer you to 58-67-102 and the definition of the practice of medicine and 58-69-102 for the definition of the practice of dentistry. Licensees must practice within their respective scope of practice and meet the standard of care."

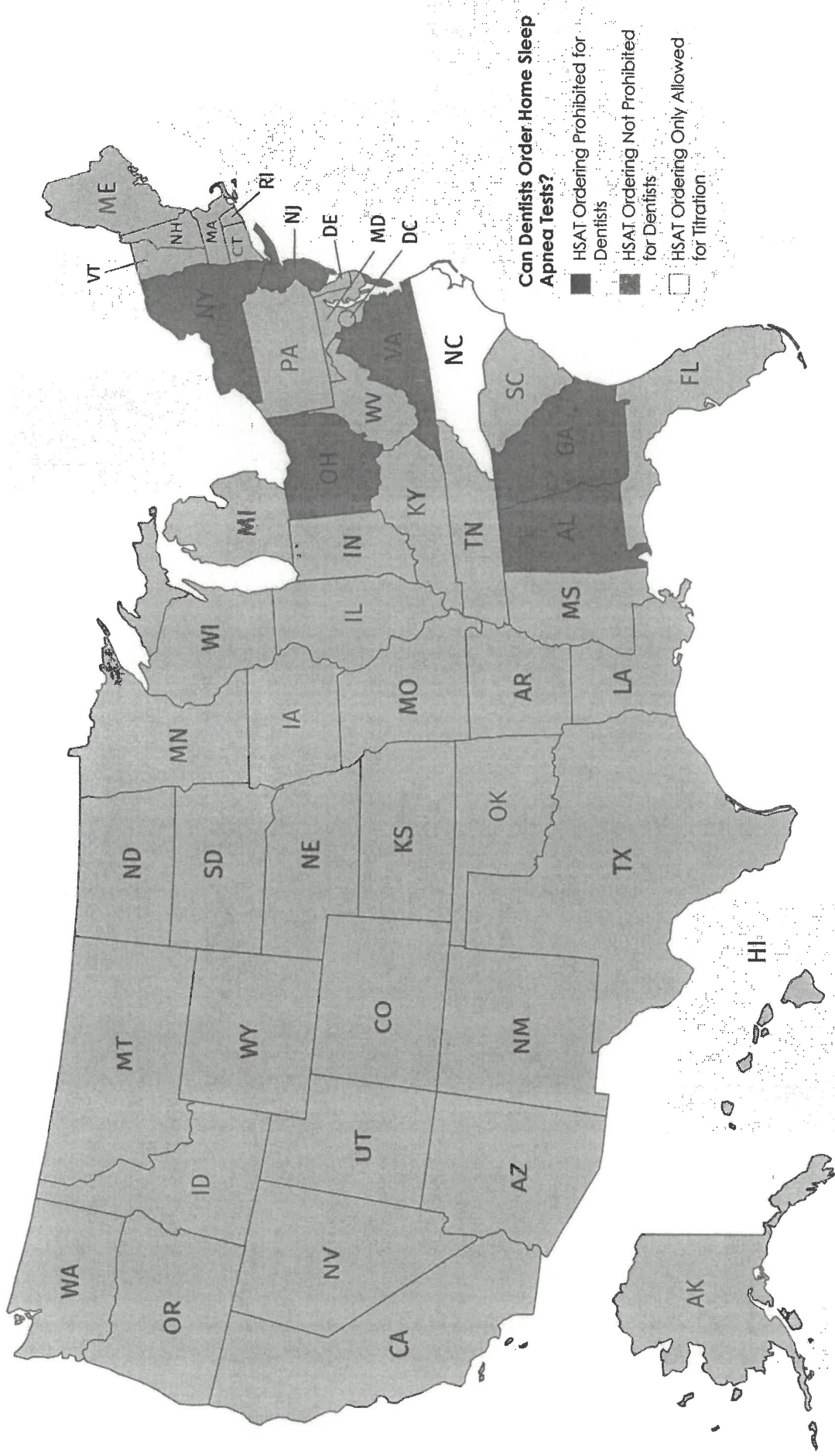
State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
VT	Vermont Statutes, Title 26, Chapter 12 - Dentists, Dental Hygienists, and Dental Assistants	Dental Scope of Practice Citation: § 561	Vermont State Board Dental Examiners 89 Main Street, 3rd Floor Montpelier VT 05620-3402 1-802-828-2363	Dentists are not prohibited from ordering home sleep apnea tests.	The Vermont Board of Dental Examiners has not provided the AADSM with any comments about HSAT use by dentists.
VA	Code of Virginia, Title 54.1, Chapter 27 – Dentistry	Dental Scope of Practice Citation: § 54.1-2711	Virginia Board of Dentistry Perimeter Center 9960 Mayland Drive, Suite 300 Henrico, VA 23233-1463 (804) 367-4538	Dentists cannot order a home sleep apnea test	Comment from the Board of Dentistry: “The advice given to me by the Board’s attorney, in response to previous inquiries from dentists about testing patients for sleep apnea, is that a Virginia dentist may refer a patient to a polysomnographic technologist for a sleep study but a Virginia dentist cannot conduct sleep studies. The technologist is required to report sleep study results to the supervising physician who could refer the patient to a dentist for dental treatment.” Comment from the State Board of Dentistry:
WA	Revised Code of Washington, Chapter 18.32 – Dentistry	Dental Scope of Practice Citation: 18.32.020	Washington State Board of Dentistry P.O. Box 1099 Olympia, WA 98507-1099 1-360-236-4700	Dentists are not prohibited from ordering home sleep apnea tests.	“Washington State laws do not call out specific procedures or modalities that dentists may use to practice dentistry. We do have a definition of dentistry in RCW 18.32.020, link below.” https://app.leg.wa.gov/RCW/default.aspx?cite=18.32.020

State Dental Board Information and Status of Home Sleep Apnea Testing Regulations

State	Dental Sleep Rules and Regulatory Links	Law Citation	Dental Board Contact Information	Home Sleep Apnea Test Status	State Dental Board Comments
WV	<u>West Virginia Code, Chapter 30, Article 4 - West Virginia Dental Practice Act</u>	Dental Scope of Practice Citation: §30-4-9	<u>West Virginia Board of Dentistry</u> 1319 Robert C. Byrd Drive Crab Orchard, WV 25827 1-877-914-8266	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from the Board of Dentistry: "The Standard of Care in WV is the dentist requires a diagnosis from a sleep study made by an MD. Once there is a diagnosis an appliance can be made by the dentist and any adjustments necessary to the appliance. The Dentist must work in conjunction with the MD for the patient's sleep apnea."
WI	<u>Wisconsin Statutes and Annotations - Chapter 447 - Dentistry Examining Board</u>	Dental Scope of Practice Citation: 447.01	<u>Wisconsin Dental Board</u> 1400 East Washington Avenue, Room 112 Madison, WI 53703 1-608-266-2112	Dentists are not prohibited from ordering home sleep apnea tests.	Position Statement from the Wisconsin Dental Board Website: <u>Sleep Related Breathing Disorders Dentistry Examining Board Position Statements</u>
WY	<u>Dental Practice Act</u>	Dental Scope of Practice Citation: 33-15-114	<u>Wyoming Board of Dental Examiners</u> 2001 Capitol Ave, Room 103 Cheyenne, WY 82002 1-307-777-7387	Dentists are not prohibited from ordering home sleep apnea tests.	Comment from the Board of Dental Examiners: "The Board had determined in 2018 that the treatment of sleep apnea without a medical consultation and diagnosis is outside the scope of practice of dentistry in Wyoming."

***Dentists are prohibited from ordering home sleep apnea test in only 8 states
AL, GA, HI, NJ, NY, NC, OH, VA**



American Academy of Dental Sleep Medicine Position on the Scope of Practice for Dentists Ordering or Administering Home Sleep Apnea Tests

David Schwartz, DDS¹; Michael Adame, DDS²; Nancy Addy, DDS³; Michelle Cantwell, DMD⁴; James Hogg, DDS⁵; Nelly Huynh, PhD⁶; Paul Jacobs, DDS⁷; Mitchell Levine, DMD⁸; Kevin Postol, DDS⁹; Rosemarie Rohatgi, DMD¹⁰

¹North Shore Family Dentistry, Skokie, IL; ²Adame Dental Sleep Medicine; ³Snoring and Sleep Apnea Dental Treatment Center, Leawood, KS; ⁴Wellspring Pulmonary and Sleep Medicine, Lancaster, PA; ⁵Carolina Smiles Family Dentistry, Brevard, NC; ⁶Faculty of Dentistry, Université de Montréal, Montréal, Canada; ⁷Upper Peninsula Sleep Dentistry, Escabana, MI; ⁸Department of Orthodontics, University of Tennessee Health Science Center, Memphis, Tennessee; ⁹Sleep Disordered Dentistry, Ballwin, Missouri; ¹⁰San Diego Sleep Therapy, San Diego, CA

It is the position of the American Academy of Dental Sleep Medicine (AADSM) that it is within the scope of practice for a qualified dentist, defined by the American Dental Association (ADA) as a dentist treating sleep-related breathing disorders who continually updates his or her knowledge and training of dental sleep medicine with related continuing education, to order or administer home sleep apnea tests (HSATs). Data from HSATs should be interpreted by a licensed medical provider for initial diagnosis and verification of treatment efficacy.

Historically, state dental practice acts have not addressed the dentist's role in using HSATs. It is commonly understood that practice acts are intentionally broad in nature. They tend to be more specific only when prohibiting a practice or use of equipment. Based on this, it is the AADSM's interpretation that it is within the scope of practice for dentists to order and administer HSATs in states where it is not specifically prohibited. For the few states where the use of HSATs is prohibited, dentists should abide by state guidance. The AADSM maintains a list of these states on its website and will be actively encouraging them to reconsider their policies.¹

There are other medical conditions for which dentists order and dispense medical tests. Dentists screen and perform biopsies for oral cancer. Dentists routinely administer oxygen and anesthesia and prescribe drugs, including controlled substances. In some states, dentists with training provide flu vaccinations. Dentists also routinely take blood pressure and some test hemoglobin A1C levels. Given the public burden of obstructive sleep apnea (OSA), dentists must embrace that it is within their scope of practice to order and administer HSATs.

In 2016, the American Academy of Sleep Medicine commissioned a report from Frost & Sullivan.² This report indicates that there were 29.4 million adults with obstructive sleep apnea, and in 80% of that group the condition was undiagnosed - costing the United States approximately \$149.6 billion per year. The same report

indicated that OSA is also linked to comorbidities, mental health, productivity, and accidents. It goes on to further explain that the most significant barrier to treatment of OSA is patients' disregard of symptoms and their failure to report them to primary care physicians and that once an individual is screened or informed about OSA, a significant financial and personal time investment is often necessary to address the problem. New studies published in 2019 indicate that approximately 54 million adults in the United States have sleep apnea.³ If 80% of these adults also have undiagnosed OSA, there could be as many as 43 million adults with undiagnosed OSA.

In 2017, the ADA recognized that dentists should play an essential role in addressing the public burden of OSA.⁴ In their policy, the ADA suggests that all dentists screen patients for OSA as part of a comprehensive medical and dental history and refer as needed to the appropriate physicians for diagnosis. The policy indicates that dentists may use HSATs to define the optimal target position of the mandible.

By building on the ADA policy and recognizing that qualified dentists have the training and education necessary to order or administer HSATs, qualified dentists can provide a more streamlined and cost-effective model of care. A short algorithm outlining this model of care is shown in Figure 1. Communication and collaboration with physicians are key in this process. In this model of care, qualified dentists screen patients for sleep apnea. If patients are at risk and appropriate candidates for HSAT, the qualified dentist orders or administers the HSAT directly from his or her practice. Patients complete the HSAT. Pertinent patient information and HSAT data are provided to a physician for diagnosis, and, if appropriate, the physician prescribes an oral appliance. The qualified dentist then determines whether the patient is a suitable candidate, and then fabricates and delivers the appliance. After the appliance is at the appropriate therapeutic position, the qualified dentist once again orders or

administers the HSAT. Pertinent patient information and HSAT data are shared with the physician who verifies treatment efficacy.

This model of care achieves several outcomes:

1. Dentists identify patients at risk for sleep apnea.
2. The process of obtaining a diagnosis for sleep apnea requires fewer appointments, reducing expenses and patient inconvenience while increasing the likelihood of treatment if sleep apnea is diagnosed in a patient.
3. The workload of primary care physicians and board-certified sleep medicine physicians related to ordering and dispensing HSATs is reduced, allowing them to better allocate their resources to the diagnosis and treatment of sleep disorders.
4. The diagnosis of medical diseases and verification of treatment efficacy remains the responsibility of the medical provider.

With the public burden of OSA and technologic advances, new models of care are being implemented at a rapid pace. Patients can now purchase HSATs directly from online sources. It is hard to find an argument against allowing a qualified dentist who will collaborate directly with patients' physicians when patients can order the test directly from the Internet, entirely bypassing their health care providers.

As health care providers who live by the ethical code of "do no harm" and understand the harmful consequences of OSA, we owe it to the public to implement models of care that reduce barriers to diagnosis and treatment, ensure that sleep apnea is diagnosed and treatment efficacy is verified by physicians, and maximize the training and skills of qualified dentists.

CITATION

Schwartz D, Levine M, Adame M, Addy N, Cantwell M, Hogg J, Huynh N, Jacobs P, Postol K, Rohatgi R. American Academy of Dental Sleep Medicine Position on the Scope of Practice for Dentists Ordering or Administering Home Sleep Apnea Tests. *J Dent Sleep Med.* 2020;7(4).

