

ΕΤΗΣΙΑ ΚΛΙΝΙΚΗ ΑΝΑΣΚΟΠΗΣΗ



Χαράλαμπος Μερμίγκης, MD, PhD

Πνευμονολόγος, Ειδικός Ιατρός Ύπνου (ABCISS)

Διευθυντής Εργαστηρίου Ύπνου Ερρίκος Ντυνάν Hospital Center



Η αντιμετώπιση της υπνικής άπνοιας προϋποθέτει την
διάγνωσή της

Hidden Health Crisis Costing
America Billions

Underdiagnosing and Undertreating Obstructive Sleep Apnea

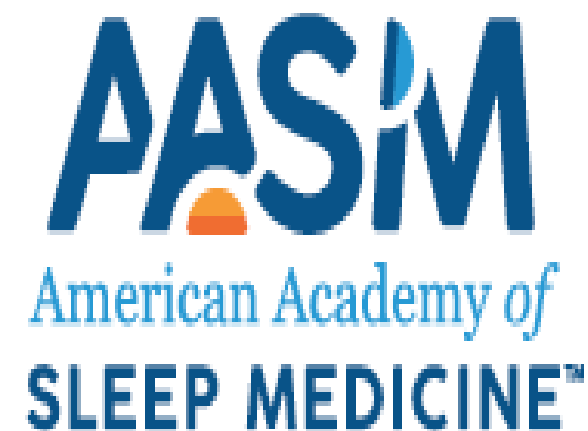
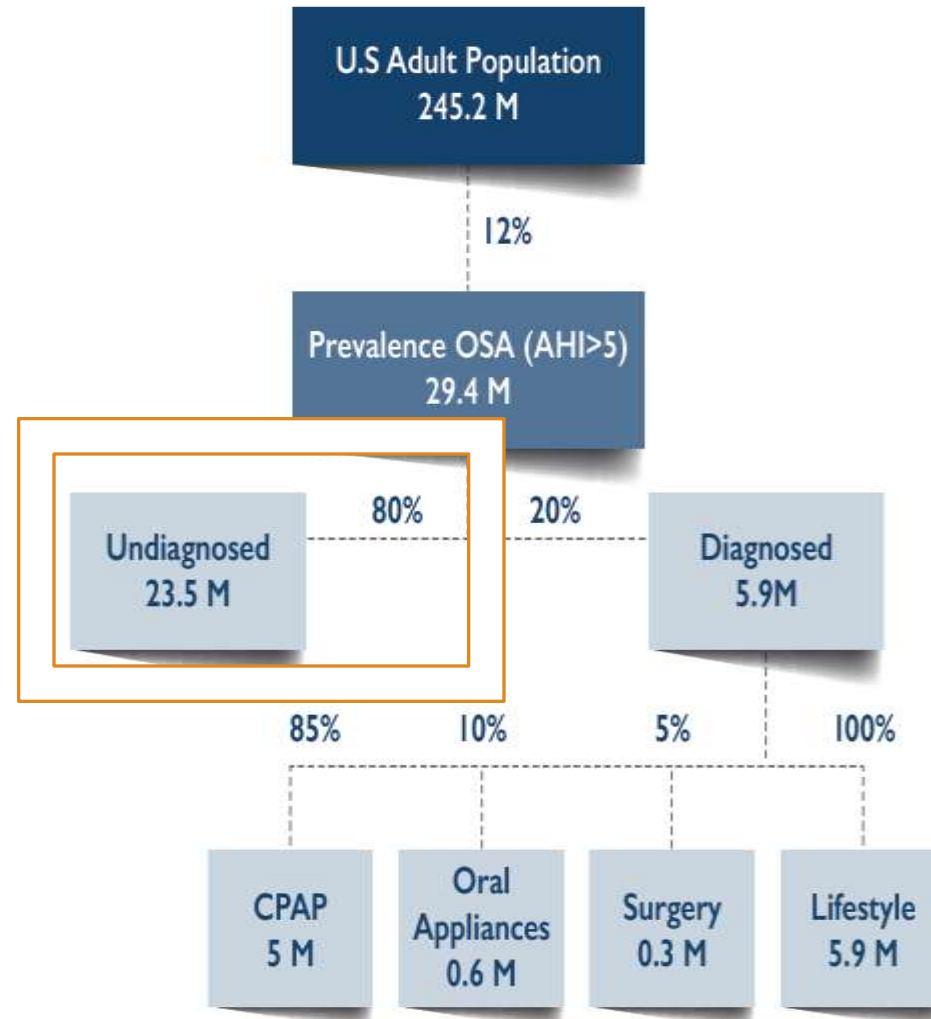
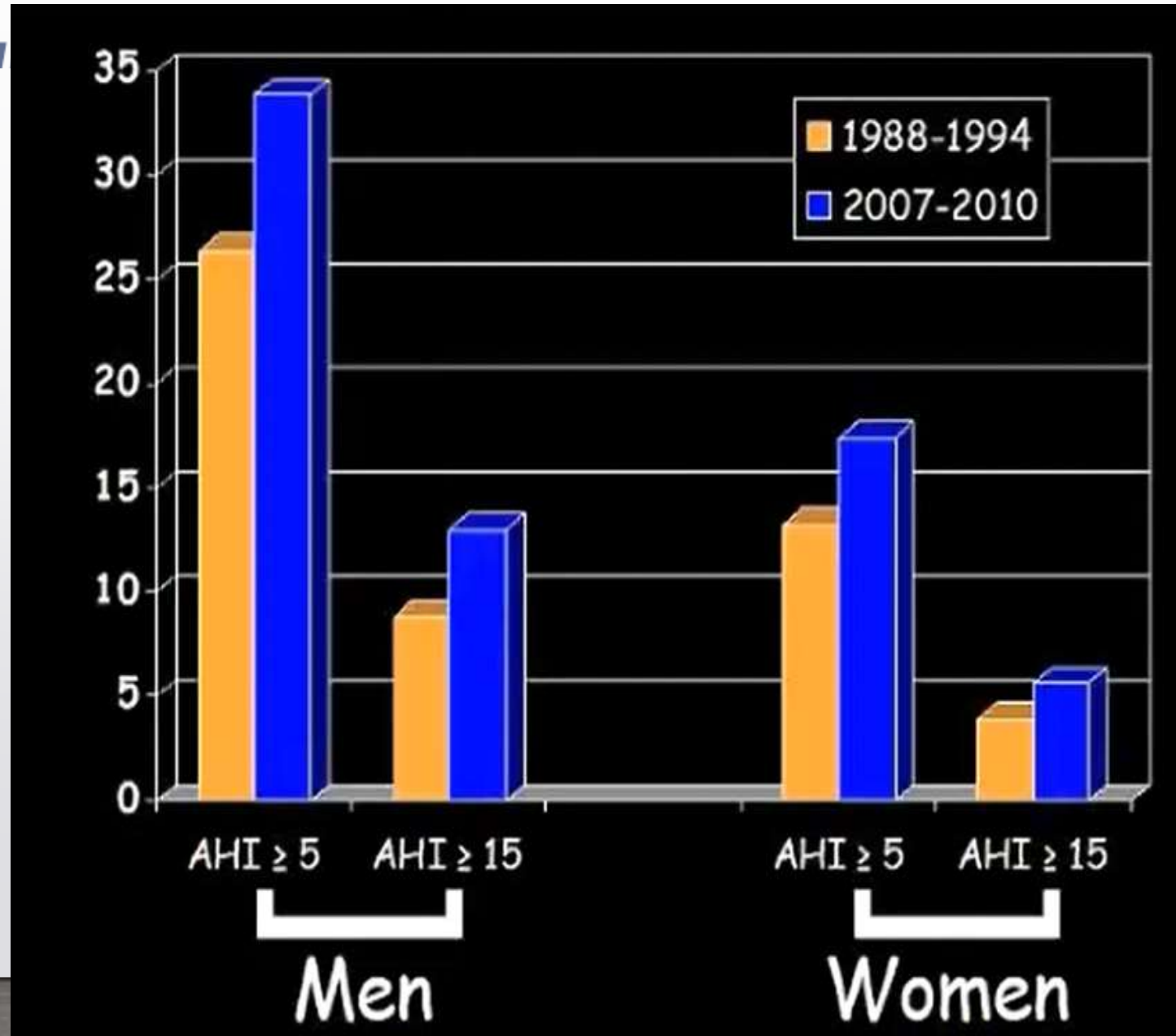
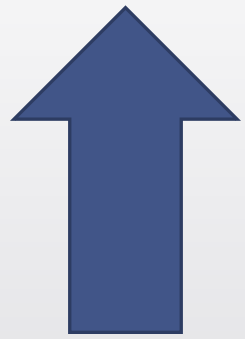


