Airway Therapy for the Dental Team

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DISCLOSURES

Director of Sleep Education
The Pankey Institute

Director of Clinical Education
Airway Technologies, Inc.

Guest Presenter
Spear Education
Louisiana State Dental School
University of the Pacific

Advisory Board for:
Sleep ArchiTx Inc.
Beddr Sleep
Glidewell Dental Laboratories

29 Million Americans Have Obstructive Sleep Apnea

9 out of 10 Children Display at least one symptom of Sleep Disordered Breathing

http://www.aasmnet.org/articles.aspx?id=6426

https://dentalsleeppractice.com/getting-started/healthy-start-system-effective-addressing-sleep-disordered-breathing-children
Dentists are encouraged to screen patients for SRBD as part of a comprehensive medical and dental history.
“High perceived benefit is the first, and perhaps the most important, step on the road to therapeutic acceptance and utilization.”

Principles and Practices of Sleep Medicine, 5th ed.
Chapter 142: Monitoring Techniques for Evaluating Suspected Sleep-Disordered Breathing
Hirshkowitz and Kryger

OAs and PAP have similar efficacies

The best treatment for OSA is one that the patient will actually use

Patient education, treatment selection, and individualization of care are key to improving outcomes.

CHIEF COMPLAINT

identify

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WHAT ELSE?

ASK ABOUT...

Heart Disease
TMD

Heart Attack/
Stroke

Depression/
Weight Gain

Diabetes

AIRWAY HEALTH

SNORE

DIAGNOSED WITH OSA
OBSTRUCTIVE SLEEP APNEA

Open Airway  Blocked Airway

CHANGE YOUR EXISTING MEDICAL HISTORY

Do you snore?
Have you ever had your sleep evaluated?
Have you ever been told to wear Positive Airway Pressure (PAP) therapy?

SCREENING AND DIAGNOSIS

EPWORTH

STOP BANG

SLEEP SCREENING QUESTIONNAIRES

Epworth - How likely are you to doze off or fall asleep in the following circumstances, in contrast to feeling just tired?

<table>
<thead>
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<tbody>
<tr>
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<td>18</td>
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<td>24</td>
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<tr>
<td>30</td>
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</tbody>
</table>

STOP Questionnaire

- Brainstorm
- Tiredness
- Observed you stop breathing
- Blood pressure

BANG

- Age > 50
- Neck circumference > 15 cm
- Gender male

High risk: Yes to >3 items → Refer for sleep testing
SLEEP SCREENING QUESTIONNAIRES

Snoring? OR of AHI>5: 3.9
Stopped breathing? OR of AHI >5: 5.8
Sensitivity: 65%
Specificity: 76%
Positive Predictive Value 90%

HOW TO GET YOUR PATIENTS TESTED

POLYSOMNOGRAPHY (PSG)

HOME SLEEP APNEA TEST (HSAT)

Snoring?
OR of AHI>5: 3.9
Stopped breathing?
OR of AHI >5: 5.8
Sensitivity: 65%
Specificity: 76%
Positive Predictive Value 90%

The utility of the elbow sign in the diagnosis of OSA
Fenton ME, Heathcote K, Bryce R, Skomro R, Reid JK, Gjevre J, Cotton D.

EQUIPMENT

IMAGING

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September 2020

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6
Communicate

Why do People Have OSA?

- Impaired Anatomy
- Obstructive Sleep Apnea
- Unstable Ventilatory Control
- Low Respiratory Arousal Threshold
- Ineffective Upper Airway Dilator Muscles

Sleep Medicine For Dentists, 2nd Edition, Chapter 7, Danny Eckert PhD, author
**MEDICAL CONDITIONS**

- Cancer
- Stroke
- Obesity
- Accidents
- Confusion
- Acid Reflux
- Diabetes II
- Headaches
- Depression
- Loss of Libido
- Teeth Grinding
- Daytime Sleepiness
- Risk of Heart Attack
- High Blood Pressure
- Moodiness/Irritability
- Cardiovascular Disease

**MEDICAL DIAGNOSIS**

Sleep Study Interpreted by Board Certified Sleep Physician

**Human Survival**

- Eating
- Sleeping
- Breathing

**What is sleep?**

- Quiescence
- Decreased Response to External Stimuli
- Easily Reversed

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Reticular Formation

Active: Wakefullness

Inactive: Sleep

Sleep Disorders Categories

Obstructive Sleep Apnea

Sleep Related Movement Disorders
Typical Patient Flow ...currently

Risk ID → Sleep Doc → Sleep Test

What else?