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1. Home sleep apnea tests. American Academy of Dental Sleep Medicine. https://www.aadsm.org/home_sleep_apnea_tests.php. Accessed August 18, 2020.
2. Frost & Sullivan. Darien, IL: American Academy of Sleep Medicine; 2016. Hidden health crisis costing America billions. Underdiagnosing and undertreating obstructive sleep apnea draining healthcare system. <https://aasm.org/advocacy/initiatives/economic-impact-obstructive-sleep-apnea/>. Accessed August 18, 2020.
3. Benjafield AV, Ayas NT, Eastwood PR, et al. Estimation of the global prevalence and burden of obstructive sleep apnoea: a literature-based analysis. *Lancet Respir Med.* 2019;7(8):687-698. doi:10.1016/S2213-2600(19)30198-5
4. Policy on Dentistry's Role in Treating Obstructive Sleep Apnea, Similar Disorders. American Dental Association. ada.org/sleepapnea. Accessed August 18, 2020.

SUBMISSION AND CORRESPONDENCE INFORMATION

Submitted in final revised form August 28, 2020.

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Email: dschwartz@aadsm.org

DISCLOSURE STATEMENT

All authors are members of the AADSM Board of Directors. Dr. Schwartz declares investments in Prosomnus Sleep.

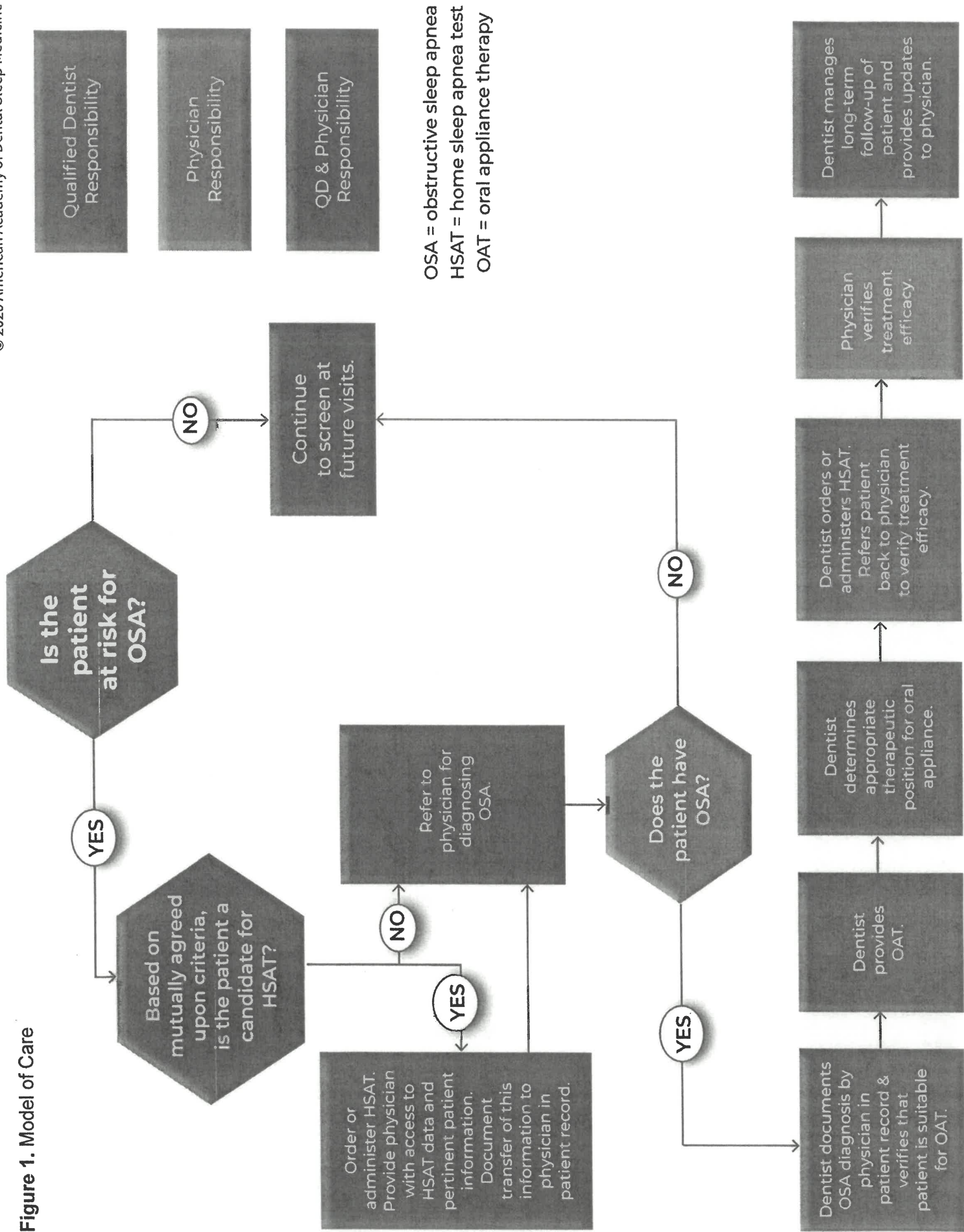


Figure 1. Model of Care

Policy Statement on a Dentist's Role in Treating Sleep-Related Breathing Disorders

Nancy Addy, DDS¹; Kathleen Bennett, DDS²; Alan Blanton, DDS³; Leslie Dort, DDS⁴; Mitchell Levine, DMD⁵; Kevin Postol, DDS⁶; Thomas Schell, DMD⁷; David Schwartz, DDS⁸; Rose Sheats, DMD⁹; Harold Smith, DDS¹⁰; for the American Academy of Dental Sleep Medicine Board of Directors

¹Snoring and Sleep Apnea Dental Treatment Center, Leawood, Kansas; ²Associated with UC Health Sleep Medicine Fellowship Program, Cincinnati, Ohio; ³Center for Dental Sleep Medicine and Orofacial Pain, University of Tennessee Health Science Center, Memphis, Tennessee; ⁴University of Calgary, Calgary, Alberta, Canada; ⁵Jacksonville Center for Snoring and Sleep Apnea, Jacksonville, Florida; ⁶Family and Cosmetic Dentistry, Ballwin, Missouri; ⁷Schellnoble Dentistry, Lebanon, New Hampshire; ⁸The Center for Sleep Medicine, Skokie, Illinois; ⁹Chapel Hill, North Carolina; ¹⁰Dental Sleep Medicine of Indiana, Indianapolis, Indiana

The American Academy of Dental Sleep Medicine (AADSM) is the only non-profit national professional society dedicated exclusively to the practice of dental sleep medicine and firmly believes that by screening and providing oral appliance therapy, dentists, with appropriate training and in collaboration with physicians, help reduce the number of undiagnosed and untreated patients with sleep-disordered breathing, which includes snoring and obstructive sleep apnea.

It is the position of the AADSM that:

- Dentists play an integral role in reducing the public health burden of undiagnosed and untreated sleep-related breathing disorders.
- Dentists should screen patients for sleep-disordered breathing with questionnaires and by evaluating the airway.
- Physicians are responsible for diagnosing sleep-disordered breathing and primary snoring, as well as prescribing the most appropriate or acceptable treatment options.
- Education in dental sleep medicine is required in order for dentists to provide safe, quality care to patients using oral appliance therapy for sleep-related breathing disorders. At minimum, dentists should meet the educational requirements defined by the AADSM to be a "Qualified Dentist" in dental sleep medicine.¹
- Dentists should verify oral appliance treatment efficacy using objective data only as permitted within their scope of practice and as defined by their state dental practice acts.
- Following the fitting and initial titration of an oral appliance by a "Qualified Dentist" the patient should always be referred back to the physician. Physicians should confirm the treatment efficacy of oral appliance therapy in a timely manner.
- Dentists need to provide timely, appropriate and ongoing follow-up care to manage dental-related side effects of oral appliance therapy.
- Dentists, in close collaboration with physicians, are an integral component to successfully managing sleep-related breathing disorders with oral appliance therapy.

Sleep-related breathing disorders impact a significant portion of the population. It is estimated that 23.5 million of United States adults have undiagnosed or untreated obstructive sleep apnea—costing billions²; increasing the risk of health complications such as hypertension, congestive heart failure, atrial fibrillation, coronary artery disease, stroke and type 2 diabetes³; in addition to reducing the quality of life for a significant portion of the population.

It is imperative that dentists receive postgraduate training to be able to provide and manage oral appliance therapy and its side effects. Inappropriately chosen and monitored oral appliance therapy by an inadequately trained dentist exposes patients to potentially life-threatening outcomes and dentists to potentially serious medicolegal liability. The AADSM recommends that dentists have at minimum: a valid state dental license, proof of liability coverage, and at least 25 hours of recognized continuing education in dental sleep medicine provided by a non-profit organization focused on dental sleep medicine or accredited dental school within the last two years in order to provide oral appliance therapy to patients with sleep-disordered breathing.¹ The AADSM encourages all dentists providing oral appliance therapy to become "Qualified Dentists" and subsequently Diplomates of the American Board of Dental Sleep Medicine.

Dentists play an integral role in screening patients for sleep-related breathing disorders and referring patients to a physician for diagnosis. When oral appliance therapy is prescribed by a physician, qualified dentists provide custom-made, adjustable oral appliances, in addition to providing diligent ongoing follow-up. Dentists who are not properly trained in oral appliance therapy may provide ineffective treatment and follow-up care, potentially reducing referrals from physicians to dentists and the potential role that dentistry plays in lessening the burden of snoring and sleep apnea on public health.

CITATION

Addy N, Bennett K, Blanton A, Dort L, Levine M, Postol K, Schell T, Schwartz D, Sheats R, Smith H. Policy statement on a dentist's role in treating sleep-related breathing disorders. *Journal of Dental Sleep Medicine*. 2018;5(1):25–26.

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2. Frost & Sullivan; American Academy of Sleep Medicine. Hidden health crisis costing America billions: underdiagnosing and undertreating obstructive sleep apnea draining health care system. American Academy of Sleep Medicine website. <https://aasm.org/advocacy/initiatives/economic-impact-obstructive-sleep-apnea/>. Published August 8, 2016. Accessed December 11, 2017.
3. Punjabi NM. The epidemiology of adult obstructive sleep apnea. *Proc Am Thorac Soc*. 2008;5(2):136–143.

SUBMISSION & CORRESPONDENCE INFORMATION

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Submitted in final revised form December 11, 2017
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Address correspondence to: American Academy of Dental Sleep
Medicine National Office, 2510 North Frontage Road, Darien, IL 60561;
Tel: (630) 737-9705; Email: info@aadsm.org

DISCLOSURE STATEMENT

Dr. Schwartz reports serving in an advisory capacity as part of Resmed's dental panel, owning public stock in Resmed, serving as part of an advisory group for ProSomnus, and having a financial stake in ProSomnus. The other authors report no conflicts of interest.

From: Jessica Bui <jbui@srta.org>
Sent: Wednesday, March 17, 2021 8:49 PM
To: Sandra Reen <sandra.reen@dhp.virginia.gov>; Sacksteder, Jamie <jamie.sacksteder@dhp.virginia.gov>; donna.lee@dhp.virginia.gov
Cc: Gerry Walker <efudd777@aol.com>
Subject: Additional Documents for Public Comment
Importance: High

Sandy,

Please see the attached additional letter for the board to review for the meeting this Friday, March 19th.

Also included are our dental and dental hygiene webinars regarding information on the SRTA examination:

[SRTA Dental Nonpatient Webinar](#)

[SRTA DH Nonpatient Webinar](#)

Thank you,

Jessica L. Bui

Southern Regional Testing Agency, Inc.

4698 Honeygrove Road, Suite 2 | Virginia Beach, Virginia 23455-5934
Tel. (757) 318-9082 | Fax (757) 318-9085 | www.srta.org



March 17, 2021

Virginia Board of Dentistry
Attn: President Augustus Petticolas, Jr., DDS
Perimeter Center
9960 Mayland Drive, Suite 300
Henrico, VA 23233 -1463

Dear Dr. Petticolas and the Members of the Virginia Board of Dentistry,

After listening to the Virginia Exam Committee meeting held on March 5, 2021, we thought it would be beneficial to clarify to the board that Southern Regional Testing Agency, Inc. has acceptance in 76% of the United States. Most recently gaining additional state acceptance within Idaho, Oklahoma, and Washington for the SRTA dental examination results. The number of states accepting SRTA are increasing, and with our ability to offer a respected and acceptable examination it allows students the greater chance of portability.

Limiting acceptance to only ADEX examination results hinders the opportunity of portability for many students across the country. We hope that Virginia will remain inclusive and progressive along with the many other states that accept the SRTA results.

We would like to extend an invitation to the board members to observe a SRTA examination to see how ours is comparable to the ADEX exam. An awareness of how the examination process is conducted allows the board members the opportunity to see that SRTA is evaluating at the same level as ADEX and to the state's highest standards.

Sincerely,

Thomas G. Walker, DMD
President

Jessica Bui
Executive Director



Lee, Donna <donna.lee@dhp.virginia.gov>

FW: Board Meeting / Public Comment

1 message

Sandra Reen <Sandra.Reen@dhp.virginia.gov>

Wed, Mar 17, 2021 at 6:00 PM

To: "Lee, Donna" <donna.lee@dhp.virginia.gov>

Here is another commenter, Donna, with an attachment to print and send out, if it hasn't already been received. If we received this attachment from Dr. Zapatero or another commenter there is no need to print multiple copies.

From: Dr. Erika Mason, DDS <dremason@gmail.com>**Sent:** Wednesday, March 17, 2021 10:30 AM**To:** sandra.reen@dhp.virginia.gov**Subject:** Board Meeting / Public Comment

Good morning Sandy, I briefly spoke to Dr. Perry Jones this morning and he said I needed to contact YOU directly.