Figure 1-Prevalence, Diagnosis and Treatment of OSA in the United States







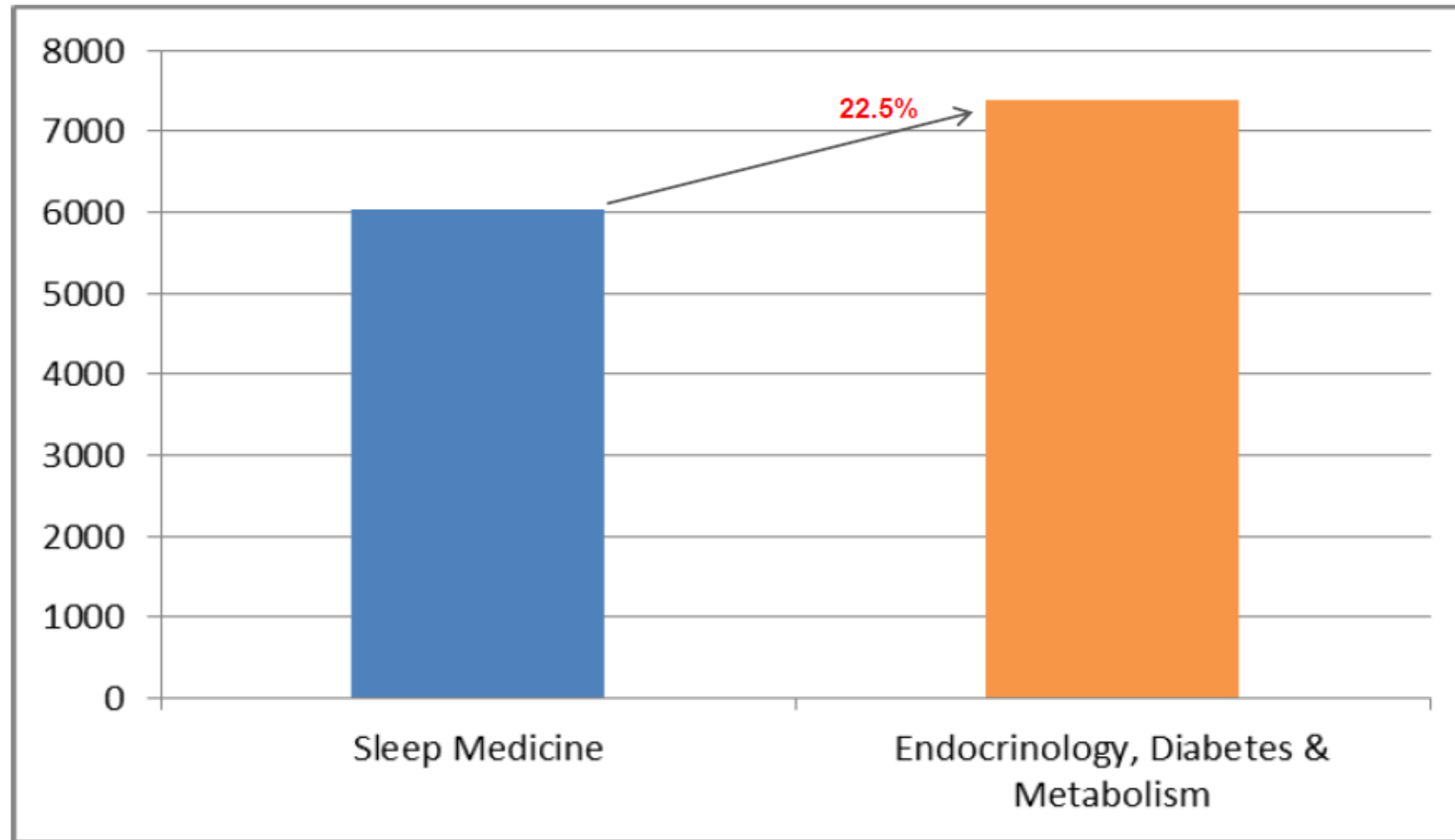
ΣΥΝΔΡΟΜΟ ΥΠΝΙΚΗΣ ΑΠΝΟΙΑΣ

Μια «επιδημία» με αυξανόμενες και ανησυχητικές τάσεις

