Northern Virginia Dental Society – June 2025

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Breathing and Airway Support In Everyday Dentistry

- The problem of sleep-related breathing disorders is multifaceted, affecting 29 million people in the US and 1 billion worldwide, resulting in $150 billion in healthcare costs. This poses a challenge for 5,000 diagnosing MDs and 193,000 dentists. When hypoxic burden exceeds adaptive capacity, this leads to disease.

- Chronic sleep-related breathing disorders and chronic breathing-related sleep disorders are significant concerns, with obstructive sleep apnea (OSA) being the leading cause of secondary hypertension, and increasing the risk of atrial fibrillation, sudden death, and divorce, with 70% of divorces citing snoring as a factor.

- Dentists are encouraged to screen patients for sleep-related breathing disorders as part of a comprehensive medical and dental history, with the Apnea-Hypopnea Index (AHI) being used to evaluate the severity of OSA, which can be mild, moderate, or severe, and testing for sleep breathing can be done through home sleep tests or sleep labs.

Pediatric Obstructed Airway

- The effects of airway pressure changes differ at different life stages, with pediatric obstructed airway being distinct from adult sleep-disordered breathing, requiring a high level of suspicion or systematic implementation of explorative screening questions to enable detection, and nasal breathing 24/7 is considered the only valid 'finish line' in treatment of pediatric sleep-disordered breathing.

- The diagnosis and treatment of pediatric obstructive sleep apnea syndrome require careful consideration of signs and symptoms, pathogenesis, and literature support, with observer reports highlighting the importance of systematic screening and the need for dentists to be aware of the risks and consequences of sleep-related breathing disorders in children, including excessive daytime sleepiness, awakening during the night, and trouble going to bed or falling asleep.

Sleep Screening Tools and Questionnaires

- The section from the document 'VA June AM.key' discusses various sleep screening tools and questionnaires for pediatric sleep disorders, including the BEARS sleep screening tool.

- The I'M SLEEPY questionnaire, developed by Kadmon et al., is a short pediatric sleep apnea questionnaire that asks parents or caregivers about their child's sleep habits, including irritation, body mass index, snoring, labored breathing, and daytime sleepiness.

- The Pediatric Sleep Questionnaire, developed by Chervin et al., is a 23-question survey for parents or caregivers that assesses sleep-disordered breathing, snoring, sleepiness, and behavioral problems in children, and has been validated and reliable in measuring these scales.

- The SleepInventory.com and other reviews, such as the one by Spruyt and Gozal, discuss the availability and validation of pediatric sleep questionnaires as diagnostic or epidemiological tools, with only a few instruments meeting the desirable criteria for psychometric tool development.

Policy Statement and C-GASP Level 1 Screener

- The Policy Statement on the Role of Dentistry in the Treatment of Sleep-Related Breathing Disorders, released in 2017, emphasizes the importance of developing an optimal physiologic airway and breathing pattern, and the C-GASP Level 1 Screener, developed by the Children's Airway Screener Taskforce, is a screening protocol for optimizing pediatric airway health in children aged 2-12.

- The C-GASP Level 1 Screener is a survey that asks parents or caregivers to complete a series of questions about their child's health and sleep habits, with the goal of addressing potential health issues and optimizing pediatric airway health.

Questionnaire about a Child's Breathing Habits

- The questionnaire asks parents to indicate whether their child often experiences certain symptoms, including mouth breathing, snoring, restless sleep, and difficulty paying attention, and also inquires about the child's behavior upon waking, such as dry mouth, sore jaw, and headaches.

- The document also includes a section on how to participate in the C-GASP pilot research project, which involves registering through a provided QR code link, and provides information on why parents should pay attention to their child's breathing, emphasizing the importance of nasal breathing over mouth breathing.

- Additionally, the text includes health tips from the American Dental Association, such as brushing teeth twice a day with fluoride toothpaste, cleaning between teeth daily, and eating a healthy diet, as well as encouraging parents to monitor their child's breathing habits and remind them to breathe through their nose throughout the day.

- The American Dental Association is referenced as the source of the health tips, and their website, MouthHealthy.org, is provided as a resource for more information on taking care of one's mouth and teeth, with a note that the document is copyrighted by the American Dental Association and all rights are reserved.