I needed to contact you anyway to see if I could get on the docket for the 3-5 min comment time in regards to the AASM letter sent to the board.

I wanted to make sure (and I have attached it to this email) that the Board of Dentistry has read the paper that was referenced by the AASM. I am disappointed that they did not include that with their letter (maybe they did but my guess was that they did not!). If the Board is going to have any discussion about what the AASM is proposing- I feel it is imperative for the Board to read and understand the position paper by the AADSM. Once they read it they should fully understand that the AADSM is NOT asking to diagnose OSA ... that is a blatant claim that is not correct. The AADSM is wanting to be collaborative in working with Sleep Physicians and the medical community for the betterment of our patients.

If you would place me on the docket but if there is any way that the Board members could be able to be familiar with the paper written by the AADSM it would be so helpful in what some of the dentists that is on the docket to speak can make the point they are trying to make within that 3-5 minute time frame more meaningful.

Thank you for your assistance with this matter. If you need to contact me - my information is below. I look forward to addressing the Board on Friday.

Best Regards, Dr. Erika Mason

Erika C Mason DDS,

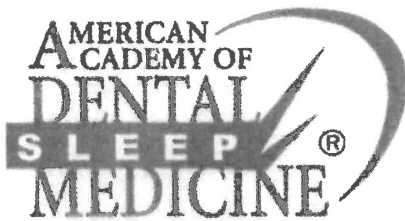
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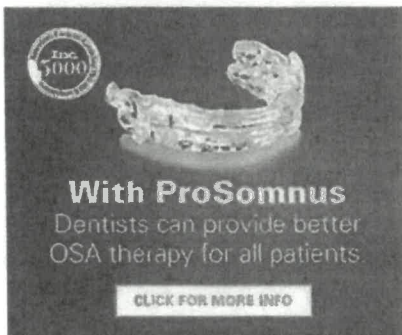
Special Article 1, Issue 7.4

American Academy of Dental Sleep Medicine Position on the Scope of Practice for Dentists Ordering or Administering Home Sleep Apnea Tests

<http://dx.doi.org/10.15331/jdsm.7156>

David Schwartz, DDS¹; Michael Adame, DDS²; Nancy Addy, DDS³; Michelle Cantwell, DMD⁴; James Hogg, DDS⁵; Nelly Huynh, PhD⁶; Paul Jacobs, DDS⁷; Mitchell Levine, DMD⁸; Kevin Postol, DDS⁹; Rosemarie Rohatgi, DMD¹⁰

¹North Shore Family Dentistry, Skokie, IL; ²Adame Dental Sleep Medicine; ³Snoring and Sleep Apnea Dental Treatment Center, Leawood, KS; ⁴Wellspan Pulmonary and Sleep Medicine, Lancaster, PA; ⁵Carolina Smiles Family Dentistry, Brevard, NC; ⁶Faculty of Dentistry, Universite de Montreal, Montreal, Canada; ⁷Upper Peninsula Sleep Dentistry, Escabana, MI; ⁸Department of Orthodontics, University of Tennessee Health Science Center, Memphis, Tennessee; ⁹Sleep Disordered Dentistry, Ballwin, Missouri; ¹⁰San Diego Sleep Therapy, San Diego, CA



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Association (ADA) as a dentist treating sleep-related breathing disorders who continually updates his or her knowledge and training of dental sleep medicine with related continuing education, to order or administer home sleep apnea tests (HSATs). Data from HSATs should be interpreted by a licensed medical provider for initial diagnosis and verification of treatment efficacy.

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(https://www.aadsm.org/home_sleep_apnea_tests.php) It is commonly understood that practice acts are intentionally broad in nature. They tend to be more specific only when prohibiting a practice or use of equipment. Based on this, it is the AADSM's interpretation that it is within the scope of practice for dentists to order and administer HSATs in states where it is not specifically prohibited. For the few states where the use of HSATs is prohibited, dentists should abide by state guidance. The AADSM maintains a list of these states on its website and will be actively encouraging them to reconsider their policies.¹

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Figure 1

Model of Care

(more ...) (https://www.aadsm.org/docs/Schwartz_Issue_7.4_Figure_1.pdf)

This model of care achieves several outcomes:

1. Dentists identify patients at risk for sleep apnea.
2. The process of obtaining a diagnosis for sleep apnea requires fewer appointments, reducing expenses and patient inconvenience while increasing the likelihood of treatment if sleep apnea is diagnosed in a patient.
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CITATION

Schwartz D, Levine M, Adame M, Addy N, Cantwell M, Hogg J, Huynh N, Jacobs P, Postol K, Rohatgi R. American Academy of Dental Sleep Medicine Position on the Scope of Practice for Dentists Ordering or Administering Home Sleep Apnea Tests. *J Dent Sleep Med.* 2020;7(4).

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SUBMISSION & CORRESPONDENCE INFORMATION

Submitted in final revised form August 28, 2020.

Address correspondence to: David Schwartz, DDS; Email: dschwartz@aadsm.org (<mailto:dschwartz@aadsm.org>)

DISCLOSURE STATEMENT

All authors are members of the AADSM Board of Directors. Dr. Schwartz declares investments in ProSomnus Sleep.

PDF (https://www.aadsm.org/docs/HSAT_Special_Article_Proof.pdf)

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Lee, Donna <donna.lee@dhp.virginia.gov>

Fwd: FW: Public Comments for March 19 Meeting

1 message

Lee, Donna <donna.lee@dhp.virginia.gov>
To: Donna Lee <donna.lee@dhp.virginia.gov>

Thu, Mar 18, 2021 at 11:38 AM

From: David Schwartz <dschwartz@aadsm.org>
Sent: Thursday, March 18, 2021 11:15 AM
To: sandra.reen@dhp.virginia.gov
Cc: Becky Roberts <broberts@aadsm.org>; Coreen Vick <cvick@aadsm.org>; Matthew Glans <mglans@aadsm.org>
Subject: Public Comments for March 19 Meeting

Good morning,

Please find attached written comments regarding the letter from Dr. Kannan Ramar that is on the agenda for the March 19 meeting of the Virginia Board of Dentistry. We believe our attached letter summarizes our comments, so we will not need 3-5 minutes to present during the meeting. We do plan on having representatives from the AADSM attend the public comment portion of the meeting, so should you need us to clarify any information or if you think it would be valuable for us to present this letter verbally, please let me know.

Kind regards,

David

David Schwartz, DDS

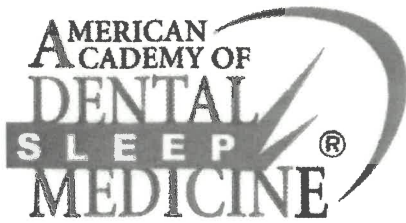
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American Academy of Dental Sleep Medicine

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Disclaimer



March 18, 2021

Augustus A. Petticolas, DDS

President

Virginia Board of Dentistry

SENT VIA EMAIL: sandra.reen@dhp.virginia.gov

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Dear Dr. Petticolas:

Recently you received a letter from the American Academy of Sleep Medicine, American Academy of Neurology, American Academy of Otolaryngology - Head and Neck Surgery, and the American Thoracic Society urging you to declare that ordering and administering home sleep apnea tests (HSATs) is outside the scope of practice for dentists in your state.

The claim in the letter is that the American Academy of Dental Sleep Medicine (AADSM) position statement encourages the use of HSATs by dentists for the diagnosis of obstructive sleep apnea (OSA). Our position (Attachment A) contains no such claim. Rather, our position affirms a collaborative care model in which:

- Dentists must be trained in dental sleep medicine to order or administer HSATs.
- Licensed medical providers are responsible for initial diagnosis and verification of treatment efficacy.
- Trained dentists must communicate and collaborate with physicians to determine a mutually agreed criteria for identifying patients who are candidates for HSATs.

Our position statement outlines a model of care in which trained dentists utilize their knowledge and developed patient relationships to work in concert with physicians to help the 43 million Americans suffering from undiagnosed OSA navigate a pathway to diagnosis and treatment. Rather than encouraging dentists to diagnose OSA, our position is in fact intended to dissuade dentists from using HSATs if they are not trained or working in collaboration with physicians.

While the definition of ordering a test is universal across medicine and dentistry, the definition of administering a test can vary considerably. Administering a HSAT involves providing the test to the patient along with instructions for use; the patient is responsible for attaching sensors at home prior to bedtime.

It is important to clarify that both the American Dental Association's policy statement (Attachment B) and the American Association of Orthodontics' white paper (Attachment C) support dentists using a comprehensive medical and dental history and clinical examination to screen for OSA and state that trained dentists may use HSATs (commonly referred to as portable monitors) for the titration of oral appliances.

These papers were established prior to the publication of our position statement and offer a foundation for our collaborative care model. We have shared our position statement with both organizations, as well as with the American Association of Dental Boards.

The AADSM believes that every patient is entitled to effective treatment for OSA. We also believe that dentists and physicians need to have the ability to develop a practice model that works best for the patients in their community. In many communities, the agreed upon practice model involves the trained dentist ordering or administering HSATs for appropriate patients during certain points of the care continuum.

Dentistry provides a valuable resource for so many aspects of our health care system, and dentists are an essential resource in helping to get more patients access to treatment for OSA.

Should you have any questions about our position, please do not hesitate to reach out via email to dschwartz@aadsm.org.

Sincerely,
David Schwartz, DDS
President

American Academy of Dental Sleep Medicine Position on the Scope of Practice for Dentists Ordering or Administering Home Sleep Apnea Tests

David Schwartz, DDS¹; Michael Adame, DDS²; Nancy Addy, DDS³; Michelle Cantwell, DMD⁴; James Hogg, DDS⁵; Nelly Huynh, PhD⁶; Paul Jacobs, DDS⁷; Mitchell Levine, DMD⁸; Kevin Postol, DDS⁹; Rosemarie Rohatgi, DMD¹⁰

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It is the position of the American Academy of Dental Sleep Medicine (AADSM) that it is within the scope of practice for a qualified dentist, defined by the American Dental Association (ADA) as a dentist treating sleep-related breathing disorders who continually updates his or her knowledge and training of dental sleep medicine with related continuing education, to order or administer home sleep apnea tests (HSATs). Data from HSATs should be interpreted by a licensed medical provider for initial diagnosis and verification of treatment efficacy.

Historically, state dental practice acts have not addressed the dentist's role in using HSATs. It is commonly understood that practice acts are intentionally broad in nature. They tend to be more specific only when prohibiting a practice or use of equipment. Based on this, it is the AADSM's interpretation that it is within the scope of practice for dentists to order and administer HSATs in states where it is not specifically prohibited. For the few states where the use of HSATs is prohibited, dentists should abide by state guidance. The AADSM maintains a list of these states on its website and will be actively encouraging them to reconsider their policies.¹

There are other medical conditions for which dentists order and dispense medical tests. Dentists screen and perform biopsies for oral cancer. Dentists routinely administer oxygen and anesthesia and prescribe drugs, including controlled substances. In some states, dentists with training provide flu vaccinations. Dentists also routinely take blood pressure and some test hemoglobin A1C levels. Given the public burden of obstructive sleep apnea (OSA), dentists must embrace that it is within their scope of practice to order and administer HSATs.

In 2016, the American Academy of Sleep Medicine commissioned a report from Frost & Sullivan.² This report indicates that there were 29.4 million adults with obstructive sleep apnea, and in 80% of that group the condition was undiagnosed - costing the United States approximately \$149.6 billion per year. The same report

indicated that OSA is also linked to comorbidities, mental health, productivity, and accidents. It goes on to further explain that the most significant barrier to treatment of OSA is patients' disregard of symptoms and their failure to report them to primary care physicians and that once an individual is screened or informed about OSA, a significant financial and personal time investment is often necessary to address the problem. New studies published in 2019 indicate that approximately 54 million adults in the United States have sleep apnea.³ If 80% of these adults also have undiagnosed OSA, there could be as many as 43 million adults with undiagnosed OSA.

In 2017, the ADA recognized that dentists should play an essential role in addressing the public burden of OSA.⁴ In their policy, the ADA suggests that all dentists screen patients for OSA as part of a comprehensive medical and dental history and refer as needed to the appropriate physicians for diagnosis. The policy indicates that dentists may use HSATs to define the optimal target position of the mandible.

By building on the ADA policy and recognizing that qualified dentists have the training and education necessary to order or administer HSATs, qualified dentists can provide a more streamlined and cost-effective model of care. A short algorithm outlining this model of care is shown in Figure 1. Communication and collaboration with physicians are key in this process. In this model of care, qualified dentists screen patients for sleep apnea. If patients are at risk and appropriate candidates for HSAT, the qualified dentist orders or administers the HSAT directly from his or her practice. Patients complete the HSAT. Pertinent patient information and HSAT data are provided to a physician for diagnosis, and, if appropriate, the physician prescribes an oral appliance. The qualified dentist then determines whether the patient is a suitable candidate, and then fabricates and delivers the appliance. After the appliance is at the appropriate therapeutic position, the qualified dentist once again orders or

administers the HSAT. Pertinent patient information and HSAT data are shared with the physician who verifies treatment efficacy.

This model of care achieves several outcomes:

1. Dentists identify patients at risk for sleep apnea.
2. The process of obtaining a diagnosis for sleep apnea requires fewer appointments, reducing expenses and patient inconvenience while increasing the likelihood of treatment if sleep apnea is diagnosed in a patient.
3. The workload of primary care physicians and board-certified sleep medicine physicians related to ordering and dispensing HSATs is reduced, allowing them to better allocate their resources to the diagnosis and treatment of sleep disorders.
4. The diagnosis of medical diseases and verification of treatment efficacy remains the responsibility of the medical provider.

