Sleep Apnea

The Dentist Role

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Yes ….. I have Sleep Apnea!

National Sleep Foundation (NSF) reports:

- 70 million people suffer Sleep Disorders –
  SDB / insomnia - mainly
- 20 Million Adults suffer from OSA syndrome
  Majority: Males – obese – over the age 40

Research shows even snoring is associated
with systemic medical problems
I was recently diagnosed Sleep-Related Breathing Disorder - SRBD

My Story ....

The beginning: 1990
Private Practice Prosthodontist – Roseville, CA
Provided Treatment for TMJ and SA patients
Working with Sleep Medicine MD – Study found I had Mild SA
Interests / Focus switched to Dental Implants – FM reconstruction

2015 Career Change – Moved to Arkansas
Multiple medical symptoms – Medical field without answers??
Sleep Study in Fort Smith – Met contact for this presentation

Diagnosed with Severe SRBD: AHI – 35 / hour
Faithfully using CPAP nightly (8 weeks) – Results: Positive
Reported after 6 weeks – AHI average: 3.3 / hr.
“The Problem”

Hypoxia – Deficiency of O2 in tissues

Apnea – Temporary cessation of breathing

Obstructive Sleep Apnea (OSA) – one of the most common and under-diagnosed chronic diseases

2012 - Less than 15% of patients with OSA are identified

And even less receive ONGOING effective treatment

Are these statistics the same or improving in 2016?
Significant Public Health Problem

Approximately $150 billion in lost production and mishaps from Excessive Daytime Sleepiness (EDS)

An increase of MVAs is reported to be 2 – 8 times more prevalent in those with OSA than in non-apnea controls

Drowsiness to be a significant factor in about 20% of all MVAs.
Sleep Deficiency or Apnea Episodes Effects on the Body

Sleep Apnea Symptoms
- Short term memory problems
- Weight gain
- Tiredness
- Gastric reflux
- Dry mouth
- Sore throat
- Slow metabolism
- Inability to lose weight
- High blood pressure
- Diabetes
- Depression

Sleep Apnea
- Nasal Cavity
- Sinus cavities
- Oral cavity
- Hard palate
- Tongue
- Epiglottis
- Soft palate
- Uvula
- Nasopharynx

Normal Breathing  Blocked Airways

Sleep apnea can be dangerous...
Dental Role in Recognition of SDB, SM Referral, and OA Treatment

**Recognition of SDB:**
Identified during Comprehensive Examination
Clinical Examination to include:
  - Sleep History
  - Examination of upper airway
  - Dentition Evaluation

**Sleep Medicine Referral:**
Sleep study – Polysomnogram (PSG) to determine diagnosis of SDB and AHI measurement.

**Dental OA Treatment Recommendation and Monitoring:**
OA recommended as treatment device or for adjunctive treatment
Dentist may choose to evaluate OA with overnight “At-home” sleep monitor and document and follow results on computer.

Some patients report or prefer oral appliances (OA) over CPAP because more comfort than masks, tubing, and positive air pressure with dry mouth / nose at night.

OA titrated – (definition) / adjusted over weeks and monitored
Follow-up with sleep study by Sleep Medicine MD/DO referral.
Team Approach to successful therapy for SDB !!
Dental Recognition

Health History Examination

- Problems Breathing at night – gasp for air / choking
- Nighttime episodes of interruption of breathing
- Snoring
- Fatigue
- Headaches in the morning
- Difficulty concentrating
- Narcolepsy – Excessive daytime sleepiness
- Loss of concentration while driving or falling asleep
- Mood disorders
Dental Screening Examination

Dental Examination screening –

Catch the objective signs of SRBD:

1. Snoring in the dental chair
2. Restricted breathing response to sedation
3. Excessive daytime somnolence

Mallampati Classification – Upper airway space / predictor of OSA check for tongue size and position, excess tonsillar tissues, soft palate, uvula, and pharyngeal size and position. Additional screening nares airway: nasal space/turbinates, septal deviation.

Epworth Sleepiness Score (ESS): 2-3 minute questionnaire measures general daytime sleepiness
Sleep Medicine Referral

Sleep Medicine - Physical Examination Screening and Overnight Sleep Study - PSG

Multiple Sleep Latency Test (MSLT) – measures degree of daytime sleepiness

Multiple Wakefulness Test (MWT) – Assess overall alertness and hyper-somnolence: Used in SDB patients to see how well responding to treatment.

Sleep Study – Polysomnogram (PSG): Test that electronically transmits and records specific activities during sleep.