Fairest 6+4

- The Fairest 6+4 is a functional airway evaluation screening tool that helps clinicians understand the aspects of anatomy and function related to sleep disordered breathing, and it consists of two parts: the Fairest six and four additional elements 00:24.

- The Fairest 6 project was launched in 2017 after a strategy symposium at Stanford, led by Mark Mohler, with the goal of identifying key myofunctional disorders, and the tool was developed by Dr. Suou Zagi, Cynthia Peterson, and other clinicians and researchers 00:37.

- The first element of the Fairest 6 is the ability to breathe exclusively through the nose for 3 minutes straight, which is a simple yes or no assessment 01:35.

- The second element is mentalis strain, which describes the compensation when the lips are closed, and the mentalis muscle overactivates to keep the lips together, indicating a potential growth or development issue 01:44.

The Fairest 6 Elements

- The third element is tonsil hypertrophy, which assesses the size of the tonsils in relation to the oral airway, with occupancy above 50% warranting further evaluation 02:09.

- The fourth element is ankle glossia, which uses the tongue range of motion ratio to assess tongue restriction, with grades ranging from 1 to 4, indicating the severity of the restriction 02:51.

- The fifth element is dental wear, which looks for signs of attrition, gum recession, or abfraction, indicating grinding or wear on the teeth 03:43.

- The sixth element is the narrow palate, which measures the intermolar width and assesses the arch shape to determine if there is enough room for the tongue 04:02.

The Plus Four Elements

- The plus four elements include signs of sleep disordered breathing in adults, such as tongue scalloping, which is a clinical marker of a sleep disorder, and tongue overflow, which assesses the movement of the tongue using lingual palatal suction 04:31.

- The evaluation of tongue space involves suctioning the tongue up to assess whether it stays inside the teeth or goes outside, and this presentation can show the severity of the issue, ranging from least to most severe 05:11.

- The Fredman tongue position is evaluated by asking the patient to open their mouth and keep their tongue in, allowing for an assessment of the soft palate and the severity of the condition, with the most severe cases showing only the hard palate 05:36.

- The palatal flutter test involves making a snoring sound with the tongue down and then with the tongue up and lips closed, and if the snoring sound is still present, it indicates a negative result, suggesting that myofunctional therapy alone may not be sufficient to ameliorate sleep-disordered breathing 06:17.

- The palatal flutter test is adapted from the Pong Rottenberg method and has been used to assess the likelihood of snoring reduction after surgery, but in this context, it is used to determine if myofunctional therapy alone will be effective 06:27.

- A negative result from the palatal flutter test indicates that reduced tongue space is an issue and that architectural intervention, such as surgery or orthodontics, may be necessary to address the oral fairings and posterior part of the tongue 07:04.

Conclusion

- The Fairest 6+4 evaluation tool is a comprehensive assessment that includes multiple components, and guidance from experts such as Cynthia Peterson and Dr. Zy from the Breath Institute has been helpful in understanding and sharing this information 07:28.

Medical Professionals and Diagnosis

- The ADA has a Children's Airways Brochure that was inspired by Dr. Guilleminault. Order using a discount code, Sleep10
- The text concludes by emphasizing the importance of preventing and treating sleep-disordered breathing in children, with a call to action for medical professionals to learn more and find partners to address this issue.
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- It will soon be unacceptable for a child to reach age 12 with an underdeveloped airway.

Habit Correction and Orthodontic Treatment

- The text highlights the need for habit correction and orthodontic treatment to address sleep-disordered breathing, and provides an action step for medical professionals to assess their ability to treat children under 12 and address airway issues.
- The American Dental Association is hosting a Children's Airway Event, titled "From Knowledge to Action," which will take place from July 24 to 26, 2025, in Chicago, featuring speakers such as Kevin Boyd, Loria Nahatis, Robert Lustig, MD, and others.
- The event aims to provide practicing experts with the opportunity to learn communication skills and discuss everyday clinical challenges, and attendees can sign up now through the ADA website.