With the public burden of OSA and technologic advances, new models of care are being implemented at a rapid pace. Patients can now purchase HSATs directly from online sources. It is hard to find an argument against allowing a qualified dentist who will collaborate directly with patients' physicians when patients can order the test directly from the Internet, entirely bypassing their health care providers.

As health care providers who live by the ethical code of "do no harm" and understand the harmful consequences of OSA, we owe it to the public to implement models of care that reduce barriers to diagnosis and treatment, ensure that sleep apnea is diagnosed and treatment efficacy is verified by physicians, and maximize the training and skills of qualified dentists.

CITATION

Schwartz D, Levine M, Adame M, Addy N, Cantwell M, Hogg J, Huynh N, Jacobs P, Postol K, Rohatgi R. American Academy of Dental Sleep Medicine Position on the Scope of Practice for Dentists Ordering or Administering Home Sleep Apnea Tests. *J Dent Sleep Med.* 2020;7(4).

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SUBMISSION AND CORRESPONDENCE INFORMATION

Submitted in final revised form August 28, 2020.

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DISCLOSURE STATEMENT

All authors are members of the AADSM Board of Directors. Dr. Schwartz declares investments in Prosomnus Sleep.

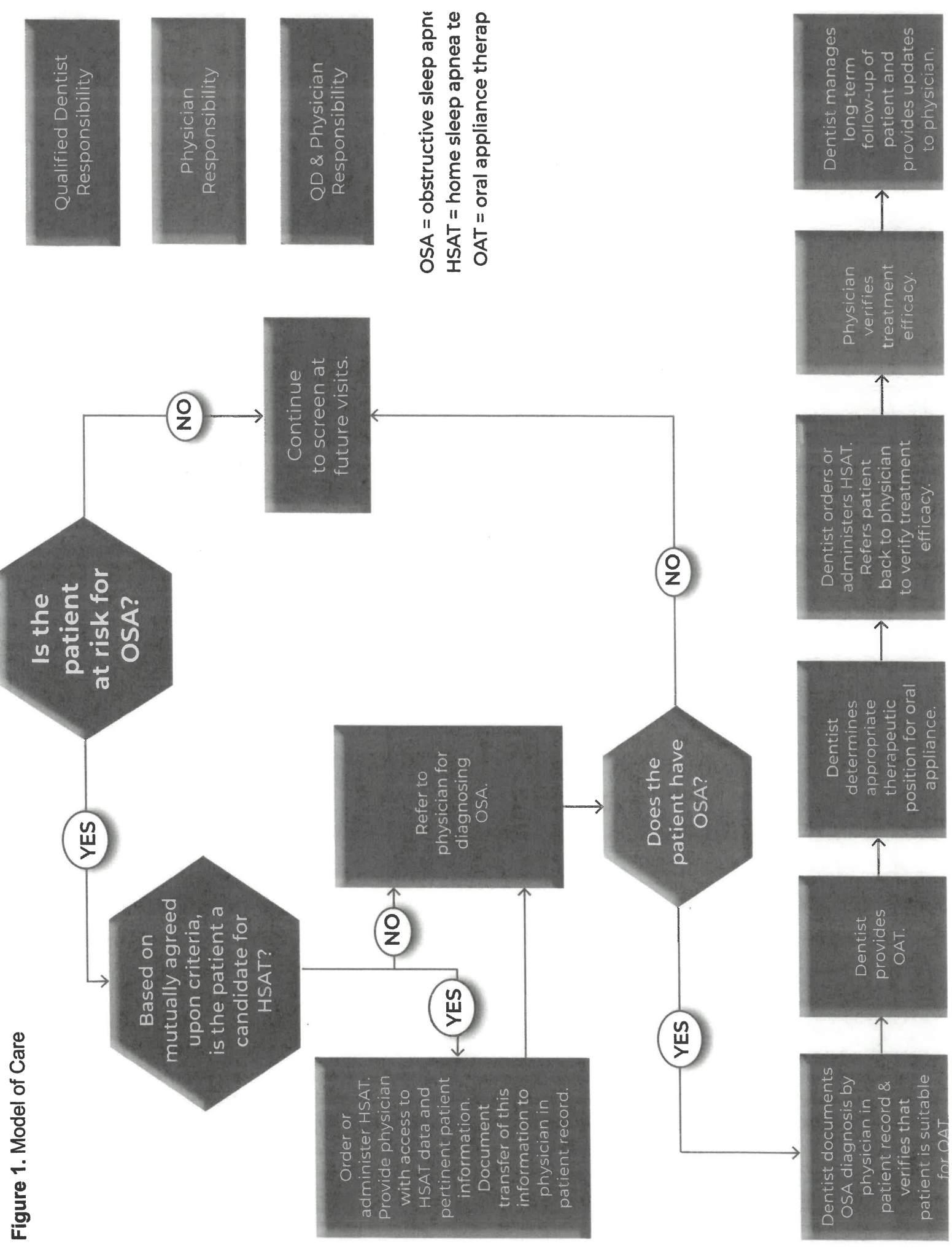


Figure 1. Model of Care

The Role of Dentistry in the Treatment of Sleep Related Breathing Disorders

Adopted by ADA's 2017 House of Delegates

Sleep related breathing disorders (SRBD) are disorders characterized by disruptions in normal breathing patterns. SRBDs are potentially serious medical conditions caused by anatomical airway collapse and altered respiratory control mechanisms. Common SRBDs include snoring, upper airway resistance syndrome (UARS) and obstructive sleep apnea (OSA). OSA has been associated with metabolic, cardiovascular, respiratory, dental and other diseases. In children, undiagnosed and/or untreated OSA can be associated with cardiovascular problems, impaired growth as well as learning and behavioral problems.

Dentists can and do play an essential role in the multidisciplinary care of patients with certain sleep related breathing disorders and are well positioned to identify patients at greater risk of SRBD. SRBD can be caused by a number of multifactorial medical issues and are therefore best treated through a collaborative model. Working in conjunction with our colleagues in medicine, dentists have various methods of mitigating these disorders. In children, the dentist's recognition of suboptimal early craniofacial growth and development or other risk factors may lead to medical referral or orthodontic/orthopedic intervention to treat and/or prevent SRBD. Various surgical modalities exist to treat SRBD. Oral appliances, specifically custom-made, titratable devices can improve SRBD in adult patients compared to no therapy or placebo devices. Oral appliance therapy (OAT) can improve OSA in adult patients, especially those who are intolerant of continuous positive airway pressure (CPAP). Dentists are the only health care provider with the knowledge and expertise to provide OAT.

The dentist's role in the treatment of SRBD includes the following:

- **Dentists are encouraged to screen patients for SRBD as part of a comprehensive medical and dental history to recognize symptoms such as daytime sleepiness, choking, snoring or witnessed apneas and an evaluation for risk factors such as obesity, retrognathia, or hypertension. If risk for SRBD is determined, these patients should be referred, as needed, to the appropriate physicians for proper diagnosis.**
- In children, screening through history and clinical examination may identify signs and symptoms of deficient growth and development, or other risk factors that may lead to airway issues. If risk for SRBD is determined, intervention through medical/dental referral or evidenced based treatment may be appropriate to help treat the SRBD and/or develop an optimal physiologic airway and breathing pattern.
- Oral appliance therapy is an appropriate treatment for mild and moderate sleep apnea, and for severe sleep apnea when a CPAP is not tolerated by the patient.
- When oral appliance therapy is prescribed by a physician through written or electronic order for an adult patient with obstructive sleep apnea, a dentist should evaluate the patient for the appropriateness of fabricating a suitable oral appliance. If deemed appropriate, a dentist should fabricate an oral appliance.
- Dentists should obtain appropriate patient consent for treatment that reviews the proposed treatment plan, all available options and any potential side effects of using OAT and expected appliance longevity.
- Dentists treating SRBD with OAT should be capable of recognizing and managing the potential side effects through treatment or proper referral.

- Dentists who provide OAT to patients should monitor and adjust the Oral Appliance (OA) for treatment efficacy as needed, or at least annually. As titration of OAs has been shown to affect the final treatment outcome and overall OA success, the use of unattended cardiorespiratory (Type 3) or (Type 4) portable monitors may be used by the dentist to help define the optimal target position of the mandible. A dentist trained in the use of these portable monitoring devices may assess the objective interim results for the purposes of OA titration.
- Surgical procedures may be considered as a secondary treatment for OSA when CPAP or OAT is inadequate or not tolerated. In selected cases, such as patients with concomitant dentofacial deformities, surgical intervention may be considered as a primary treatment.
- Dentists treating SRBD should continually update their knowledge and training of dental sleep medicine with related continuing education.
- Dentists should maintain regular communications with the patient's referring physician and other healthcare providers to the patient's treatment progress and any recommended follow-up treatment.
- Follow-up sleep testing by a physician should be conducted to evaluate the improvement or confirm treatment efficacy for the OSA, especially if the patient develops recurring OSA relevant symptoms or comorbidities.

Obstructive sleep apnea and orthodontics: An American Association of Orthodontists White Paper

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St. Louis, Mo, Ann Arbor, Mich, Orchard Park, NY, Edmonton, Alberta, and Vancouver, BC, Canada, Cleveland and Berea, Ohio, Memphis, Tenn, Atlanta, Ga, Frisco and McKinney, Tex, and Simi Valley, Calif

The Board of Trustees of the American Association of Orthodontists asked a panel of medical and dental experts in sleep medicine and dental sleep medicine to create a document designed to offer guidance to practicing orthodontists on the suggested role of the specialty of orthodontics in the management of obstructive sleep apnea. This White Paper presents a summary of the Task Force's findings and recommendations. (*Am J Orthod Dentofacial Orthop* 2019;156:13-28)

The specialty of orthodontics involves much more than just moving teeth, and the management of sleep apnea bears witness to this. As such, there is increasing interest in the role of the orthodontist

both in screening for obstructive sleep apnea (OSA) and as a practitioner who may be valuable in the multi-disciplinary management of OSA in both children and adults. As experts in the science of facial growth and development, combined with our knowledge of oral devices, orthodontists are well suited to collaborate with physicians and other allied health providers in the treatment of OSA.

Although OSA can be definitively diagnosed only by a physician, the orthodontist may be called on to screen for OSA, contribute to the identification of underlying dentofacial components, and assist the physician in managing the disease. As such, the orthodontist is not able to manage this care alone, and a cooperative shared effort between the orthodontist and other medical professionals is preferred to optimize care of patients with OSA.

Patients with suspected OSA may come to the orthodontist in several different ways. A patient who has been medically diagnosed with OSA may be referred to the orthodontist by a physician who prescribes an oral appliance or suggests orthodontic or orthopedic therapy to assist in the management of the OSA. Other patients or caregivers may present to the orthodontist with concerns about breathing during sleep. In addition, patients may present to the orthodontist unaware of their OSA, and orthodontic screening may reveal the need for further evaluation by a physician.

In November 2017, the Board of Trustees of the American Association of Orthodontists (AAO) tasked a panel of medical and dental experts in sleep medicine and dental sleep medicine to create a document

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All authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest, and none were reported.

A White Paper is an authoritative report or guide that informs readers concisely about a complex issue, presents the issuing body's philosophy, and offers proposals on the matter.

This document was subject to editorial changes prior to publication.

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designed to offer guidance to practicing orthodontists on the suggested role of the specialty of orthodontics in the management of OSA. The panel completed an exhaustive review of the available literature as well as contributed their own personal expertise gleaned from managing these patients in both academic centers and within private practice settings. In considering the literature, it was obvious that there is broad interest in OSA, as evidenced by the development of guidelines for the consideration and treatment of OSA around the world and involving many different communities. The topic has been covered by physicians, dentists, and scientists from a variety of organizations, including the American Dental Association, American Academy of Dental Sleep Medicine, American Academy of Sleep Medicine, European Respiratory Society, Australian Dental Association, American Association of Oral and Maxillofacial Surgeons, American College of Prosthodontists, American Academy of Pediatric Dentistry, Canadian Dental Sleep Medicine, Canadian Thoracic Society, American Academy of Pediatrics, and U.S. Preventative Respiratory Society, among others.

However, the Task Force could not identify any formal OSA guidance for orthodontists. This was surprising because orthodontists have specialized knowledge, skill, and experience that would be beneficial in the management and care of patients with OSA. In addition, orthodontists typically have a broad patient population (children, adolescents, and adults), with contact maintained over a long period of time. Moreover, orthodontists have a long and productive history of working with others in medicine and dentistry to provide collaborative care for patients with special needs (eg, cleft lip and palate, craniofacial syndromes, complex restorative cases, orthognathic surgery).

Given that OSA can be a serious, even life-threatening, disorder and the quality of patient management and care that can be provided by orthodontists, the Task Force determined that it was very important to develop specific recommendations that would be useful to an orthodontist in practice. The following represents a summary of their findings and recommendations.

ADULT OSA

Sleep-related breathing disorders (SRBDs) constitute a diagnostic category of disease that encompasses obstructive phenomena, including primary snoring, upper airway resistance syndrome, and OSA, along with the related entities of central sleep apnea and sleep-related hypoventilation. This document focuses on OSA, beginning with this section on the adult patient (ie, 18 years of age or older). Clinical concerns for other forms of SRBD and additional types of sleep disorders

(eg, insomnia, central disorders of hypersomnolence, circadian rhythm sleep-wake disorders, sleep-related movement disorders, and parasomnias), if identified, should be referred to a physician for evaluation and treatment; a sleep medicine physician is preferred.