- ❖ 13% των ενηλίκων ανδρών και 6% των γυναικών έχουν μέτριο-σοβαρό ΣΑΥΥ ($AHI \geq 15$)
- ❖ Εξαιρετικά χαμηλά ποσοστά διάγνωσης πασχόντων

AASM 2018

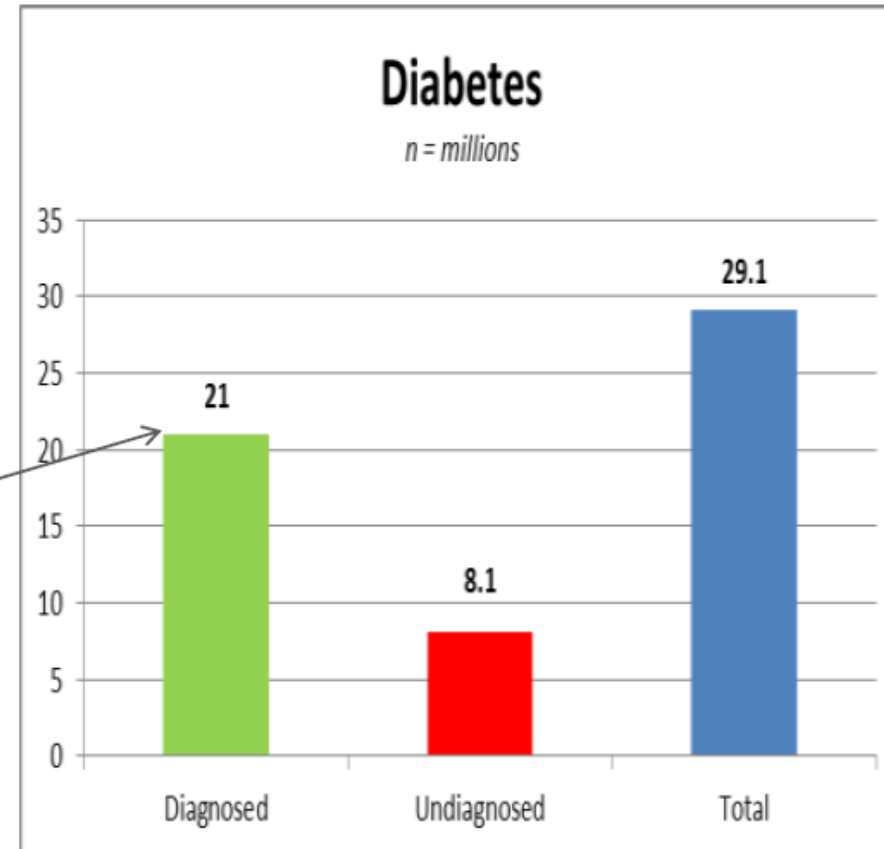
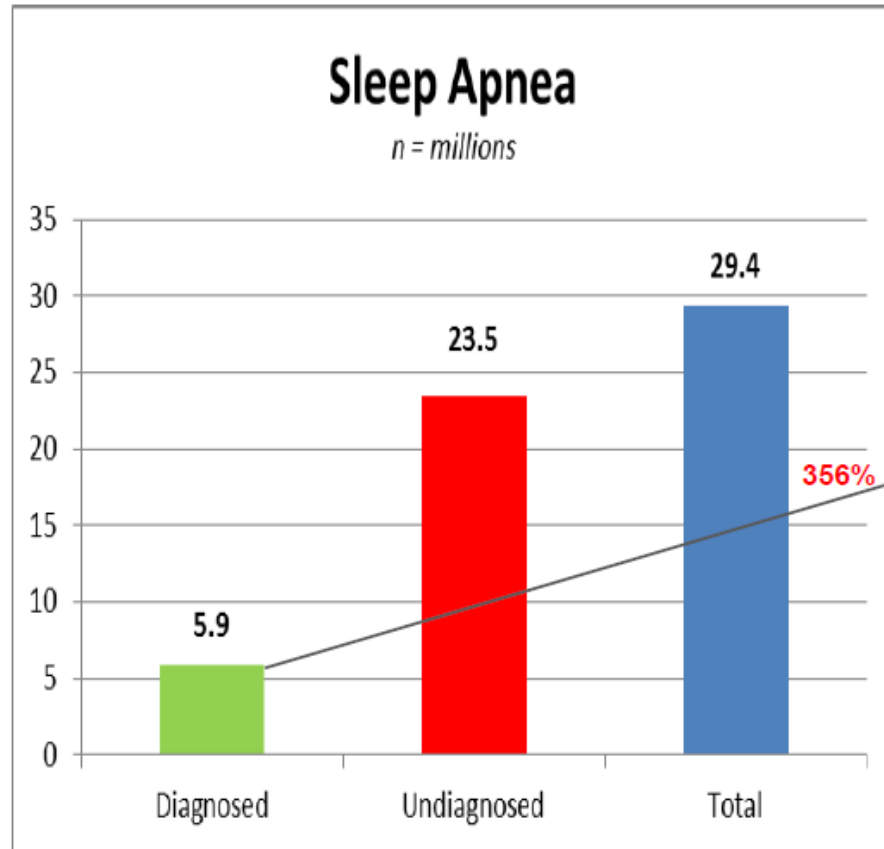
Comparison: Board Certification