Role of Dentists and Sleep Screening Questionnaires

- The role of dentists in screening, facilitating diagnosis, and treating airway-related issues is emphasized, including coaching, oral device therapy, and craniofacial growth and development.
- Sleep screening questionnaires, such as the EPWORTH sleepiness scale and the STOP BANG questionnaire, are discussed as tools for identifying patients at risk for sleep apnea, with the EPWORTH scale asking questions such as "Do you snore loudly?" and "Do you often feel tired, fatigued or sleepy during the day?"
- The elbow test is also mentioned as a diagnostic tool, with a study cited that found the test to have a sensitivity of 65% and a specificity of 76% in diagnosing obstructive sleep apnea.

Team Approach to Treating Sleep Apnea

- The importance of a team approach to treating sleep apnea is highlighted, with the website EmpoweredSleepApnea.com providing resources and support for healthcare professionals.
- Five reasons to treat sleep apnea are outlined, including risk, snoring, sleep, wake, and comorbidities, with chronic inflammation increasing the risk of endothelial dysfunction and cardiovascular disease.
- The consequences of untreated sleep apnea are discussed, including atrial fibrillation, cardiomyopathy, and nocturia, with studies cited that demonstrate the link between sleep apnea and these conditions.
- The airway exam is described as a crucial component of diagnosis, with the Mallampati classification and tonsil size, nasal turbinates, and tongue size and shape all being considered as part of the exam.
- The event and resources provided aim to empower healthcare professionals to identify and treat sleep apnea, with the goal of improving patient outcomes and reducing the risk of related health concerns, such as depression, cognitive function, and restlessness.

Definition of Dentistry and Nasal Valve Factors

- The definition of dentistry is the evaluation, diagnosis, prevention, and treatment of diseases, disorders, and conditions of the oral cavity, maxillofacial area, and adjacent structures, provided by a dentist within the scope of their education, training, and experience, as adopted by the 1997 ADA House of Delegates.
- The nasal valve can be affected by various factors, including narrow nares, collapsed nasal cartilages, mucus, poor hygiene, nasal capsule and sinuses, swollen turbinates, clogged sinuses, polyps, cysts, deviated septum, narrow maxilla, nasopharynx, maxillary deficiency, swollen adenoids, long soft palate, inflamed uvula, oropharynx, swollen tonsils, displaced tongue, undertoned dilators, low hyoid, cervical misalignment, and mandibular retrognathia, as noted by Barry Raphael.

Addressing Nasal Valve Issues

- To address these issues, it is recommended to develop the maxilla, improve diet, change habits, improve nasal breathing, manage allergies, and consider ENT consultation, maxillary development, myofunctional therapy, chiropractic care, teledontics, and surgery, if necessary.
- Sleep disorders can be categorized into obstructive sleep apnea, sleep-related movement disorders, and other conditions, with obstructive sleep apnea being a significant concern, and it is essential to understand the different stages of sleep, including non-rapid eye movement (NREM) sleep and rapid eye movement (REM) sleep.

- NREM sleep has three stages, including stage N1, stage N2, and stage N3, which is the deepest stage of sleep, characterized by slowed brain activity, lower respiratory rate, heart rate, and blood pressure, and difficulty awakening.

- REM sleep is characterized by phasic eye movements, hallucinations, sensory isolation, motor deactivation, and paralysis, except for the diaphragm, and is crucial for memory, learning, and mood regulation.

Obstructive Sleep Apnea (OSA)

- People may have obstructive sleep apnea (OSA) due to a low respiratory arousal threshold, impaired anatomy, unstable ventilatory control, and ineffective upper airway dilator muscles, as noted by Danny Eckert, PhD, in Sleep Medicine for Dentists, 2nd Edition.

- Mandibular protrusion, custom MAD, and other treatments can help address OSA, and it is essential for dental teams to discuss nasal breathing and oral health with patients, as noted by Kevin Kwiecien and Christian Guilleminault and Shannon Sullivan.

- Diagnosing mouth breathing and sleep-related breathing disorders is crucial, and a simple nose breathing test can be used, and oral health is closely linked to sleep-related breathing disorders, with studies showing a higher prevalence of periodontitis and inflammation in patients with OSA, as noted by Hikmet Gamsiz-Isik and Xie JY, Liu WX, Ji L, et al.