Etiology

Obstructive sleep apnea occurs as a function of increased collapsibility of the upper airway. The pharyngeal critical closing pressure (P_{crit}) is the pressure at which the upper airway collapses. This collapsibility is influenced further by impaired neuromuscular tone. Respiratory effort increases to maintain airflow through a constricted airway, accompanied by relative increase in serum carbon dioxide (hypercarbia) and decrease in serum oxygen (hypoxemia). The increased work of breathing causes a cortical arousal from sleep, which in turn raises sympathetic neural activity, leading to increased heart rate and blood pressure and a tendency for cardiac arrhythmia. With the cortical arousal from sleep comes an increase in airway patency and resumption of normal airflow, with subsequent return to sleep and recurrence of sleep-related upper airway collapsibility. This disruption in breathing may occur multiple times per hour for the entire duration of the patient's sleep.

The complexity of OSA is exemplified by its multifactorial etiology. Such etiologies involve the craniofacial structures, neuromuscular tone, and other related factors. Collapsibility of the upper airway is influenced further by hormonal fluctuation (eg, pregnancy or menopause), obesity, rostral fluid shifts, and genetic predisposition that influences craniofacial anatomy. OSA severity is heterogeneous among patients with the disorder. This wide range of presentation leads to variations in management approach and differences in treatment response.

Prevalence

Estimates of the prevalence of OSA in adults vary in the literature; OSA is commonly thought to involve 14% of men and 5% of women. Prevalence rates are higher in certain populations, such as obese patients considered for bariatric surgery and post-stroke patients. Underrecognition of OSA likely leads to underdiagnosis and a false reduction of the true prevalence of disease.

Risk factors

Individuals with certain characteristics appear to be predisposed to OSA. Conditions that may be risk factors for the development of OSA in adults include obesity (body mass index [BMI] ≥ 30 kg/m²), menopause, male

sex, and increasing age. Genetic influences on craniofacial structure leads to higher OSA prevalence in certain ethnic groups that have been studied. Some genetic syndromes, particularly those with associated craniofacial anomalies, also are associated with an increased risk of OSA.

Craniofacial morphologies that may predispose to OSA include retrognathia, long and narrow faces, dolichocephalic facial type, narrow and deep palate, steep mandibular plane angle, anterior open bite, midface deficiency, and lower hyoid position. It should be noted, however, that the strength of the relationship between these craniofacial morphologies and the development of OSA is not well established.

Symptoms

Patients with OSA often have a history of snoring, gasping respiration or choking, and witnessed pauses in breathing (apneas) during sleep. Common clinical symptoms of untreated OSA include frequent nocturnal awakenings, nonrestorative sleep, morning headaches, and excessive daytime sleepiness. Patients with OSA often describe difficulty with attention and concentration, mood disturbance, and difficulty controlling other medical comorbidities such as diabetes mellitus, hypertension, and obesity.

Diagnosis

Diagnostic confirmation of OSA is performed by a sleep medicine specialist with the use of the gold standard of an in-center overnight sleep study (polysomnography [PSG]) or out-of-center sleep testing (OCST) for appropriately selected patients. Home sleep apnea testing (HSAT) is a type of OCST. Attended PSG includes at least 7 channels of recording, including electroencephalography (EEG), electrocardiography, and monitoring of sleep, airflow through the nose and mouth, pulse oximetry, respiratory effort, and leg movement. HSAT includes 4-7 channels. It is important to note that HSAT typically does not include EEG monitoring of sleep.

According to the International Classification of Sleep Disorders,¹ OSA can be diagnosed by either of 2 sets of criteria. The first set of diagnostic criteria for OSA includes the presence of at least 1 of the following: (1) the patient has sleepiness, nonrestorative sleep, fatigue, or insomnia symptoms, (2) the patient wakes with breath holding, gasping, or choking, (3) a bed partner or other observer reports habitual snoring, breathing interruptions, or both during the patient's sleep, and (4) the

patient has been diagnosed with hypertension, a mood disorder, cognitive dysfunction, coronary artery disease, stroke, congestive heart failure, atrial fibrillation, or type 2 diabetes mellitus; and polysomnography or OCST shows at least 5 predominantly obstructive events (obstructive or mixed apneas, hypopneas, or respiratory effort-related arousals (RERAs) per hour of sleep during a PSG or per hour of monitoring on OCST.

In the second criteria, OSA can be diagnosed if PSG or OCST shows 15 or more predominantly obstructive events (obstructive or mixed apneas, hypopneas, or RERAs per hour of sleep during a PSG or per hour of monitoring on OCST). Examples of apnea and hypopnea are presented in Appendix I.

A few different terms are used in the classification of OSA. The respiratory disturbance index (RDI) includes the number of apneas, hypopneas, and RERAs per hour of sleep. The apnea-hypopnea index (AHI) includes the number of apneas and hypopneas per hour of sleep. Thus, a patient's RDI may be higher than the AHI. Some publications refer to AHI and others RDI, so it is important for clinicians and researchers to understand the difference between these 2 measurements. Compared with PSG, OCST often underestimates the frequency of obstructive events per hour because OCST typically does not measure total sleep time as determined by EEG. The respiratory event index can be used to indicate the frequency of respiratory events based on total recording time (rather than total sleep time).

Severity

Severity of obstructive sleep apnea is classified based on the AHI or RDI per hour; categories are mild (AHI or RDI ≥ 5 and < 15), moderate (AHI or RDI ≥ 15 and < 30), and severe (AHI or RDI ≥ 30). The minimum oxygen saturation also should be considered when making clinical assessment of the magnitude of OSA, although there are no consensus classifications for the severity of oxygen desaturation.

Significance

Untreated OSA can lead to many serious consequences. Excessive daytime sleepiness increases the risk of motor vehicle accidents and diminishes quality of life. Neurocognitive impairment leads to decreased scholastic and occupational performance. Chronic intermittent hypoxemia and heightened sympathetic neural activity, endothelial damage, and heightened inflammation are related to metabolic dysfunction and end-organ

sequelae. Untreated OSA increases risk of insulin resistance, coronary artery disease, congestive heart failure, myocardial infarction, hypertension, stroke, cardiac arrhythmia, and sudden cardiac death.

ROLE OF ORTHODONTICS IN ADULT OSA

The orthodontist is well positioned to perform an OSA screening assessment and refer at-risk patients for diagnostic evaluation. Once the diagnosis of OSA is confirmed, physicians (and advanced practice providers supervised by physicians) may prescribe orthodontic appliances or procedures in appropriately selected adult patients as part of OSA management.

Medical and dental history

Orthodontists should be familiar with the signs and symptoms of OSA in adult patients. Thorough history taking is critically important to establish the presence of preexisting conditions, a basis for a diagnosis, the need for referral, and a baseline for evaluating the effects of treatment. Orthodontists also should include assessment of a patient's height, weight, and neck size to screen adult patients for OSA.

The following items should be considered when constructing a health history that is sensitive to OSA: a previous diagnosis of OSA, excessive daytime sleepiness,* a previous diagnosis of other forms of SRBDs, fatigue during the day, height,* choking or gasping respirations during sleep, weight,* habitual or loud snoring,* sex,* observed episodes of pauses in breathing,* age,* abrupt awakening and shortness of breath, high blood pressure,* awakening with dry mouth or sore throat, mouth breathing, morning headaches, menopause, difficulty staying asleep, alterations in performance, enuresis or unexplained nocturia, disordered mood, attention, or memory problems, restlessness during sleep, sweating, nasal obstruction, bruxism, type 2 diabetes, and neck circumference (*component of the STOP-Bang questionnaire; see next section).

Screening tools

In adults, a validated tool for OSA risk assessment is the STOP-Bang questionnaire (Appendix II),^{2,3} which asks yes or no questions based on its acronym: snoring (S), tiredness (T), observed pauses in breathing (O), high blood pressure (P), BMI >35 kg/m² (B), age >50 years (A), neck circumference of ≥17 inches in men, or ≥16 inches in women (N), and male gender (G). A patient is considered to be at low risk for OSA if the questionnaire has no more than 2 "yes" answers, at intermediate risk if there are 3 or 4 "yes" answers, and at high risk if there are 5 or more "yes" answers.

The patient is considered at high risk also if there are 2 "yes" answers from the STOP section, combined with either male gender, high BMI, or large neck size. Using a cutoff score of ≥3 to detect any OSA (AHI >5), moderate to severe OSA (AHI >15), and severe OSA (AHI >30), the sensitivities were 84%, 93%, and 100% and specificities 56%, 43%, and 37%, respectively.⁴ The STOP-Bang questionnaire has a high sensitivity for identifying patients with moderate to severe OSA. This sensitivity gives the practitioner an excellent tool for identifying patients who have the condition. This questionnaire can be completed in a few minutes as part of an orthodontist's workflow.

Clinical examination

The clinical examination is an important part of the screening process. In addition to regular orthodontic screening, the orthodontist can use the modified Mallampati (MM) classification to describe the patency of the oral airway (Appendix III).⁵⁻¹¹ Three steps are followed to determine the MM class: step 1, patients are asked to take a seated or supine position; step 2, patients are asked to protrude their tongue as far forward as they can without emitting a sound; and step 3. The examiner observes the relationship between the palate, tongue base, and other soft tissue structures to determine the MM classification defined as class I, soft palate, fauces (the arched opening at the back of the mouth leading to the pharynx), uvula, and tonsillar pillars are visible; class II, soft palate, fauces, and uvula are visible; class III, soft palate and base of uvula are visible; and class IV, soft palate is not visible.

This clinical assessment framework can help orthodontists identify patients who may be at risk for upper airway obstruction during sleep. It should be noted that the MM class may vary over the course of a pregnancy, so the MM class may need to be reassessed at various times during pregnancy. The MM classification is a helpful part of the OSA screening process; it should not, however, be used in isolation to predict OSA presence or severity.

Many other OSA screening questionnaires have been developed and studied in various populations, with wide-ranging specificities and sensitivities. The Epworth Sleepiness Scale (Appendix IV)¹² asks patients to self-rate their level of sleepiness in 8 different sedentary situations. The Epworth Sleepiness Scale may be used to gauge or track symptomatic impairment (or response to treatment). However, it is not a screening tool for OSA, because it detects abnormalities in level of daytime sleepiness regardless of the cause of sleepiness.

Practitioners also may find the Friedman tongue classification system (Appendix V),¹³ the Kushida index,¹⁴ and the Berlin Questionnaire for Sleep Apnea¹⁵ useful.

Orthodontic radiographs

The use of imaging in the assessment of OSA is often limited in a typical orthodontic setting. Conventional cephalometric images are dimensionally limited. Therefore, airway imaging with the use of a lateral cephalogram does not portray mediolateral information in the oropharyngeal airway and may give misleading information as to the volume and minimal cross-sectional area.

Cone-beam computed tomographic (CBCT) images have been shown to be useful in diagnostic and morphometric analysis of the hard and soft tissues in routine orthodontic treatment, but they have certain limitations regarding the diagnosis of OSA. CBCT provides no information on neuromuscular tone, susceptibility to collapse, or actual function of the airway. There are significant positional and functional differences when the patient is asleep versus awake. It is a snapshot of a specific moment of the breathing cycle. In addition, there is currently no minimal cross-sectional area or volume of the airway that has been validated as a minimal threshold level at which an individual is at higher risk of having OSA. Thus, orthodontic records may be taken by the orthodontist, but currently no radiographic methods have been reported to have high enough sensitivity or specificity to serve as a risk assessment tool for OSA.

Three-dimensional imaging of the airway should not be used to diagnose sleep apnea or any other SRBDs, because such imaging currently does not represent a proper risk assessment technique or screening method. On the other hand, 3-dimensional imaging of the airway, when available, may be used for monitoring or treatment considerations. If radiographic records are taken as part of orthodontic diagnosis and treatment planning, the airway and surrounding structure should be analyzed comprehensively.

DIAGNOSIS AND TREATMENT PLANNING IN ADULT OSA

Obstructive sleep apnea and other SRBDs can be definitively diagnosed only by a physician. It is not in the scope of the orthodontist or any other dentist to definitively diagnose OSA or any other SRBD. If the patient is found to have OSA, the physician will prescribe the appropriate course of action; the orthodontist should consider working in a collaborative way with the physician, providing related orthodontic treatment when necessary and when it does not interfere with medical treatment.

The OSA treatment plan should be based on careful consideration of the patient's individual needs and treatment goals. If the treatment plan involves orthodontics, a plan for treatment, monitoring, and long-term follow-up care should be developed by all practitioners involved. Care should be coordinated via communication between the orthodontist and any other practitioners participating in the treatment of the patient. It is recommended that treatment and management of OSA not take place without a referral from a physician (or provider supervised by a physician).

TREATMENT OF OSA IN ADULTS BY PHYSICIANS AND SURGEONS

Positive airway pressure (PAP) therapy is the gold standard treatment for OSA in adults. PAP acts as a pneumatic splint that maintains patency of the upper airway. PAP is delivered through a mask interface as either continuous positive airway pressure (CPAP), bilevel positive airway pressure (BPAP), or autotitrating positive airway pressure (APAP). Of note, CPAP and BPAP devices are available in conventional and autotitrating modes. CPAP use can decrease OSA-related cognitive impairment along with improving objective and subjective measures of sleepiness, particularly in patients with severe OSA (AHI ≥ 30 /h).¹⁶ BPAP may be used for patients with OSA who are intolerant of CPAP or those who have other forms of SRBDs (eg, sleep-related hypoventilation). APAP may be considered for patients with OSA who do not have contraindications to APAP use (eg, congestive heart failure, lung disease such as chronic obstructive pulmonary disease, obesity hypoventilation syndrome, or central sleep apnea).