Source: American Board of Medical Specialties/American Board of Internal Medicine

AASM 2018

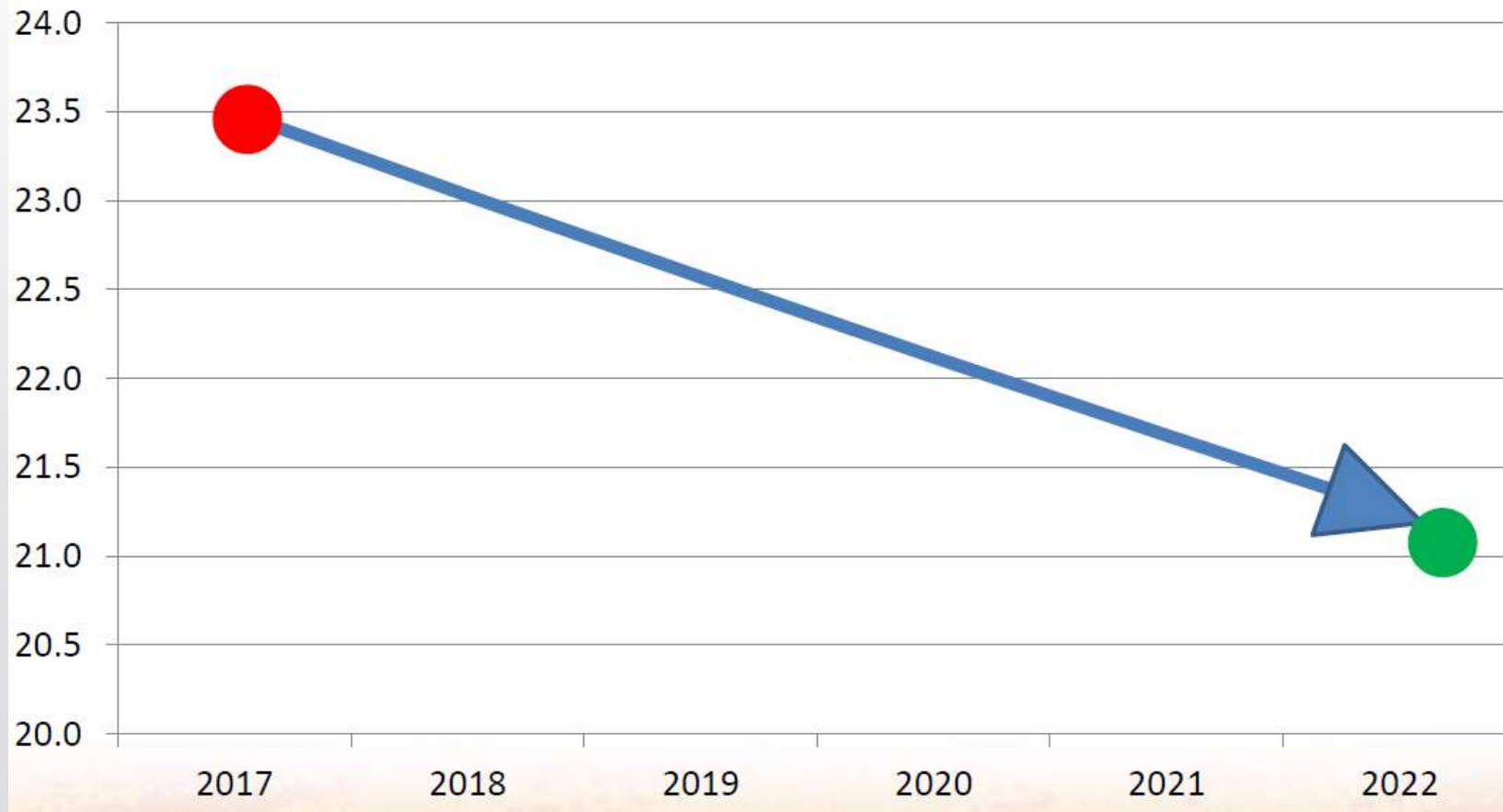
Comparison: Patient Reach



Our Challenge

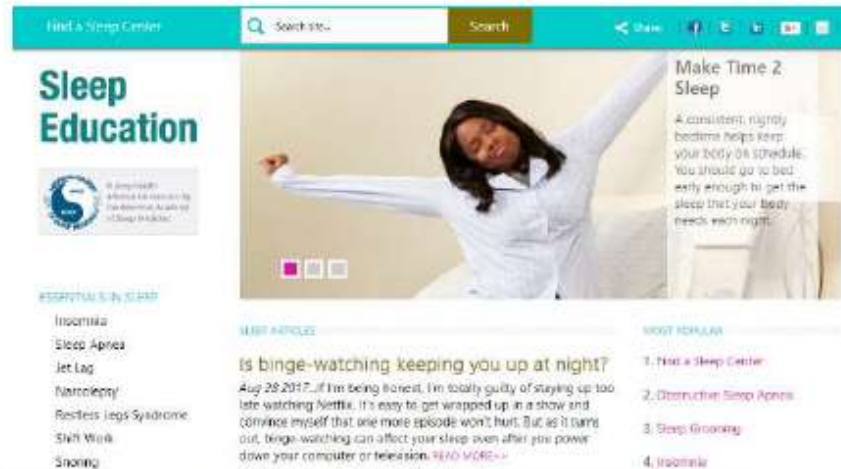
Undiagnosed Sleep Apnea

n = millions



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Public Awareness



JCSM Journal of Clinical Sleep Medicine

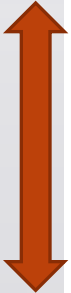
AASM 2018



HHS includes sleep health in Healthy People 2030 proposal

The Sleep Health topic area and objectives that were in Healthy People 2020 have been included by the U.S. Department of Health and Human Services (HHS) in the **proposed structure for Healthy People 2030**. Healthy People focuses on critical health promotion and disease prevention topics, establishing critical public health priorities by addressing the leading causes of morbidity and mortality.

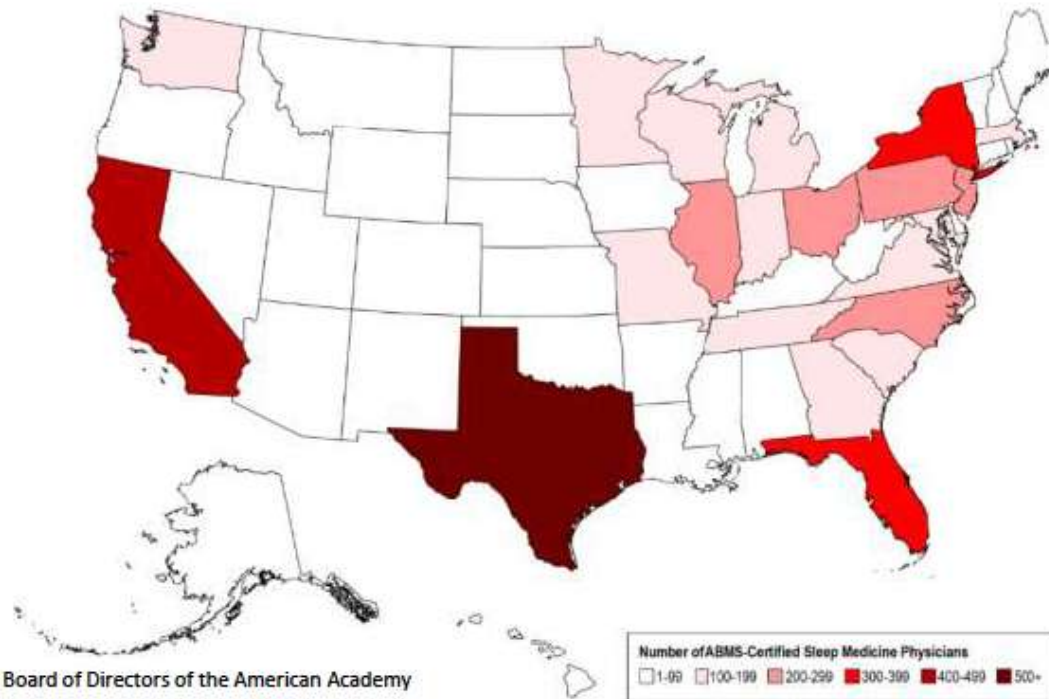
The four core objectives in the proposed Sleep Health topic area are:

- 
- Reduce the rate of vehicular crashes that are due to drowsy driving
 - Increase the proportion of persons with symptoms of obstructive sleep apnea who seek medical evaluation
 - Increase the proportion of adults who get sufficient sleep
 - Increase the proportion of students in grades 9 through 12 who get sufficient sleep