- The increase of Obstructive Sleep Apnea Syndrome (OSAS) leads to aggravated inflammatory reactions, particularly in serum hs-CRP, which is a significant concern that needs to be addressed.

Temporomandibular Disorder (TMD) and OSAS

- When evaluating new or re-evaluation patients, it is essential to consider their chief complaint, and in this case, the focus is on Temporomandibular Disorder (TMD) and its potential connection to OSAS.

- The relationship between TMD and OSAS is complex, involving factors such as muscle overuse, adaptive changes, and forces out of balance, which can lead to a range of issues, including sleep disturbances and oromotor excitability.

- Research on the topic is limited, but it is known that OSAS can cause a number of problems, including an increased number of microarousals, sleep oromotor excitability, and neurotransmitter imbalance, which can be exacerbated by medications and central pattern generators.

- The potential causes of OSAS and TMD are multifaceted, and suspects include both airway and TMD issues, highlighting the need for a comprehensive approach to diagnosis and treatment.

- Practical applications of this knowledge include screening every patient for OSAS and TMD, being curious about the potential connections between the two, and considering breath as a vital sign, particularly in primary care dentistry.

- To effectively address these issues, it is crucial to take a team-based approach, utilizing health history, community resources, and staying curious about the latest developments in the field, such as those presented in TED talks, rather than relying on less informative sources like TikTok.

From the afternoon session

Introduction

- The section discusses adding a new service to a dental practice.

- To determine if this new service is the right fit for an office, several factors need to be considered, including how it meets office goals, fills empty time, provides a new professional challenge, meets a public health need, increases practice income, and offers differentiation, with rewards being a key motivator.

- Before implementing this new service, it is essential to consider vision, goals, strategies, investment required, return on investment expected, team members involved, and systems impacted, including phone scheduling, financial arrangements, billing, and continuing care, as outlined by Amy Morgan and the Pride Institute.

- The process of creating change in a practice involves establishing a sense of urgency, creating a guiding coalition, developing a vision and strategy, communicating the change vision, empowering broad-based action, generating short-term wins, and claiming new expertise, with the quote from Jim Pride DDS highlighting the importance of teamwork.

Important Technology

- Important technology needed for this service includes imaging of the nasopharynx, oropharynx, hypopharynx, and nasal airway, as well as custom mandibular advancement devices (MADs) made from materials such as acrylic, thermoplastic, milled, printed nylon, and additive manufacturing.

- The effectiveness of MADs in treating obstructive sleep apnea has been studied, with research showing that they can be an effective alternative to CPAP, and the most commonly studied device is the TAP, with studies examining adherence, side effects, and volume of data.

- Physical problems with MADs include changes in bite and condyle position, with research by Gurgel et al. showing that MADs can result in anterior and inferior condylar displacement, and the amount of protrusion does not predict condylar positional changes or treatment response.

Temporomandibular Joint Complex

- The temporomandibular joint complex can be affected by the use of MADs, with changes in occlusion caused by condyle position, tooth movement, and soft tissue, and it is essential to consider which of these factors can be controlled in order to provide effective treatment.

Oral Appliances

- The document 'VA June PM.key' discusses various oral appliances for treating sleep apnea and other conditions, including the myTAP, EMA, Herbst, Dorsal, TAP, Printed Nylon, Milled Acrylic, and Avant, each with its own set of characteristics, advantages, and suitable patient profiles.

- The myTAP is suitable for patients who need treatment now, have limited tongue space, and are not averse to protruding elements, but not for those with short round teeth, maxillary edentulous, or lateral bruxers.

- The EMA is suitable for patients with fragile bases, limited protrusive range, and those who are averse to metal, but not for lateral bruxers or maxillary edentulous, and it is easy to add vertical dimension and user-friendly.

- The Herbst is well-tested, widely available, and suitable for patients with limited protrusive range, mouth breathers, and those who want reliable and simple appliances, but not for nickel-sensitive patients or those with heavy linea alba.

- The Dorsal is suitable for patients with a history of night guards, extensive porcelain restorations, and those who want reliable and simple appliances, but not for those with small oral cavity, small buccal space, or lateral bruxers.