Studies on PAP nonadherence report wide-ranging results. Although definitions of nonadherence vary across studies, a common definition of PAP nonadherence is mean use ≤ 4 hours per night. Estimates of PAP nonadherence range from 29% to 83%.^{17,18} Early adherence to PAP use predicts longer-term PAP use; a study of 100 patients started on CPAP showed that CPAP use for at least 4 hours per night 3 days after starting therapy was predictive of CPAP adherence 30 days after treatment initiation.¹⁹ Factors that affect PAP adherence include OSA severity, ability to tolerate the prescribed pressure setting, mask fit, spousal support, and other psychologic and social influences.¹⁷

Other treatment options include positional therapy (avoidance of sleeping on back) and long-term weight reduction as indicated. Nasal congestion and allergic rhinitis may be managed with the use of nasal steroids and other oral medications as indicated. For some patients, nasal surgery may be performed as adjunctive

therapy to decrease intranasal resistance and facilitate better adherence to PAP therapy. For selected patients, multilevel surgery including nasal and palatal surgery with or without mandibular surgery, genioglossus advancement, and hyoid suspension may be considered. Other soft tissue surgeries might be indicated that involve the tonsils, adenoids, frenum, and tongue. Hypoglossal nerve stimulation addresses the impaired neuromuscular tone in OSA and may be considered in certain patients with OSA.

ORTHODONTIC MANAGEMENT IN ADULT OSA

After diagnosis of OSA by a physician, a patient may be referred to (or back to) an orthodontist for one or more types of care.

Informed consent

Before initiating care, informed consent appropriate to OSA must be obtained before any treatment is provided. The proposed treatment plan should be described in detail, and treatment alternatives also should be discussed. The orthodontist should describe the benefits, risks, short- and long-term side-effects, and complications that might arise. The need for compliance, long-term monitoring, and follow-up care should be discussed. An estimate of the nightly duration of oral appliance (OA) therapy use should be provided, and a realistic estimate of the probability of success with the treatment protocol should be presented. Given the serious nature of untreated OSA, it is recommended that the orthodontist carefully document the informed consent process.

Oral appliance therapy

Oral appliances, which include both mandibular advancing oral appliances (OAMs) and tongue-retaining devices, are usually effective options for OSA management in appropriately selected patients. OAMs are intended to hold the mandible or the associated soft tissues forward, resulting in an increased caliber of the upper airway at the oropharyngeal level. A substantial body of research supports the use of OAs for patients with OSA. Specifically, OAs may be used for treatment of mild to moderate OSA and for treatment of patients with severe OSA who are unwilling or unable to use PAP therapy. Published guidelines (American Academy of Sleep Medicine/American Academy of Dental Sleep Medicine) describe how OAs fit into the OSA management paradigm.^{20,21}

Functional appliances and OAMs are considered to be the first line of treatment for patients with OSA that prefer OAs over PAP and for those patients that do not respond to PAP therapy. Although typically well tolerated, it should also be noted that not all patients with OSA respond to OAM treatment; this form of therapy is reported to be completely effective in 36%-70% of OSA cases.

Many types of OAs are used in the treatment of OSA in adults. The appliances vary based on the coupling design, mode of fabrication and activation, titration capability, degree of vertical opening, lateral jaw movement, and whether they are custom made or prefabricated. Proper indications for each design should be considered.

Oral appliance titration

Oral appliances initially are delivered with the mandible advanced to a position approximating two-thirds of maximum protrusion. After a period of accommodation, based on subjective feedback from the patient regarding their OSA symptoms and sleep quality, the amount of protrusion can be titrated or increased until optimum symptom relief is obtained. Unattended (type 3 or 4) portable monitors may be used by the orthodontist to help define the optimal target position of the mandible. Then typically the physician involved will request a sleep study with the OAM in place. Should the physician deem the calibrated position to be subtherapeutic, the physician and orthodontist should discuss the possibility of further titration or alternate treatment.

Monitoring

During treatment for OSA, the patient should be monitored, which may involve subjective reports as well as objective observations. Reports on usage of the OA may be obtained from the patient and bed partner or caregiver. Compliance should be evaluated, and the appliance should be checked for fit and comfort, the need for titration, and the development of undesirable side-effects. At present, most data on adherence to OA therapy rely on subjective reports. Use of a thermal sensor²² has been studied in an effort to have objective measurement of OA adherence, although such measures currently are not part of routine clinical care.

It has been suggested that monitoring be conducted at least once every 6 months during the first year and then annually. Routine monitoring should result in regular communications between the physician and

orthodontist. If the patient has worsening of OSA-related symptoms, or changes to overall health, a consultation with the physician is strongly recommended.

Goals of treatment

The end points of treatment include reduced or eliminated snoring, resolution of the patient's initial symptoms of OSA, normalization of the AHI, and normalization of oxyhemoglobin saturation. No pre-treatment risk factors have been consistently shown to predict success for OAs in reaching treatment goals.

Change in occlusion

Oral appliances used in sleep apnea treatment move teeth. In the field of dentistry, orthodontists are generally considered to be the experts in the management of malocclusion owing to their education and clinical experience. Improved awareness of both OSA and the effectiveness of OAs has resulted in increased numbers of OSA patients being treated with the use of OAs by nonorthodontists. Although successful OSA treatment may be evident over the short term in many of these patients, nonorthodontic providers may be unaware of the unwanted effects that OAs can have on their patient's occlusion over the long term. Orthodontists can be helpful in providing our medical and dental colleagues valued oversight, and sometimes treatment, of unexpected and unwanted occlusal changes occurring with long-term OA wear.

Changes are progressive with ongoing OA use. Because many patients will be treated for a protracted period, OA-generated malocclusions often become significant over the long term and may require treatment to reverse the dentoskeletal adaptations that may occur. Typical changes include a reduction in overjet and overbite, changes in facial height, development of anterior crossbites, and posterior open bite.

Orthodontists may be asked to assess and treat OA-related malocclusions, a condition that has become a more frequent occurrence in recent years. When considering treatment of these malocclusions, orthodontists need to be aware that the patient will not be able to wear the OA during treatment; therefore, the patient may need to use PAP therapy during the period of orthodontic care. Communication with the physician helps to ensure that the patient's OSA is still being managed appropriately.

Should the patient return to using an OA for OSA after orthodontic treatment, then the malocclusion may also return. Consequently, such patients often switch

to PAP therapy or may be evaluated for surgical treatment options.

Maxillomandibular advancement and surgically assisted rapid maxillary expansion

Patients who are unable to tolerate or adhere to PAP or OA therapy with an underlying sagittal skeletal discrepancy may be candidates for maxillomandibular advancement (MMA) or telegnathic (>10 mm) jaw advancement surgery. MMA is generally reserved for patients with severe OSA who are unable to tolerate PAP therapy and patients who also have an orthodontic indication for the procedure. The severity of OSA is not the only determinant of candidacy for MMA; these patients often require detailed evaluation and counseling before MMA is selected as a treatment option.

Such patients typically should proceed with routine orthodontic diagnosis and treatment planning, including comprehensive soft tissue facial evaluation to assure optimal presurgical preparation and that the surgery performed will not adversely affect facial esthetics. Orthodontic care is usually a beneficial adjunct for patients to facilitate obtaining optimal occlusion while simultaneously reducing the risk of postoperative malocclusion. Patients with ideal or minimal Class I malocclusion may not require extensive presurgical orthodontics in that the 2 jaws may have a similar interdigitation after symmetric maxillary and mandibular advancement. Telegnathic surgery is not recommended for patients who are already bimaxillary protrusive; such patients should usually be reevaluated by the team to explore alternate treatment options. One of the concerns of telegnathic surgery in this situation involves esthetics. As such, each practitioner and patient should decide for themselves if the benefits of the surgery outweigh the risks involved.

Significantly less data exist for surgically assisted rapid maxillary expansion (SARME), which aims to correct a maxillary transverse deficiency. In OSA patients with maxillary transverse deficiency, normalizing the width of the maxilla with the use of SARME and developing a functional and esthetic occlusion with comprehensive orthodontic treatment afterward has been suggested to improve PSG parameters.²³

Possible treatments on the horizon

New treatment modalities, such as mini-implant (miniscrew or temporary anchorage device)-supported rapid maxillary expansion, are appearing as possible alternatives for SARME. However, to date there is very limited PSG evidence for its use in the management of OSA patients. Future studies are needed, and with time

mini-implant-supported expansion may become a viable adjunctive form of treatment for OSA management in adult patients.

PEDIATRIC OSA (UNDER 18 YEARS OF AGE)

Etiology

As with adult OSA, impaired neuromuscular tone underlies upper airway collapsibility in children. In addition to etiologic factors similar to those in adults, exacerbating factors for pediatric OSA often include lymphoid hyperplasia and growth-related changes in the size of the upper airway.

As the upper airway is narrowed or completely occluded, the patient's effort during breathing progressively increases. Owing to the airflow restriction, there is a relative increase in serum carbon dioxide (CO₂; hypercarbia) and decrease in serum oxygen (hypoxemia). The escalating respiratory effort causes a cortical arousal from sleep, which results in the upper airway opening so that normal airflow is reestablished. Once the patient falls back to sleep, the upper airway may collapse again with recurrence of the above-noted process. This breathing sequence may have significant consequences for the child.

Risk factors

Because the obesity epidemic also affects children, obesity is becoming a greater factor for childhood OSA. However, because untreated OSA may contribute to growth restriction, some children with OSA paradoxically may be underweight. Therefore, it is recommended that a clinical risk assessment for OSA be performed even in normal-weight and underweight children.

In addition, it is thought that certain craniofacial morphologies can increase a child's risk for having OSA. For example, mandibular retrognathia, long and narrow faces, narrow and deep palate, steep mandibular plane angle, anterior open bite, and midface deficiency may predispose a child to developing OSA. However, the presence of OSA cannot be determined by craniofacial morphology alone; these physical findings should be interpreted in the context of the clinical history.

Genetic syndromes that are associated with craniofacial anomalies can confer an increased risk of OSA. For example, patients with Pierre Robin sequence²⁴ and syndromic craniosynostosis²⁵ have a high prevalence of OSA. Children with Down syndrome²⁶ also have an increased OSA prevalence. Orthodontists who care for children with these and other genetic syndromes that affect craniofacial morphology should pay attention to

clinical features that may suggest the presence of untreated OSA.

Symptoms

Children with OSA may present with snoring, witnessed apneas, and choking or gasping during sleep. Parents or caregivers may describe that the child sleeps in unusual positions, such as having the neck hyperextended or with the head hanging off the side of the bed, as well as appearing very restless with frequent position changes during sleep.

Some children with OSA may present with sleepiness; those who previously had discontinued daytime napping may resume daily or near-daily naps. In other children, untreated OSA may manifest as hyperactivity rather than excessive sleepiness. Whereas obesity may be a contributor to the pathogenesis of OSA in some children, others may present with failure to thrive. As such, it is recommended that the evaluation for OSA in every child should be part of an orthodontist's comprehensive clinical assessment.

Diagnosis

Diagnosis of OSA in children is confirmed only by the gold standard PSG. Diagnostic evaluation of childhood OSA has evolved in recent years. In addition to standard recording channels, all pediatric PSG is now conducted with CO₂ monitoring. Measurement with either end-tidal CO₂ (the partial pressure of CO₂ present at the end of exhalation) or transcutaneous CO₂ monitoring is acceptable.

According to the International Classification of Sleep Disorders,¹ OSA can be diagnosed by either of 2 sets of diagnostic criteria. The first set of criteria for OSA includes the presence of at least 1 of the following: (1) snoring, (2) labored, paradoxical, or obstructed breathing during the child's sleep, or (3) sleepiness, hyperactivity, behavioral problems, or learning problems; and polysomnography shows one or more obstructive apneas, mixed apneas, or hypopneas per hour of sleep.

Alternatively, OSA can be diagnosed if the PSG shows a pattern of obstructive hypoventilation, which is defined as at least 25% of total sleep time with hypercapnia (PaCO₂ >50 mm Hg) associated with at least 1 of the following: (1) snoring, (2) flattening of the inspiratory nasal pressure waveform, or (3) paradoxical thoracoabdominal motion. These OSA diagnostic criteria are for children under the age of 18 years, although adult OSA diagnostic criteria may be used for children of ages 13-18 years, according to the American Academy of Sleep Medicine Manual for the Scoring of Sleep and

Associated Events.²⁷ HSAT is not indicated in patients under 18 years of age.^{28,29}

Severity

Published studies on childhood OSA have included various diagnostic criteria; some studies use the adult criteria of $AHI \geq 5/h$. Other studies define childhood OSA as mild (AHI or $RDI \geq 1$ and $< 5/h$), moderate ($AHI \geq 5$ $< 10/h$) and severe ($AHI \geq 10/h$). Of note, scoring of obstructive apneas and hypopneas on PSG differs slightly for children than for adults. For adults event duration is defined as is at least 10 seconds, whereas for children obstructive event duration is defined as at least 2 breaths.

Prevalence

Prevalence of childhood OSA is obscured by different diagnostic criteria used in published studies. Epidemiologic data from 2008 indicate prevalence of parent-reported "always" snoring to be 1.5%-6%, prevalence of parent-reported apneic events during sleep to be 0.2%-4%, and OSA diagnosed by varying criteria to be 1%-4%. Multiple studies have shown that during certain phases of growth, childhood OSA remits without any intervention. These data indicate that prevalence of childhood OSA changes across periods of growth and development. Specific populations, such as children with certain craniofacial or other genetic syndromes and those who are obese, have a higher prevalence of OSA compared with the general population.

