

Sleep Apnea: Prevalence & Treatment Options

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Learning Objectives

- How to screen for sleep apnea; questions to ask your patients
- Industry treatment guidelines; when to consider an oral appliance vs. a CPAP
- What goals/thresholds to set for successful treatment

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How prevalent is OSA?

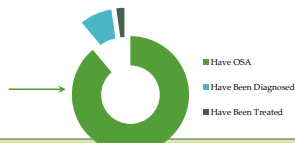
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The “Big Picture”

- 9% of men and 4% of women suffer from some form of OSA. (approx. 30 million Americans)
- Less than 10% of OSA sufferers have been diagnosed (Approx 3 million Americans)
- Of those, less than 25% have been successfully treated.

90% of those with OSA have no idea they have it!!



Source: DentalSleep Solutions®

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And it's getting worse...

Prevalence has risen in the past two decades with studies estimating 1 in 4 adults between the ages of 30 and 70 years have sleep apnea



Source: Poppend PE, Young T, Barnet JH, et al. Increased prevalence of sleep-disordered breathing in adults. *Am J Epidemiol* 2013 May 1;177(9):1006-14. Epub 2013 Apr 14.

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Why is it so important to screen for OSA?

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Whole Health

- From a medical perspective, if looking through the lens of **wellness** and **prevention**, the two most important things to **screen** and **treat** are:

Blood Pressure
Sleep Apnea

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BLOOD PRESSURE

- It is measured at every office visit. *Why??*
- Because we all know that if it goes untreated, it leads to loads of undesirable outcomes!

	Untreated hypertension
Damage to your arteries	✓
Damage to your heart	✓
Damage to your brain	✓
Damage to your kidneys	✓
Damages to your eyes	✓
Sexual dysfunction	✓
Bone loss	✓
Trouble sleeping	✓
Motor vehicle accidents	✓
Diabetes complications	✓

We also know that we can't tell who has hypertension by looking at them. It must be measured objectively.

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SLEEP APNEA SIMILARITIES

- If it goes untreated, it leads to the same undesirable outcomes!

	Untreated hypertension	Untreated sleep apnea
Damage to your arteries	✓	✓
Damage to your heart	✓	✓
Damage to your brain	✓	✓
Damage to your kidneys	✓	✓
Damages to your eyes	✓	✓
Sexual dysfunction	✓	✓
Bone loss	✓	✓
Trouble sleeping	✓	✓
Motor vehicle accidents	✓	✓
Diabetes complications	✓	✓

And just like hypertension, we also know that we can't tell who has sleep apnea by looking at them. It must be measured objectively.

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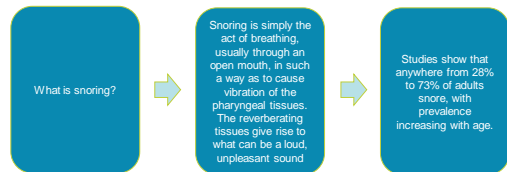
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What signs/symptoms should I look for?

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Snoring – leading symptom



Source: Bailey, Byron J., and Jonas T. Johnson. "Snoring and Obstructive Sleep Apnea." Head and Neck Surgery: Otolaryngology. Lippincott Williams & Wilkins, 2001. p. 645.

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Cardiovascular Risk of Snoring

- Snoring alone (meaning those who snore, but do not have OSA) is associated with a thickening of the inner walls of the carotid arteries, which increases the risk of stroke.
- People who snore are more likely to suffer from this thickening than those who:
 - Smoke
 - Are overweight
 - Have high blood pressure
 - Have high cholesterol

Treating
"pure
snorers"
is
important!!!

Source: Breus, Dr. Michael J. "Snoring May Be a Warning of Serious Health Risk." The Huffington Post, TheHuffingtonPost.com, 1 Mar. 2013, www.huffingtonpost.com/dr-michael-j-breus/snoring-health-risk_6_2733494.html

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What are some other common OSA symptoms/associated diseases?

Choking or Gasping during Sleep	Acid Reflux (GERD – Gastro Esophageal Reflux Disease)
Sudden Awakenings- Triggered to restart breathing	Diabetes
Daytime Sleepiness or Chronic Fatigue	Social Problems
Memory Problems/Alzheimers/Dementia	Headaches
	Migraine
	Cluster Headaches
	Dull Morning Headaches
Impotence	Depression/Anxiety
High Blood Pressure	Weight Gain
Kids – Poor School Performance/ADHD	Kids – Bedwetting
Kids - Snoring	

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Ways to Screen & Test

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If a patient is not diagnosed...

"Screen" every single person that you see.

1. Look for any of the other associated symptoms/diseases (see slide 14). If they don't have any of these, ask question(s)...

2. Ask them 1 question:

Has anyone ever told you that you snore?

or 8 questions:

STOP-BANG Questionnaire (Snoring, Tired, Observed, Pressure, BMI, Age, Neck Size, Gender)

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Send all "qualifiers" for a sleep test, not an oximetry

Any potential cost of over-testing for OSA will far be outweighed by the serious health conditions you will prevent!

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If a patient is diagnosed...

Ask them:

Are you being treated every night, all night?

If not:

Why not?

Remember less than 25% of people diagnosed are being treated!!!

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What are treatment options?

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Surgical and Non-Surgical Options

Surgical:

1. Tracheostomy
2. Laser-Assisted Uvuloplasty
3. Somnoplasty
4. Uvulopalatopharyngoplasty (UPPP)
5. Maxillary / Mandibular Advancement

Non-surgical:

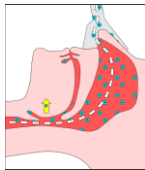
1. Continuous Positive Airway Pressure (CPAP)
2. Oral Appliance
3. Combination Therapy (CPAP + Oral Appliance)
4. Tap-Pap (CPAP + Oral Appliance used as a custom "mask")

Start with non-surgical first!!