Apnea Hypopnea Index (AHI) – # of events/hour
Classification: Minimal - AHI < 5; Mild - AHI ≥ 5 but < 15; Moderate - AHI ≥ 15, but < 30; and Severe - AHI ≥ 30
Potential correlations of OSA to overall health
“A condition that erodes your health over time”

Hypertension    Chronic Fatigue Syndrome
Arrhythmias    Atrial Fibrillation
Coronary Artery Disease    Chronic Heart Failure
Ischemic Heart Disease    Congestive Heart Failure
Increased Stroke Risks    Impaired Glucose Tolerance
Type II Diabetes
Associated Brain Damage from Intermittent Hypoxia
Depression    Medically Refractory Epilepsy
GERD    Morbid Obesity
Sexual Dysfunction

Why Not !!! Basic Biology - Reduction in O2 saturation leads to decreased metabolism and poor cell function.
Recent Long-term Medical Studies Reported:

1,522 subjects (age 30-60) over 18 years found an increase in all cause death rates from 2.85/1000 in non-OSA controls to 14.6/1000 in severe OSA subjects

**Five-fold increase**

380 Australian subjects followed for 14 years (ages 40-65) showed an increased mortality from 7.7% in the non-OSA group to 33% in moderate to severe OSA category.

**Four-fold increase**
How Well Prepared is the Dental Profession for SDB and Sleep Medicine?

The number of sleep curriculum hours in dental education with the increased scope of sleep disorders still appears insufficient for competency in screening for and treatment of sleep-related breathing disorders (SRBD).

U.S. Dental school graduates are unprepared to screen for sleep disorders.
Sleep Medicine and Dentist Education
Survey of US Dental Schools in 2009

Published in 2010 - Hours of Curriculum devoted to Sleep disorders:
49 / 56 institutions responded (87.5%): curriculum hours range 0 – 15 h.
38 / 49 schools taught 0 – 3 h.  12 schools reported 0 hours (24.5%)
8 / 49 schools taught 4 – 10 h. (16%)
3 / 49 schools > 10 hrs. (6%)

Average hours of those schools teaching Sleep Disorders: 3.92 h.
Plug in 12 responding schools with no curriculum time – Ave. Hrs. = 2.96 h.

Compare to earlier report (2003) :  Only 18 / 43 (42%) taught SDM
Average time: 2.5 h.  Plug in 25 schools with no time : Ave. Hrs. = 1.05 h.
Sleep Medicine in Dental Education

2009 Dental School Survey Asked:

- *Sleep Medicine Topics Covered in Curriculum*

- *Dental Treatments Presented in Courses*

- *Departments Responsible for Teaching Dental Sleep Medicine*
Sleep Medicine in Dental Education

Sleep Medicine Topics in Curriculum

- Diagnosis of Obstructive Sleep Airway (OSA)
- Sleep Bruxism
- Snoring
- Upper-Airway Resistance Syndrome (UARS)

Treatments Covered in the Course Presentations

- CPAP – continuous positive airway pressure
- Surgery for Upper-Airway Resistance Syndrome

Eight schools – Covered “At-home” sleep testing – dentist to monitor success.

All this in less than 4 didactic hrs.? … Max: 15 hrs.
Researchers surprised by the variety of dental departments and DSM is not attributed to any particular discipline.
How Do the dentist become proficient in Sleep Medicine?

**Most Training in Dental Sleep Medicine is:**

- Self-training
- Post-graduation C E

….. Few advanced opportunities without applying to university based oral medicine/biology or orofacial-pain programs
Interestingly in Medicine:
Sleep Medicine also slowly making strides

1980 – MD pre-doctorate training – 1 hour didactic material

….. rose to average of 2.11 hours in 2000 survey.

1988 – Task force on Medical School Curriculum stated: “No complete and truly global understanding of human health and disease is possible without understanding of sleep and its recognition as a system on a level with circulation, digestion, and reproduction.

2006 – Teaching somnology and sleep medicine remains outside the mainstream education system.
Organizations:

American Academy of Sleep Medicine – AASM
Established 1975  For MD, DO, PhD, DDS
Conference June 11 – 16, 2016 Denver

American Academy of Dental Sleep Medicine – AADSM
Established – 1991  For DDS, DMD, MD, PhD, DO, or Equiv.
The 25th annual meeting – June 9 – 11, 2016 Denver

American Sleep Apnea Association – ASAA
Established – 1990 Non-profit organization promotes awareness for sleep apnea
Scope of Dental Sleep Medicine

Research has shown even snoring is associated with systemic medical complications

Management of: Snoring and Obstructive Sleep Apnea (OSA)

With: Oral Appliance Therapy (OAT) and Upper Airway Surgery (UAS)

About 18 - 20 million Americans suffer from OSA syndrome

Only 80% – 90% with OSA are undiagnosed and few receiving treatment
Screening of Sleep Disorders could and should be ROUTINE part of dental practice screening intake by Dentists.

Identifying patients with potential sleep disordered breathing (SDB) and proper referral to the medical sleep physicians can begin the process of treatment that could curtail the effects of SDB.

Becoming proficient in the diagnosis and treatment of OSA with custom Oral Appliances(AO) and co-treatment with the sleep medicine specialist can further the monitoring and extended care for the life of patients.