Significance

Consequences of OSA in children include impaired growth and cardiovascular dysfunction. The impaired neurocognitive function seen in children with untreated OSA can have an effect on academic performance. Behavioral problems also can result. Persistent snoring and nocturnal enuresis (bedwetting), which can result from untreated OSA, can be embarrassing for children in social settings and thus affect interpersonal interactions.

PEDIATRIC OSA: SKELETAL AND SOFT TISSUE GROWTH

Orthodontists are aware of the impact that facial growth has on orthodontic treatment outcome. Facial growth also influences the size and shape of the upper airway in the pediatric population. One approach to understanding the interaction of hard and soft tissue growth on upper airway morphology can be described as follows. The hard tissue boundaries of the upper airway include the upper and lower incisors and the

piriform rim in the anterior, the cranial base superiorly, the cervical vertebrae posteriorly, and the hyoid bone inferiorly. Laterally, the size of the airway is related to the width of the palate, the middle cranial fossa, and the distance between the ascending rami. Together these structures define the bony skeletal boundaries of the airway. Soft tissues then line this hard tissue framework. These tissues include the pharyngeal muscles, tongue, soft palate, turbinates, and the pharyngeal tonsils, adenoids, and nares.

Importantly, growth of the bony components effectively increases the size of the skeletal boundaries in the following ways. The anterior cranial base increases in length via growth at the sphenothmoidal synchondrosis up to the age of 7 years. Increases in posterior cranial base length are similarly related to growth at the sphenoccipital synchondrosis up to the age of 13 years. The anterior cranial base carries the nasomaxillary complex forward at the same time that the individual bones of the midface are displaced in an anterior and inferior direction. Simultaneously, the mandible elongates and is displaced downward and forward with deposition of bone on the posterior and superior borders of the ramus, increasing the height of the rami (bony pharyngeal height) and increasing the distance between the ascending rami (bony pharyngeal width). Concurrently, resorption on the anterior border of the ramus increases corpus length (oropharyngeal length). While all these bony changes are occurring, the hyoid bone is displaced anteriorly and inferiorly. Thus, the normal facial growth process results in dramatic increases in all 3 dimensions of the skeletal framework.³⁰

While the skeletal boundaries of the airway are increasing, the major lymphatic tissues of the upper airway (tonsils and adenoids) are shrinking. This combination of increases in skeletal dimensions along with decreases in soft tissue mass results in enormous increases in the size of the upper airway over infancy, childhood, and adolescence. These changes in airway due to growth far exceed any orthodontic or orthopedic effects on airway shape or size. Knowledge of these changes is important to understanding the dynamics of OSA in children.³¹

ROLE OF ORTHODONTICS IN PEDIATRIC OSA

It is strongly recommended that the orthodontist perform a clinical risk assessment for OSA and refer at-risk patients to the appropriate physician for definitive diagnosis of OSA. Subsequently, orthodontists may be involved in treatment of pediatric OSA if the treating physician refers the patient back to the orthodontist to address an underlying skeletal discrepancy thought to contribute to the child's OSA.

Medical and dental history

Orthodontists should be familiar with the signs and symptoms of OSA in pediatric patients. Questions concerning the health history of a pediatric patient should solicit information on snoring, sleep-related behaviors, daytime sleepiness, difficulty concentrating, and formal diagnosis of attention deficit-hyperactivity disorder. The American Academy of Pediatric Sleep Physicians recommends that if a patient reports snoring, more thorough questioning is warranted; the guidelines state, "If they snore, you must do more."³²

Thorough history and examination are critically important in that they establish the presence of preexisting conditions, a basis for a diagnosis, the need for referral, and a baseline for evaluating the effects of treatment. Orthodontists also should include assessment of a patient's height, weight, and neck size to screen pediatric patients for OSA.

The following items should be considered when performing a pediatric evaluation that is sensitive to OSA: previous diagnosis of OSA, loud snoring, previous diagnosis of other forms of SRBDs, mouth breathing during sleep, height, poor school performance, weight, aggressive behavior, medications, developmental delays, age, bed wetting that is not age appropriate, attention problems, hard to wake up in the morning, trouble breathing during sleep, morning headaches, pauses in breathing during sleep, fall asleep quickly, nasal obstruction, and attention deficit-hyperactivity disorder.

Screening tools

One potential screening tool that has been validated and used in orthodontic offices is the Pediatric Sleep Questionnaire (PSQ; Appendix VI).³³⁻³⁵ This questionnaire has a positive predictive value of 0.4 (ie, 40% of patients with a positive PSQ score will be diagnosed with OSA) and a negative predictive value of 0.99, (ie, only 1% of patients with a negative PSQ score will be diagnosed with OSA). The PSQ often is a valuable first step in screening patients presenting to the orthodontic office without a history of OSA. The Epworth Sleepiness Scale for Children and Adolescents (Appendix VII)³⁶ may be helpful to assess for problematic sleepiness, but it cannot identify a specific cause of daytime sleepiness. The Epworth scale has been validated only for children 12-18 years of age.¹²

Clinical examination

In addition to the usual orthodontic clinical examination that evaluates dental occlusion, range of mandibular motion, soft tissue frenum attachments, gingival health, and temporomandibular disorder, the

orthodontist should also note the degree to which the tonsils impinge on the pharyngeal airway. A commonly accepted tonsil classification system, the Brodsky scale, grades the clinical manifestation of tonsil hypertrophy from 1 to 5 based on the percentage of the oropharyngeal airway taken up by the 2 tonsils (Appendix VIII).³⁷ The Friedman tonsil grading system (Appendix IX)³⁸ may also be a useful tool to evaluate the size of the tonsils. Because tonsil size does not correlate with OSA severity, there is no set cutoff point for tonsillar hypertrophy necessitating a referral to an otolaryngologist for further evaluation³⁹; therefore, this decision is best made in the patient-specific context of symptoms and physical examination findings. The clinical evaluation of OSA in children should include evaluation of tongue size and position, the presence of obesity, and the patient's overall growth and development.

Orthodontic records

The typical orthodontic record set captures some important information that can be useful for further evaluation of the upper airway. For example, the adenoid mass and the hyoid bone can be seen on both the lateral cephalogram and the CBCT image. A low position of the hyoid bone when measured from the inferior border of the mandible has been shown to be an indicator of low muscle tonicity and has been linked with OSA.

Three-dimensional imaging is more accurate than 2-dimensional imaging for assessment of airway volume and area of maximum constriction. Airway imaging with the use of a cephalogram does not portray medio-lateral changes in the oropharyngeal airway and may give misleading information as to the volume and minimal cross-sectional area. As in adult patients, although CBCT images have been shown to be useful in diagnostic and morphometric analysis of the hard and soft tissues in routine orthodontic treatment, there are limitations regarding the screening of OSA. CBCT provides no information on neuromuscular tone, susceptibility to collapse, or actual function of the airway. Although both 2-dimensional and 3-dimensional imaging of the airway are helpful, they cannot be used to diagnose sleep apnea or any other SRBDs alone, and they do not provide a proper risk assessment technique or screening method.

Importantly, there is no direct link between any radiographic measures of airway size or shape and PSG results. Therefore, imaging values should be interpreted cautiously and in conjunction with other clinical signs and symptoms. Three-dimensional imaging of the airway, when available, may also be used for monitoring

or treatment planning. If radiographic records are taken for orthodontic purposes, the airway and surrounding structures, specifically the adenoids in children, should be evaluated.

DIAGNOSIS AND TREATMENT PLANNING IN PEDIATRIC OSA

As mentioned previously, orthodontists should not assume the responsibility for the definitive diagnosis of OSA. The definitive diagnosis is appropriately made by a physician. If the patient is found to have OSA, the physician should decide on an appropriate course of action for the treatment of OSA. The orthodontist may choose to work in a collaborative way with the physician, providing orthodontic treatment when necessary and when it does not interfere with ongoing medical treatment.

The plan for treating pediatric OSA should be based on consideration of the patient's individual needs and treatment goals. If the OSA treatment regimen involves orthodontics, a plan for treatment, monitoring, and long-term follow up care should be considered by all medical and dental practitioners involved. Care should be coordinated via communication between the orthodontist and all other practitioners who are working to treat the patient's OSA.

The orthodontic treatment plan for patients with OSA should follow the same orthodontic principles for correction of dental and skeletal deformities. Two orthodontic procedures that may change upper airway physiology are rapid maxillary expansion (RME) and mandibular advancement appliances for Class II correction. With both types of interventions, the primary objective of the orthodontic appliance should be to improve the occlusion and address the underlying skeletal discrepancy.

It would be appropriate, for example, to recommend rapid maxillary expansion (RME) for patients diagnosed with maxillary transverse deficiency. In this situation, the primary treatment goals would be to normalize the transverse width of the maxilla and establish a normal occlusion. Secondary effects of this treatment may result in reduction of nasal airway resistance and increase in the volume of the nasopharynx and nasal cavity. Both secondary effects of RME have the potential to improve OSA.

In the case of mandibular advancement devices for mandibular retrognathia, the primary goals should be to correct the skeletal discrepancy and the Class II molar relationship. A secondary effect of mandibular advancement devices may be the increase in the caliber of the oropharyngeal airway. The same applies to maxillary

advancement appliances used in the treatment of Class III malocclusions.

It is possible that an OSA patient might be referred for expansion but does not have a transverse discrepancy. Likewise, it is possible a patient with OSA might be referred for mandibular advancement (or maxillary advancement) where no sagittal discrepancy exists. In such situations, the treatment alternatives should be considered on a case-by-case basis by the medical and dental practitioners involved. In such situations, it is appropriate to prioritize the treatments to serve the best interests of the patient.

TREATMENT OF PEDIATRIC OSA

In the growing child, OSA management is dramatically different than for the adult. It is recommended that orthodontists become aware of the vast array of potential treatment modalities that are available and that they work in unison with medical and dental practitioners when managing pediatric OSA. Hypertrophic tonsils and adenoids are the most common risk factors for OSA in the pediatric population, with tonsillectomy and adenoidectomy typically considered as the first line of treatment.

Various forms of pharmacologic agents may be prescribed by the attending physician to reduce the size of the nasal soft tissues if there is suspicion of these tissues being a potential cause of OSA. Nasal surgery, including turbinate reduction and deviated septum correction, also may be considered in selected cases. For the obese child, weight reduction management should be considered as part of the treatment plan. PAP may be used in severe cases. Possible negative craniofacial consequences of longitudinal usage of PAP on the developing facial structures should be considered.

Dentofacial orthopedic management, which is within the scope of the orthodontic specialist, also may be considered. For example, RME is a well known orthodontic treatment option for patients with a narrow maxilla. There is growing evidence, though low level, that in mixed-dentition patients who are properly diagnosed with OSA, RME can decrease AHI in the short and long terms.⁴⁰ Unfortunately, untreated control groups generally were not used in the studies considered. Regardless of the presence of OSA, it is recommended that the orthodontist use these devices only when there is an appropriate underlying skeletal condition. There is no indication in the literature that prophylactic application of maxillary expansion prevents the future development of OSA.

Based on a few studies that were performed on mixed dentition samples, mandibular anterior repositioning appliances can produce a decrease in AHI. Long-term stability of these changes has not been studied; untreated control groups generally were not used in those studies as well. Regardless of the presence of OSA, it is recommended that the orthodontist use these devices only when there is an indication that a related retrognathic condition exists. As with RME, there is no clear indication in the literature, however, that prophylactic use of mandibular anterior repositioning appliances prevents later development of OSA.

In addition, the orthodontist should be aware that some children who remain PAP intolerant may require airway support while sleeping. The use of mandibular advancing devices may be prescribed by the physician, and this prescription is not predicated solely on the Angle classification of occlusion. In this case, treatment with the use of an oral device is directed primarily toward airway maintenance and less toward dentofacial orthopedic management. Careful monitoring of facial growth and development is important during this time.

For Class III patients, there are no studies that have assessed the impact of maxillary protraction on AHI. Only an assessment of pharyngeal dimensions has been published so far. It appears inappropriate for the clinician to make the jump from enlarged airway dimensions to improvement in airway function or sleep-related breathing parameters. Again, regardless of the presence of OSA, it is recommended that the orthodontist use these devices when there is an underlying skeletal issue.

Orthognathic surgery usually is not indicated until craniofacial growth is completed. As a result, the pediatric patient that presents with clear skeletal issues should typically be managed to adulthood in the normal fashion with corrective jaw surgery planned later when the timing of the surgery is appropriate. An exception might be considered in a case where the patient has OSA and a severe skeletal discrepancy. After considering the potential benefits and risks involved (including the need for later surgical revision), orthognathic or telegnathic surgery could be considered.

In summary, much is known regarding treatment for OSA in adults, whereas information on the treatment of OSA in pediatric patients is much more limited. Therefore, care should be taken regarding the indications for orthodontic and orthopedic treatment intended to treat OSA in the young patient. Clearly defined treatment goals, focusing on the orthodontic and orthopedic components, should be articulated to the responsible parties involved. Improvement of the OSA should be highlighted as a "possible," or some studies say "anticipated," outcome of treatment. But, no guarantees of OSA

resolution can be implied or stated emphatically by the treating orthodontist.

FALLACIES ABOUT ORTHODONTICS IN RELATION TO OSA

Conventional orthodontic treatment has never been proven to be an etiologic factor in the development of OSA. When one considers the complex multifactorial nature of the disease, assigning cause to any one minor change in dentofacial morphology is not possible. However, misinformation exists regarding the potential airway-related sequelae of orthodontic treatment performed with the use of dental extractions or orthopedic headgear (HG).