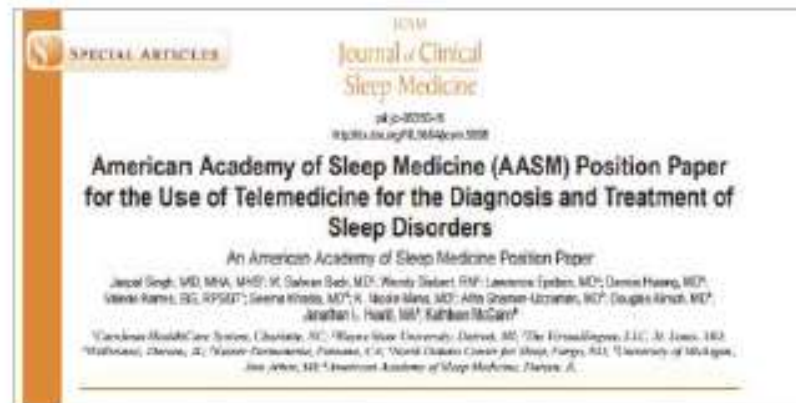
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Embracing Technology: Telemedicine

- Major drivers:
 - High volume of demand for a clinical service
 - Need for clinical expertise to deliver the service



Watson NF, Rosen IM, Chervin RD, Board of Directors of the American Academy of Sleep Medicine. The past is prologue: the future of sleep medicine.



AASM Sleep™

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Schedule an APPOINTMENT

Patients can now use an app for their Sleep™ appointment.

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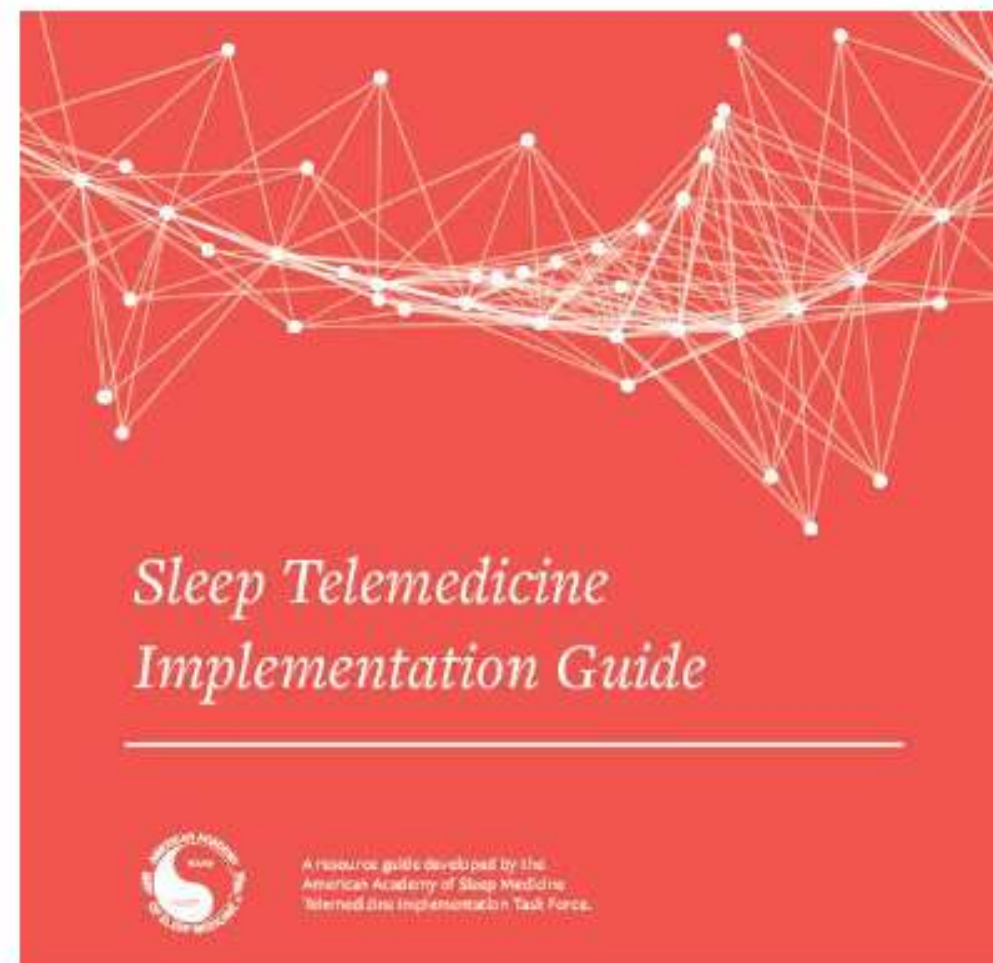
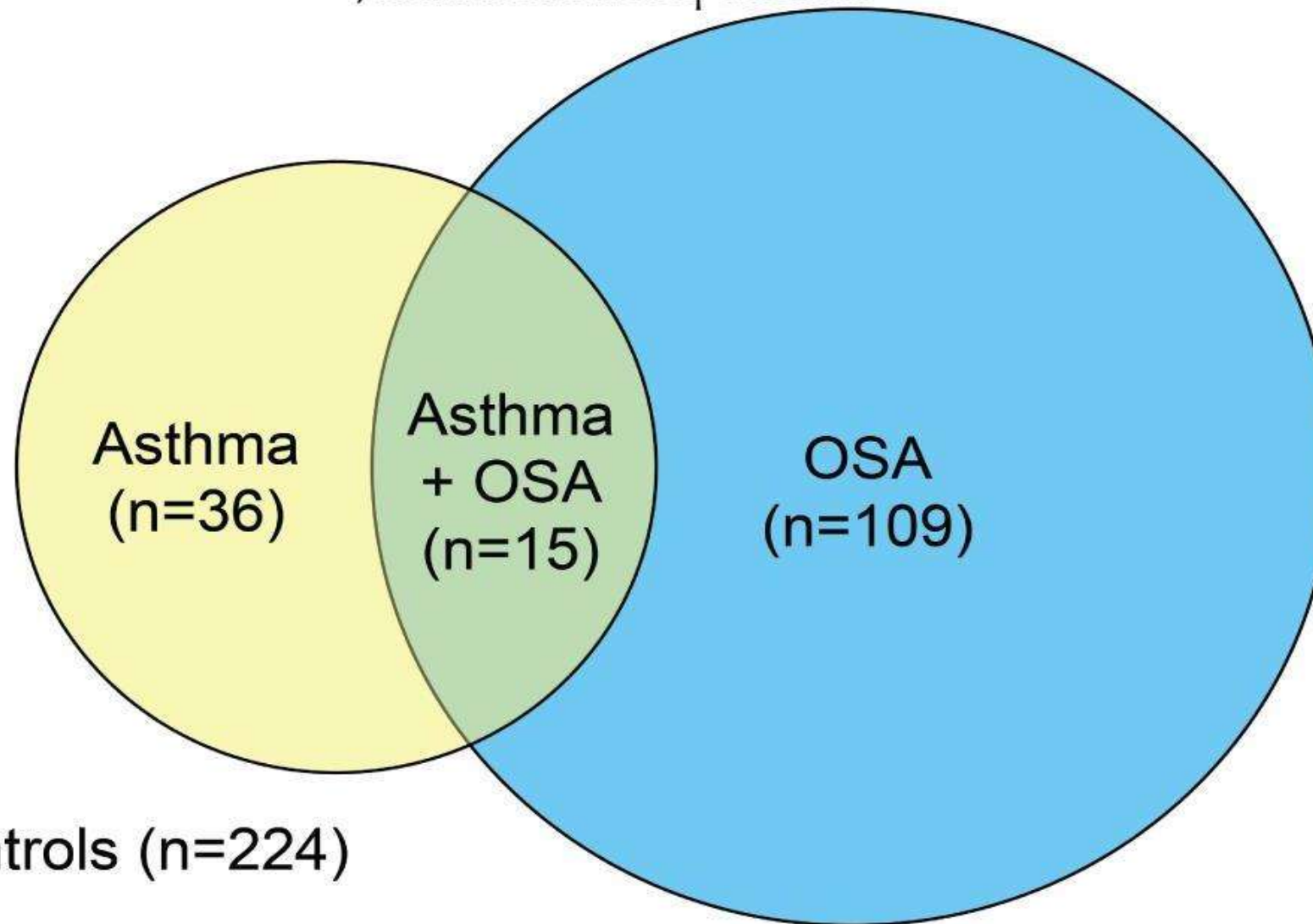