With interest and adequate training the dentist can co-treat these serious medical conditions with the patients’ physician and participate as an integral part of the sleep medicine team.
Recommendations for Interested Dentists in Treatment of SDB

- Address SDB early detection through screening exams – in unique position to catch early SDB illness and counsel patients
- Develop a collaborative diagnosis and treatment protocol with sleep physician colleagues and understand PSG report results
- Obtain comprehensive training in Dental sleep medicine from the AASM and AADSM - gaining acknowledgement of skills to provide first line therapy using OAT for mild to moderate OSA
- Recognition as Dental Sleep specialist and to obtain Board Certification in Dental Sleep Medicine
- Confidence in clinical practice to choose, fabricate, fit, adjust, and monitor OAT used in managing SDB and manage the possible side-effects in the stomatognathic system and oral cavity.
- Recommend unattended At-home polysomnography (PSG) testing for monitoring effectiveness of treatment.
Dentist Treatment and Evaluation of OA Therapy for SDB

Oral Appliance respond to snoring and UARS very well

Scientific reason – unclear – overcome skeletal handicap: small maxilla / retrusive mandible and tongue posturing overcome by moving mandible forward.

Side effects OA therapy:

Short-term - Stiff jaw muscles, sore teeth, minor changes in the occlusion

TM joint symptoms, excessive salivation and/or dry mouth.

Long-term – Occlusion change, TM joint morphologic changes, dry-mouth aggravates oral inflammation and existing periodontal conditions. Possible of orthodontic tooth movement (Minimum posterior dentition).

Recent long-term study on OAT found craniofacial changes in adults:

Small decrease in overbite / overjet, retro-inclination of upper anterior teeth and proclamation of lower anterior teeth. - More studies indicated.
Recommendations to Dentists Interested in Treating SDB

Caution in treating symptoms of snoring without medicine collaboration and adequate testing – because snoring can be associated with systemic medical conditions

Snoring can progress directly towards OSA with increased body mass index (BMI) and independently with aging

SDB to be evaluated adequately, diagnosed with collaboration with a sleep medicine physicians, and provide dental intervention with collaborative treatment plan with MD.
Oral Appliance Therapy (OAT)

In 1995 OAT considered to be the best alternative treatment to the CPAP for mild to moderate OSA by the American Sleep Disorders Association (ASDA).

2006 – The American Academy of Sleep Medicine (AASM) published guidelines which supported OAT as a first line therapy for mild and moderate OSA. OAT has proven to benefit patients both in terms of the direct OSA complaints (ie., snoring, daytime somnolence, etc.) and shown evidence of improvement in cardiovascular and brain function changes.
“Portable monitoring or ‘At-home’ sleep testing should be integrated into a comprehensive program of patient evaluation and treatment under the direction of a sleep specialist board certified in sleep medicine”
Clinical Practice Guideline for the Treatment of OSA and Snoring with OAT – An Update for 2015

An American Academy of Sleep Medicine (AASM) and American Academy of Dental Sleep Medicine (AADSM) Clinical Practice Guideline

Standards:

- We recommend that sleep physicians prescribe oral appliances (OA), rather than NO therapy, for adult patients who request treatment of primary snoring (without OSA).

- We recommend that sleep physicians consider prescription of OA, rather than NO treatment, for adult patients with OSA who are intolerant of CPAP therapy or prefer alternative therapy.
- When OAT is prescribed by a sleep physician for an adult patient with OSA, we suggest that a qualified dentist use a custom, titratable appliance over a non-custom oral device.

- We suggest that qualified dentists provide oversight – rather than NO follow-up – of OAT in adult patients with OSA, to survey for dental-related side effects or occlusal changes and reduce their incidence.

- We suggest that sleep physicians conduct follow-up sleep testing to improve or confirm treatment efficacy, rather than conduct follow-up without sleep testing, for patients fitted with oral appliances.

- We suggest that sleep physicians and qualified dentists instruct adult patients treated with OA for OSA to return for periodic office visits – as opposed to NO follow-up – with a qualified dentist and sleep physician.
In Summary !!

The Dentist can play a significant role in early detection of SDB and education to the patient of it’s the potential risks

The Dental Profession is in the perfect position to perform routine screening and testing to predictively diagnose SDB and inform the public of its potential health risks if left untreated.

The Dentist can and should provide adequate referral to Sleep Medical Specialist for diagnostic evaluation and prognosis of SDB then in collaboration with dentist to provide the medical and dental options for patient therapy best suited to the patient.

Dental Sleep Medicine should be a team approach to treating OSA through a collaborative diagnosis / treatment with physician colleague.
One doesn’t get a test (i.e., sleep test) the way one gets an x-ray (radiograph).

“Success isn’t about the test, It’s how the patient is managed before, during, and after the test”

Dr. Michael Coppola