Useful → PAP

Not Useful

Non-Rapid Eye Movement (NREM) Sleep
(aka: quiet sleep or synchronized sleep)
neuronal quiescence

Rapid Eye Movement (REM) Sleep
(aka: active sleep or desynchronized sleep)
generalized neuronal activity

NREM

Stage N1: “Gateway to sleep”
Appears at the onset of sleep (short time)

Stage N2: Conscious awareness of the external surroundings is gone.

Stage N3: “Deep Sleep” (Delta)
These stages are the deepest sleep
Brain activity is slowed
Autonomic activity
Lower respiratory rate, heart rate & b/p
Sleepwalk
Difficult to awaken

One Benefit of Sleep
Cortex Tissue Shrinks While Quiet
Waste Products Flushed Out
Cleans Neuron Pathways
Readies Brain for Activity
**REM**
- Phasic eye movements
- Hallucinations (dreams)
- Sensory isolation
- Motor deactivation
- Paralysis (except for the diaphragm)

**Memory:**
Transfer of information from volatile to non-volatile sites

**Learning:**
Formation and maintenance of neuronal circuitry

**Mood:**
Sense of well being and rosy outlook

---

**Sleep Breathing**

**Apnea**

**Hypopnea**

**Apnea-Hypopnea Index**

**AHI (REI)**

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**Apnea-Hypopnea Index**

- **MILD**
- **MODERATE**
- **SEvere**

AHI: 0, 5, 15, 30

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Sleep Disordered Breathing

Can’t Breathe = Obstructive Sleep Apnea (OSA)

Won’t Breathe = Central Sleep Apnea (CSA)

Events longer than 10 seconds count

High Upper Airway Resistance:

**Sustained** pharyngeal narrowing during inspiration causing obstructive alveolar hypoventilation

Sleep Apnea:

Recurrent pharyngeal occlusion causing **transient** respiratory events

Starling Resistor
Why Not Daytime Apnea?

Action of the upper airway dilator muscles

Tensor veli palatini

Genioglossus

Hyoid muscles

Does This Mean Anything Besides Noise?

You Can Keep Your Patients From Early Illness

Importance

Depression 65%
Stroke 63%
Heart Failure 63%
Drug-Resistant Hypertension 52%
Coronary Artery Disease 53%
A-Fib 50%
Type 2 Diabetes 77%
Atrial Fibrillation

Depression 45%
Coronary Artery Disease 57%
Drug-Resistant Hypertension 83%
Type 2 Diabetes 72%
Atrial Fibrillation 50%

Airway
Thorax
Veins
Stomach

Venous Return
- Overfills Right Atrium
- Cardiac Rhythm Signal Disrupted
- Atrial Fibrillation Results
Chronic Non-Infectious Managed Diseases

Airway Therapy Helps

The Effects of Airway Pressure Changes at Different Life Stages

Limbic System Disruption

Bone Growth

SLEEP IMPACT

What in Your Life is Worse Because of Your Airway Problem?

How Will Your Life Improve When This Problem is Gone?
OSA SIGNS AND SYMPTOMS

Look for:
- Enlarged or discolored uvula
- Enlarged or discolored soft palate
- Enlarged or discolored tongue
- Enlarged or discolored tonsils
- Scalloped tongue (teeth indented)
- Pharyngeal grade
- Malampatti score
- Retroglossal jaw
- Missing teeth including bicuspids for orthodontic treatment
- Overall limited space in the mouth
- Crowded teeth
- Malocclusion
- Narrow arches
- Signs of bruxing, grinding or teeth clenching

Color, size and shape should all be considered regarding the airway anatomy. Form follows function.