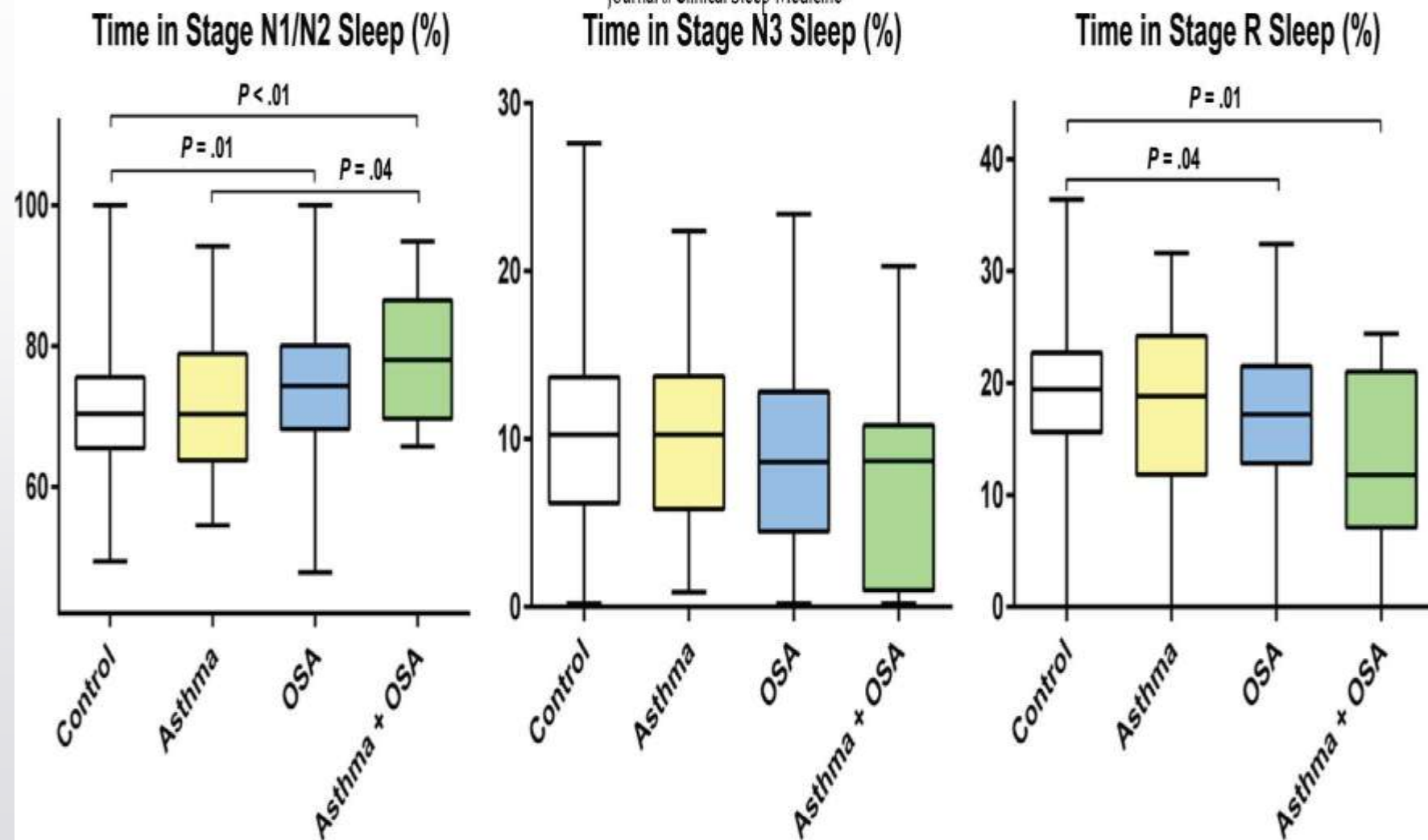
Figure 5-Economic Impact of Comorbidities in Undiagnosed OSA Population in United States