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Mechanics of a CPAP

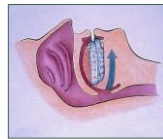


- Air is pushed in either through the nose or the mouth, which forces the airway open
- Air pressure is maintained in the throat which prevents muscles from relaxing and closing

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Mechanics of an Oral Appliance



- Oral appliances reposition the tongue, mandible, soft palate, and hyoid bone forward
- This increases the baseline genioglossus muscle activity, and opens the airway posterior to the genioglossus

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Main Advantage of Each Non-Surgical Option

- CPAP
 - Gold Standard / Treatment on Night 1
- Oral Appliance
 - Compliance
- Traditional Combination Therapy
 - Lower machine pressure and more mask stability, which makes it easier to be compliant
- Tap Pap
 - Less leakage, lower machine pressure, and patient can sleep in whatever position they want, which makes it easier to be compliant

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What are the treatment guidelines regarding oral appliances?

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Who should be considered for an oral appliance?

The American Academy of Sleep Medicine Clinical Guidelines (updated July 2015)

1. We recommend that sleep physicians prescribe oral appliances, rather than no therapy, for adult patients who request treatment of primary snoring (without obstructive sleep apnea). (STANDARD)
2. When oral appliance therapy is prescribed by a sleep physician for an adult patient with obstructive sleep apnea, we suggest that a qualified dentist use a custom, titratable appliance over non-custom oral devices. (GUIDELINE)
3. We recommend that sleep physicians consider prescription of oral appliances, rather than no treatment, for adult patients with obstructive sleep apnea who are intolerant of CPAP therapy or prefer alternate therapy. (STANDARD)
4. We suggest that qualified dentists provide oversight—rather than no follow-up—of oral appliance therapy in adult patients with obstructive sleep apnea, to survey for dental-related side effects or occlusal changes and reduce their incidence. (GUIDELINE)
5. 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. (GUIDELINE)
6. We suggest that sleep physicians and qualified dentists instruct adult patients treated with oral appliances for obstructive sleep apnea to return for periodic office visits—as opposed to no follow-up—with a qualified dentist and a sleep physician. (GUIDELINE)

Source: Ramas, Kannan, et al. "Clinical Practice Guideline for the Treatment of Obstructive Sleep Apnea and Snoring with Oral Appliance Therapy: An Update for 2015." *Journal of Clinical Sleep Medicine*, 2015, doi:10.5664/jcsm.4508.

Research behind the Guidelines...

- 46 to 83% of OSA patients are non-compliant with CPAP treatment.
 - A recent study shows that of those diagnosed and prescribed a CPAP, 58% were non-compliant. Of those 58%, only a third were referred to a specialist for other treatment.
- Oral appliances are often preferred by patients, translating to greater compliance.
- Health outcomes (e.g. reduction of AHI, physiological, and behavioral improvement) of those using CPAP and those using an oral appliance are equivalent, taking into account poor CPAP compliance.
 - This is true even for severe apnea.

Sources: Weaver, Grunstein, 2008 *PROCEEDINGS OF THE AMERICAN THORACIC SOCIETY*

Sutherland, Vanderveken et al 2014 *Journal of Clinical Sleep Medicine*

Russell JO et al. 2015. Referral Patterns and Positive Airway Pressure Adherence upon Diagnosis of Obstructive Sleep Apnea. *Otolaryngol Head Neck Surg*. 2015 Nov;153(5):811-7.

What does successful treatment look like?

Test, Test, Test! Objective measuring is key!!!

- AHI does not need to be under 5 to be a success!
- Reducing AHI < 30 normalizes a patient's risk of:
 - All-cause mortality
 - Cardiovascular mortality
- Reducing AHI < 15 normalizes a patient's risk of:
 - Cancer mortality
 - Cancer
 - Stroke

Sources: Marshall, Nathaniels, et al. "Sleep Apnea as an Independent Risk Factor for All-Cause Mortality: The Busselton Health Study." *Sleep*, vol. 8, 1 Aug. 2008, pp. 1079-1085.

Ge X, Han T, Huang Y, Zhang Y, Yang T, et al. (2013) Is Obstructive Sleep Apnea Associated with Cardiovascular and All-Cause Mortality? *PLoS ONE* 8(7): e69432. doi:10.1371/journal.pone.0069432

Marshall, Nathaniels, et al. "Sleep Apnea and 20-Year Follow-Up for All-Cause Mortality, Stroke, and Cancer Incidence and Mortality in the Busselton Health Study Cohort." *Journal of Clinical Sleep Medicine*. 15 Apr. 2016. doi:10.5664/jcsm.3609.

Compliance is CRITICAL!

- A patient sees zero benefit if they don't wear the prescribed treatment
- If using a CPAP, keep pressure in mind. ~ 10 cm becomes intolerable to many people. If a patient reports having a difficult time, either lower the pressure (and accept a higher AHI), or consider alternative treatment

Learning Objectives - review

- How to screen for sleep apnea; questions to ask your patients
 - Look for associated diseases/symptoms
 - Depending on your practice, ask the STOP-BANG Questionnaire, or simply ask if anyone has told them they snore.
- Industry treatment guidelines; when to consider an oral appliance vs. a CPAP
 - Oral appliances should be considered for anyone that prefers it to a CPAP or who has found they cannot tolerate a CPAP
- What goals/thresholds to set for successful treatment
 - Goal #1: Ensure patient is compliant
 - Goal #2: AHI below 30
 - Goal #3: AHI below 15
 - Goal #4: AHI below 5

Questions?

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