EXAMINATION FOR ORAL APPLIANCE THERAPY (OAT)

What Do You Need to Know?

TMD Screening
- Muscle Palpation
- Joint Stability
- ROM
- Bruxism History

Oral Exam
- Cancer Screening
- Periodontal Stability
- Tooth Stability

AIRWAY EXAM

MALLAMPATI CLASSIFICATION

Class 1
Class 2
Class 3
Class 4
MANDIBULAR PROTRUSION
EXAMINATION FOR ORAL APPLIANCE THERAPY (OAT)

- MONO-BLOCK
- HINGE-BASED ARTICULATION
- COMPRESSION-BASED ARTICULATION
- TRACTION-BASED ARTICULATION

3D JAW POSITION RECORD

GEORGE GAUGE

2 AND 5 MM FORKS DETERMINE DISTANCE BETWEEN INCISORS

SIMPLE MEASUREMENT
PRO GAUGE

6, 9 AND 12 MM FORKS DETERMINE DISTANCE BETWEEN INCISORS

SIMPLE MEASUREMENT
DAVID

55 year old, BMI 36, sought evaluation for neuropathy, was referred to sleep clinic

04/27/2016: ApneaLink HSAT - AHI 60, O2 nadir 70%
  AI: 19.8  HI 36.9  ODI (4%) 58.3

PAP tried for 2 months, he can remember 1 night that he kept it in place.
No treatment for 1.5 years since.

Symptoms of OSA persist, and wife bought him an OTC MAD

January, 2018: OTC MAD feeling significantly better every day, spouse happier
Two-week trial with self-adjustments

Presents at Premier Sleep for a custom MAD with Rx by sleep physician
Discussion of MAD and MATRx plus trial
DAVID

April 2018: Insurance, dental treatment, and schedule delays

Presents for records for custom MAD based on symptom relief with OTC MAD

He asked about MATRx plus based on previous conversation, so trays were fitted and the system dispensed late April. BMI is now 39 (36 at original Dx)

Recording completed and he’s returned for results

“I’m so glad I had this study done - I felt better using the mouthpiece, but now I can see that my sleep must not have been better.

I’m happy I didn’t spend the money on the custom mouthpiece. This is really a great service. Everyone should be tested first.”

PATIENT - APPLIANCE MATCHING
FIRST, THERE IS PAP

CPAP  
BiPAP  
APAP  
ASV

HISTORY

HAVE THEY WORN AN APPLIANCE BEFORE?

DEXTERITY / VISION

CAN THEY MAKE THE ADJUSTMENTS?

MOBILITY  
CAN THEY OPEN WIDE ENOUGH?
TOOTH SUPPORT

PERIODONTIALLY STABLE?
ENOUGH TEETH?

RETENTION

WILL THE APPLIANCE STAY IN PLACE?

TOUGHNESS

WILL THE APPLIANCE TAKE WHAT THEY WILL DISH OUT?

BELIEF

START
**Appliance Categories**

- Boil-n-Bite
- Custom MAD
- TRD
- Other

**Interim Oral Appliances**

**Tongue Retaining Devices**

- Easy to Use
- Patient Compliance Issues

120+ devices FDA cleared

Materials and Connectors Vary

Allows Patient Matching
**Sleep Herbst**

- Concerns about Mechanism
- Easy to Adjust
- Free Mandibular Movement
- Minimal Tongue Space Interference
- Great for TMD Patients
- Medicare and AIM approved

**Dorsal**

- Allows Mouth Opening unless Elastics are Added
- Retention Not Critical
- Very Good Patient Acceptance

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**TAP**

- Best for Supine-Dependent OSA diagnosis
- Very Good Patient Acceptance
- Thermoformed Liner Easy To Adapt
- Mouth Shield to Promote Nasal Breathing
- Customizable to Add PAP
- Medicare and AIM approved

**Printed Nylon**

- Wide Range of Adjustments
- CAD-CAM
- Tough Nylon Material
Milled Acrylic
CAD Milled for Perfect Fit
Best for after Tooth Alignment
Reproducible
One version is Medicare and AIM approved

TAP-PAP
Nasal Pillows without Headgear

You Must Master More Than One Appliance
Become Adept at Several

EXCELLENT IMPRESSIONS
3D JAW POSITION RECORD
Their Bite the Next Morning Will Not Be The Same
DOES IT WORK?