- The TAP is suitable for supine-dependent OSA diagnosis, combination with PAP, and patients who want reliable and simple appliances, but not for clenchers, short round teeth, or maxillary edentulous.

- The Printed Nylon is suitable for metal-averse patients, small oral cavity, and those who want reliable and simple appliances, but not for fastidious cleaners, short round teeth, or maxillary edentulous.

- The Milled Acrylic is suitable for patients with small oral cavity, history of clear aligners, and those who want reliable and simple appliances, but not for lateral bruxers, heavily restored, or old cemented crowns.

- The Avant is suitable for patients with heavily restored teeth, history of clear aligners, and those who need to increase protrusive flexibility, but not for weak anterior teeth, maxillary edentulous, or PDAC.

Success Factors

- To be successful, one must master more than one appliance and become adept at several, and it is essential to balance being a good doctor with being a good businessperson, with fees ranging from $600 to $272.

- The document also emphasizes the importance of excellent impressions, scans, and avoiding predictable challenges, and it quotes Kevin Kwiecien as saying "it's a thinking person's game", highlighting the need for careful consideration and expertise in treating sleep apnea and other conditions.

Patient Care

- The document 'VA June PM.key' discusses various aspects of patient care, including the importance of understanding patients' stories, addressing their concerns, and providing informed consent, which is crucial in building a strong doctor-patient relationship.

- Patients often arrive with baggage, including past experiences and preconceived notions, and it is essential to address what they know about the diagnostic process and treatment choices, focusing on their perceived benefits, which requires time, space, and listening skills.

- The delivery of a Mandibular Advancement Device involves a period of accommodation, titration/calibration, and long-term use, each requiring different messages to set expectations, and common elements include discussing possible side effects, cleaning, and follow-up appointments, with written materials provided to patients.

- Every therapy, including PAP, OAT, and surgery, has its complications, and 'no treatment' is medically risky, leaving quality of life unaddressed, emphasizing the need for careful consideration and patient education.

Nose Breathing

- Coaching nose breathing is part of everyday dental practice, and making a difference in one's practice involves achieving the skill of adding specific nasal breathing strategies to airway practice, summarizing the neurologic and physiologic reasons why nasal breathing is critical to health.

- The nose is directly connected to the limbic system, and techniques such as opening the external nasal valve, breathing light, deep, and slow, and using biochemistry, biomechanics, and cadence can help improve breathing, with goals including increasing CO2 tolerance, intra-abdominal pressure, and calming the autonomic nervous system.

- Control pause, brain carbon dioxide level tolerance test, and breathing exercises, such as holding breath for 2-5 seconds, breathing normally for 10 seconds, and repeating, can help improve breathing, and quotes from experts like Barry Raphael, DMD, and Bill Hang DDS MSD, highlight the benefits of nasal breathing.

- Myofunctional therapy, airway-oriented orthodontics, and breathing training courses can also help address breathing issues, and when patients complain of pain, it is essential to determine whether the problem is in the joint or the muscles, using techniques such as PQRST to assess the pain, which includes evaluating whether the pain is provoked or palliated, its quality, and where it is located.

Disease vs Illness

- The document 'VA June PM.key' discusses various medical concepts, including the distinction between disease and illness, with disease referring to a disorder of structure or function with a known cause and distinctive symptoms, and illness referring to a period of sickness affecting the body or mind that involves suffering.

- The text emphasizes the importance of addressing suffering and treating the patient as a whole, rather than just focusing on the disease or label, and encourages a holistic approach to healthcare.

- The discussion touches on specific medical conditions, including TMJ disorder and Sleep-Disordered Breathing (SDB), and mentions that some people may have only one of these conditions, while others may have both, which is referred to as TMJBDS.

Resources

- The document also provides resources for further learning, including books, websites such as AAPMD.org and AADSM.org, and contact information for Steve Carstensen at SteveC@SteveCarstensenDDS.com, which may be useful for dental sleep practice and professional development.

- Consider attending Airway Palooza 2025 in Ft Lauderdale in October. By including APCarstensen and APTCarstensen, discounts of $200 for doctors and $100 for team members, potentially for courses, workshops, or other educational opportunities related to dental sleep practice.