The specific effects on the dental arches and the muscles and soft tissues of the oral cavity after orthodontic extractions can differ significantly, depending on the severity of dental crowding, the amount of protrusion of the anterior teeth and the specific mechanics used to close the extraction spaces. The indication for extractions varies from patient to patient, as does the resulting change to the width, length, and arch perimeter of the dentition—all may increase, decrease, or stay the same after treatment. The impact that orthodontic treatment with or without dental extractions may have on the dimensions of the upper airway also has been examined directly, first with the use of 2-dimensional cephalography and more recently with 3-dimensional CBCT imaging.⁴¹

In certain instances, namely, in patients with significant protrusion of both upper and lower anterior teeth where skeletal anchorage or extractions are used to retract the anterior teeth as much as possible to reduce lip protrusion in profile, reductions in the cross-sectional area of the oropharynx have been reported. More frequently, as in patients where extractions are performed to help address dental crowding or improve the occlusion, there is no discernible change in airway dimensions when extractions are used.^{42,43} The studies examining these effects in children and adolescents have reported increases in airway volumes and cross-sectional areas in patients both with and without extractions performed as part of their orthodontic treatment.⁴⁴⁻⁴⁶ These effects may likely be related to normal growth changes.

In discussing orthodontic treatment and changes in the dimensions of the upper airway, it is helpful also to understand that an initial small or subsequently reduced or increased size does not necessarily result in a change in airway function. Reflecting the higher significance of neuromuscular control on airway function during sleep, it has been demonstrated that a narrow airway does not result in OSA, but rather it is an inability for a patient's

airway muscles to compensate adequately that leads to obstruction and sleep-disordered breathing.⁴⁷

As such, future investigations should aim to place greater emphasis on the effects of airway function after orthodontic treatment, instead of focusing solely on quantifying airway dimensions. One such study assessed dental extractions as a cause of OSA later in life by means of a large retrospective examination of dental and medical records.⁴⁸ Researchers reviewed the health records of more than 2700 adults with 4 missing premolars and evaluated whether this group had a higher prevalence of OSA compared with an equal-size group of patients with no missing teeth who were matched for the most significant confounding variables of OSA in adults, namely age, BMI, and sex. The study concluded that the prevalence of OSA was essentially the same in both groups, and that dental extractions were not a causative factor in OSA.

Overall, it can be stated that existing evidence in the literature does not support the notion that arch constriction or retraction of the anterior teeth facilitated by dental extractions, and which may (or may not) be the objective of orthodontic treatment, has a detrimental effect on respiratory function.

Headgear therapy

Growth modification, including orthopedic HG, which alters the direction of growth of the maxilla, has long been a staple of certain orthodontic treatments. Although dentoalveolar movement can be significant, the absolute skeletal change to the position of the maxilla elicited by HG is relatively small. Consequently, meaningful effects on volume or morphology of the upper airway should not be expected. A few studies with small sample sizes or methodologic limitations have examined this relationship directly. The best evidence available at this time indicates that HG does not pose an increased risk to the airway in that the airway remains the same or increases over the study periods reported.

Anecdotal concern exists about whether HG used during adolescence could contribute to the future development of OSA as an adult. To date, no studies have been performed using objective PSG to demonstrate an elevated risk of OSA in HG patients. Studies have investigated this concern indirectly by evaluating the radiographic airway in 2 dimensions with the use of lateral cephalograms of HG patients. One study concluded that the absolute value of the airway dimension was smaller in HG patients than in activator patients, but the differences were both small and not statistically significant.⁴⁹ A longitudinal study examined patients over a 12-year period and reported that the

radiographic dimension of the airway decreased during the treatment phase but increased to the level of control subjects during follow-up.⁵⁰ A prospective, randomized, blinded study demonstrated an increase in the airway during the 6-year study period.⁵¹ In summary, the best evidence available at this time indicates that HG does not pose an increased risk to the airway in that the airway dimension remains the same or increases over the study periods reported.

Frenectomy

Functional deficits regarding suction, swallowing, masticatory, and speech difficulties are known consequences of ankyloglossia or tongue-tie. However, uncertainty remains as to what degree of frenum attachment would contribute to a deviation of normal form or function in all but the most severe forms of ankyloglossia. More recently a 4-point severity scale of tongue mobility was reported, with the most severely restricted tongues graded as 4.⁵² The investigators reported a reduced maxillary intercanine width and a longer soft palate in patients with more severe levels of tongue restriction compared with patients with no such restriction. However, the relationship between tongue mobility and function of the airway is complex. Future research efforts should aim to assess airway function during sleep as it relates to tongue mobility. At this time, frenectomy remains an appropriate treatment for speech and mastication deficiencies, but such procedures are not supported as a treatment to prevent future development of OSA.

LEGAL ISSUES

Obstructive sleep apnea is a medical disorder that can have serious consequences on overall health. Given some of the possible medical conditions associated with OSA, it is strongly recommended that orthodontists work with qualified and appropriately trained physicians in addressing OSA.

With that in mind, it is strongly recommended that orthodontists screen orthodontic patients for known OSA risk factors. Should the screening indicate an elevated risk for having OSA, it is strongly recommended that the patient be referred to an appropriate physician for definitive OSA diagnosis and treatment. Depending on the physician's diagnosis and plan for treatment, the orthodontist may be involved in the treatment after proper referral by the physician.

Any orthodontist involved in the treatment of adult or pediatric OSA should confirm that they are legally permitted to do so under the dental laws and standards of care in their jurisdiction. That is, orthodontists must not perform out of their scope of practice or involve

themselves in any treatment that would be noncompliant with applicable laws or outside the standards of care.

An orthodontist who provides prescribed treatment of OSA needs to have the appropriate training and qualifications and must operate within the laws and standards of care. Failure to do so may subject the orthodontist to civil and criminal penalties. In situations in which a qualified and appropriately trained orthodontist has confirmed their ability to treat OSA, they should also consult with their insurance carrier to confirm coverage in this domain.

EXECUTIVE SUMMARY

Obstructive sleep apnea is a medical disorder that can have many serious consequences if left untreated. OSA can affect adults and children and can present at any point in the lifespan. All orthodontists should consider incorporating OSA screening into their history-taking and examination of patients. When an orthodontist has a clinical suspicion that a patient may have OSA, it is strongly recommended that referral to a physician be made; a sleep medicine physician is preferred. The definitive diagnosis of OSA should be made by a physician. Individual orthodontists may elect to participate in the treatment and monitoring of OSA patients as appropriate and permissible under applicable laws, standards of care, and insurance coverages.

1. It is strongly recommended that orthodontists be familiar with the signs and symptoms of OSA.
2. It is strongly recommended that orthodontists screen patients with regard to the signs and symptoms of OSA. A thorough history and clinical examination are critically important in that they establish the presence of preexisting conditions, a basis for diagnosis, the need for referral, and a baseline for evaluating the effects of treatment.
3. It is strongly recommended that the orthodontist refer patients with risk factors for OSA to a physician for further evaluation and a definitive diagnosis. A sleep medicine physician is preferred.
4. It is recommended that the orthodontist refer pediatric patients with nasal obstruction or adenotonsillar hypertrophy to an otolaryngologist.
5. It is recommended that the orthodontist refer adult patients to an otolaryngologist when nasal obstruction or adenotonsillar hypertrophy is present.
6. The decision for an orthodontist to participate in the treatment of OSA is a choice that should be made based on interest as well as training, skills, experience, laws, standards of care, and insurance coverage applicable to the orthodontist.
7. If involved in the treatment of OSA, an orthodontist should monitor OA treatment efficacy.
8. An orthodontist may elect to manage adverse side effects of OA therapy.
9. No orthodontic treatments have been shown to cause or increase the likelihood of OSA. Rather, some forms of orthodontic treatment have been shown to be important in the treatment of OSA.
10. Interdisciplinary treatment of OSA helps to serve the best interests of patients with OSA.

ACTION PLAN

Future research

Meaningful research concerning OSA can be enhanced dramatically with the use of the PSG, which objectively assesses airway function, to measure outcomes of the long list of treatment possibilities, especially in growing children. There is a substantial leap of faith when researchers make the jump from “enlarged airway” to “OSA cure” or even “OSA improvement.”

Areas of study worthwhile of future research include the following. Which craniofacial variables contribute to the pathogenesis of OSA? How is airway function affected by various orthodontic treatments? At what age can OSA be detected? Does OSA progress from childhood into adulthood? Does OSA treatment in childhood prevent OSA in adulthood? What are the end points expected for OSA therapy?

Education

At this time, the subject of OSA in pediatric and adult populations is not included in the curricula of most dental school predoctoral and postdoctoral programs. Before the introduction of OSA as a curriculum subject, it is paramount for the American Dental Education Association (along with the American Dental Association and Commission on Dental Accreditation) to adopt educational standards for this subject, so that OSA subject matter is taught with the proper endorsements and qualifications. A standardized curriculum should be developed and incorporated into all predoctoral and postdoctoral programs.

Additional recommendations

It is recommended that the AAO consider developing a health history form for OSA for children and adults or include OSA questions in current health history forms. When screening for possible OSA in their patients, practitioners should consider recording their patient's height, weight, and neck size. They should also consider

calculating the patient's BMI (Appendix X). An informed consent document for OSA might also be useful. The use of validated tools for risk assessment of OSA is recommended to develop more efficient and standardized screening methods. The AAO might also consider whether the definition of orthodontics needs modification relative to OSA.

LITERATURE RESOURCE FOR AAO MEMBERS

A Literature Resource for Orthodontics and OSA is being developed by Jackie Hittner, AAO librarian. It will be available via the AAO Library Web page.

The Literature Resource now contains more than 4,000 article citations. It is estimated that eventually it will contain around 5,000 article citations. If AAO members want to access the collection, they may access the searchable file and select articles. Initially, they will see only the abstract. If they want to view the entire article, they may then request the article from the AAO Library by means of the journal request form. It is intended that this resource will be updated periodically.

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APPENDICES

Appendix material will be available on the AAO Library Web site. They include the following:

- Appendix I: Examples of apnea and hypopnea
- Appendix II: STOP-Bang questionnaire
- Appendix III: Modified Mallampati score
- Appendix IV: Epworth Sleepiness Scale
- Appendix V: Friedman tongue position
- Appendix VI: Pediatric Sleep Questionnaire
- Appendix VII: Epworth Sleepiness Scale for Children and Adolescents
- Appendix VIII: Brodsky tonsil grades
- Appendix IX: Friedman tonsil grading system
- Appendix X: Body mass index tables 1 and 2



March 18, 2021

Dr. Augustus Petticolas
President
Virginia Board of Dentistry
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Dr. Petticolas and Members of the Virginia Board of Dentistry,

As one of Virginia's orofacial pain specialists, I'd like to take a brief moment to respond to a letter sent by the American Academy of Sleep Medicine (AASM) to all state boards of dentistry. In their letter, the AASM highlights their concerns regarding the recently published position statement of the American Academy of Dental Sleep Medicine. In that position, the American Academy of Dental Sleep Medicine finds that ordering of home sleep tests is within the scope of dentistry. Importantly, this position statement does not state that interpretation of these tests is within the scope of dentistry.

According to a report commissioned by the American Academy of Sleep Medicine and published in 2016, an estimated 29.4 million adults in the United States at that time had sleep apnea and of those, 80% were undiagnosed. In 2019, studies estimated an increase to 54 million adults with sleep apnea. Assuming 80% remained undiagnosed, that may leave as many as 43 million undiagnosed.

Of concern to me, my patients, and my colleagues is that this straw man argument regarding interpreting sleep tests will continue to harm the 80% of patients with sleep apnea that remain undiagnosed due to reduced access to care currently available.

In their letter, our physician colleagues consistently refer to home sleep studies as "medical" testing, inferring that there is somehow a different patient between the two fields. We would never say a pediatrician examining a patient's mouth for tooth development or a physician managing oral candidiasis is providing "dental" treatment. After all, we should be allies fighting this fight together as we are both treating our patient's overall health.

To provide context, a home sleep test typically measures respiratory volume, respiratory effort, pulse rate, and blood oxygenation while a patient sleeps. If we consider these metrics as something only a physician is qualified to measure, would that not imply that dentists should no longer perform sedation? After all, the standards for sedation require monitoring of those exact same values.

Again, I wish to highlight where I feel our physician colleagues may have erred. The American Academy of Dental Sleep Medicine's position statement clearly states that ordering and administering testing is within the scope of dentistry but that "data from [Home Sleep Apnea Tests] should be interpreted by a licensed medical provider for initial diagnosis and verification of treatment efficacy."

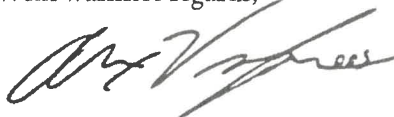
This is a similar situation to that of hypertension. Dentists have played an extremely key role in the early detection and treatment of hypertension through monitoring our patients with appropriate referral to physicians for interpretation of these test values. As we know, many of our healthy patients see their dentists more often than their physicians and we are a key component of the early detection of many diseases.

Fortunately, both medicine and dentistry practice self-governance. Just as it would be inappropriate for a dentist to attempt to restrict the practice of medicine, so too is it inappropriate for medical associations to attempt to restrict the practice of dentistry, chiropractic, pharmacy, or the practice of any of our other colleagues in the health professions.

I strongly urge the board to either consider the aforementioned letter as received with no action or, should there be a desire to take these concerns under further review, to appoint a Regulatory Advisory Panel composed of the various stakeholders and specialties to provide the professional specialization and expertise necessary to address this specific regulatory issue.

As one of the now 4 orofacial pain specialists that are licensed in Virginia, I am happy to provide any guidance, support, background, and help that the board deems necessary and appropriate as it relates to this matter or any other orofacial pain matter in the future. Thank you very much for your time and careful consideration of these issues.

With warmest regards,



Alexander T. Vaughan, DDS, MS
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