106 patients mean 57 yrs
2/3 male all PAP failures
Moderate AHI: 69% success
Severe AHI: 77% success

Oral appliance treatment in moderate and severe obstructive sleep apnea patients non-adherent to CPAP.
Gjerde K1, Lehmann S1,2, Berge ME1,3, Johansson AK4, Johansson A1,3.

“Success” can mean different things to patients than to sleep physicians.

Susan

Initial Diagnosis (PSG): "mild" OSA
AHI 13, SpO2 only 93%, RDI 15.9

PAP titration (PSG): 5cm H2O = 0 apnea,
7cm = no flow limitation
AHI 1.8, RDI 10

3 years, 6+ masks and 2 flow generators later:

MicrO2 2016
ProGauge: 9mm protrusive range
Initial Setting: 45% forward, 4mm interincisal opening for U0/L0
NoxT3
at U1/L0 AHI 2.0 ODI 0.5 Flow Limitation 0.8%
at U1/L2 AHI 2.0 ODI 0.5 Flow Limitation 3.1%

Procedure must be MEDICALLY NECESSARY
Bill using two codes
ICD- diagnostic code (reason)
CPT- procedure code (action)

File claim properly and electronically is best
Always keep documentation on file

Medicare

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September 2020

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Your patient is responsible for your services.

Medical necessity is paid when:
- Pain
- Accident
- Infection or Dysfunction

ICD-10 code (within the scope of your dental license)

Procedure must be medically necessary.
Bill using two codes:
- ICD- diagnostic code (reason)
- CPT- procedure code (action)

No Dental Benefit
No Cross-Code

MEDICAL BENEFIT:

OSA G47.33
Oral appliance
ED486 NU

OSA Must Be DIAGNOSED BY A PHYSICIAN
OSA MEDICAL CODES

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<td>70355-00 Pano</td>
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New Patient 9920

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<td>99205</td>
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**E & M Codes**

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“**This is covered by your medical insurance**”

**PHYSICIAN RELATIONS**

- Orders Sleep Test
- Interprets Study
- Written Rx
- Medical Conditions
- Oversees Care

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September 2020

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34
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B + P + F
Benefit + Procedure + Features

“So that you can do a proper diagnosis of this patient I've screened in my dental office, can I refer them to your office? ”
Their STOP-BANG was 4 and ESS 12.”

Don’t Call Asking for Referrals for MAD
Call Bearing Gifts

After the referral Docs want to know…

Did you see my patient?
What was their decision regarding treatment?
Where are they in the treatment sequence?
When will the MD see the patient again?

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35
CREATE SYSTEMS

Diagnosed OSA

Non-Diagnosed OSA

START

PHONE INQUIRIES
SCREENING FORMS
NEW PATIENT EXAMS
HYGIENE VISITS
PHYSICIAN REFERRALS

ACTION ITEMS

Create Your “Why”
Involve Your Team
Choose your Screening Plan

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36
Action Items

Decide on Specialized vs. Existing Software

Involve Your Team - Create a Task Force

Make It About the Patient

(There are billing services to help you)

Most Important Fact

Only 15% of patients at risk are diagnosed

Next Year

1,700,000 PAP sold

820,000 PAP abandoned

110,000 claims for E0486
Airway Health
A New Challenge for Your Team
A New Life for Your Patients

Prepare Your Team
Aware of Risk Factors
Screen Every Patient
Seek a Diagnosis

Offer a Solution
Follow-Up What You Do
Fill In Your Education

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You Can’t Unlearn This

These Are Your Patients

What Are You Going To Do?

THANK YOU

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aadsm.org/resourcepreview