Comorbidity	# People In U.S. with Undiagnosed OSA and Comorbidity (Mil)	Costs (\$US Bil)
Hypertension	14.1	\$5.4
Heart Disease	3.1	\$6.7
Diabetes	5.6	\$6.4
Asthma and Other Breathing Disorders	5.9	\$2.6
Insomnia	6.8	\$2.1
Depression, Anxiety and Other Mental Health Problems	8.7	\$7.1
Total	-	\$30.0
<i>Costs include medication and healthcare utilization.</i>		



Sundbom F, Janson C, Malinovschi A, Lindberg E. Effects of coexisting asthma and obstructive sleep apnea on sleep architecture, oxygen saturation, and systemic inflammation in women. *J Clin Sleep Med*. 2018;14(2):253–259.





The Time is NOW!



SCIENTIFIC INVESTIGATIONS

Comorbid Insomnia With Obstructive Sleep Apnea: Clinical Characteristics and Risk Factors

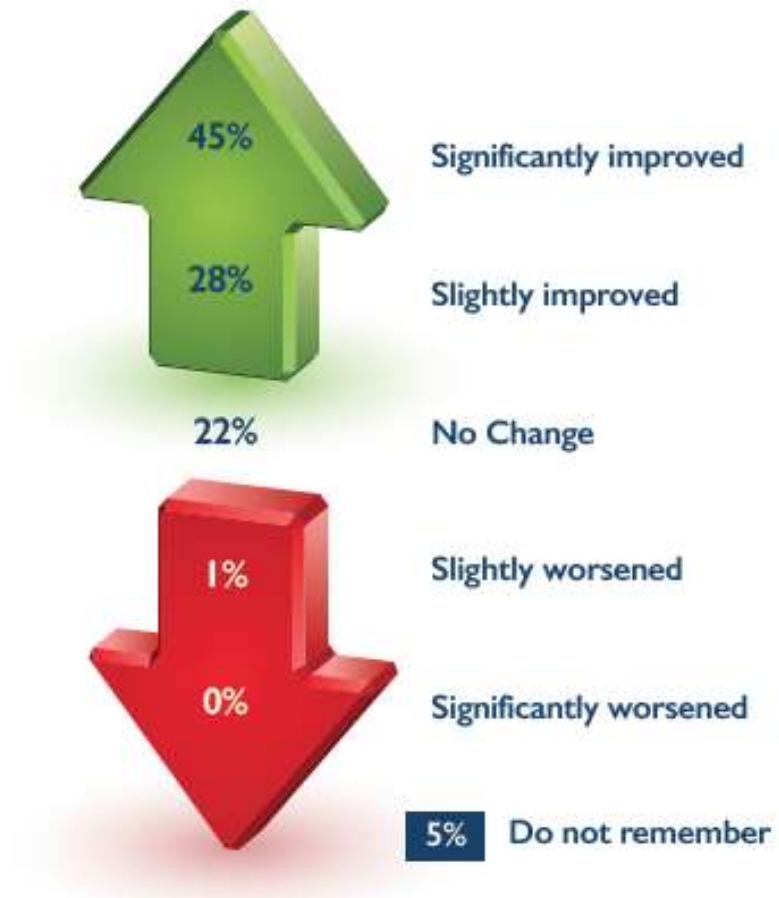
Yong Won Cho, MD¹; Keun Tae Kim, MD¹; Hye-jin Moon, MD^{1,2}; Valeriy R. Korostyshevskiy, PhD³; Gholam K. Motamedi, MD⁴; Kwang Ik Yang, MD⁵

¹Department of Neurology, Keimyung University School of Medicine, Dongsan Medical Center, Daegu, South Korea; ²Department of Neurology, School of Medicine, Soonchunhyang University, Bucheon, South Korea; ³Department of Biostatistics, Bioinformatics, and Biomathematics, Georgetown University, Washington, DC; ⁴Department of Neurology, Georgetown University Hospital, Washington, DC; ⁵Sleep Disorders Center, Department of Neurology, Soonchunhyang University College of Medicine, Cheonan Hospital, Cheonan, South Korea

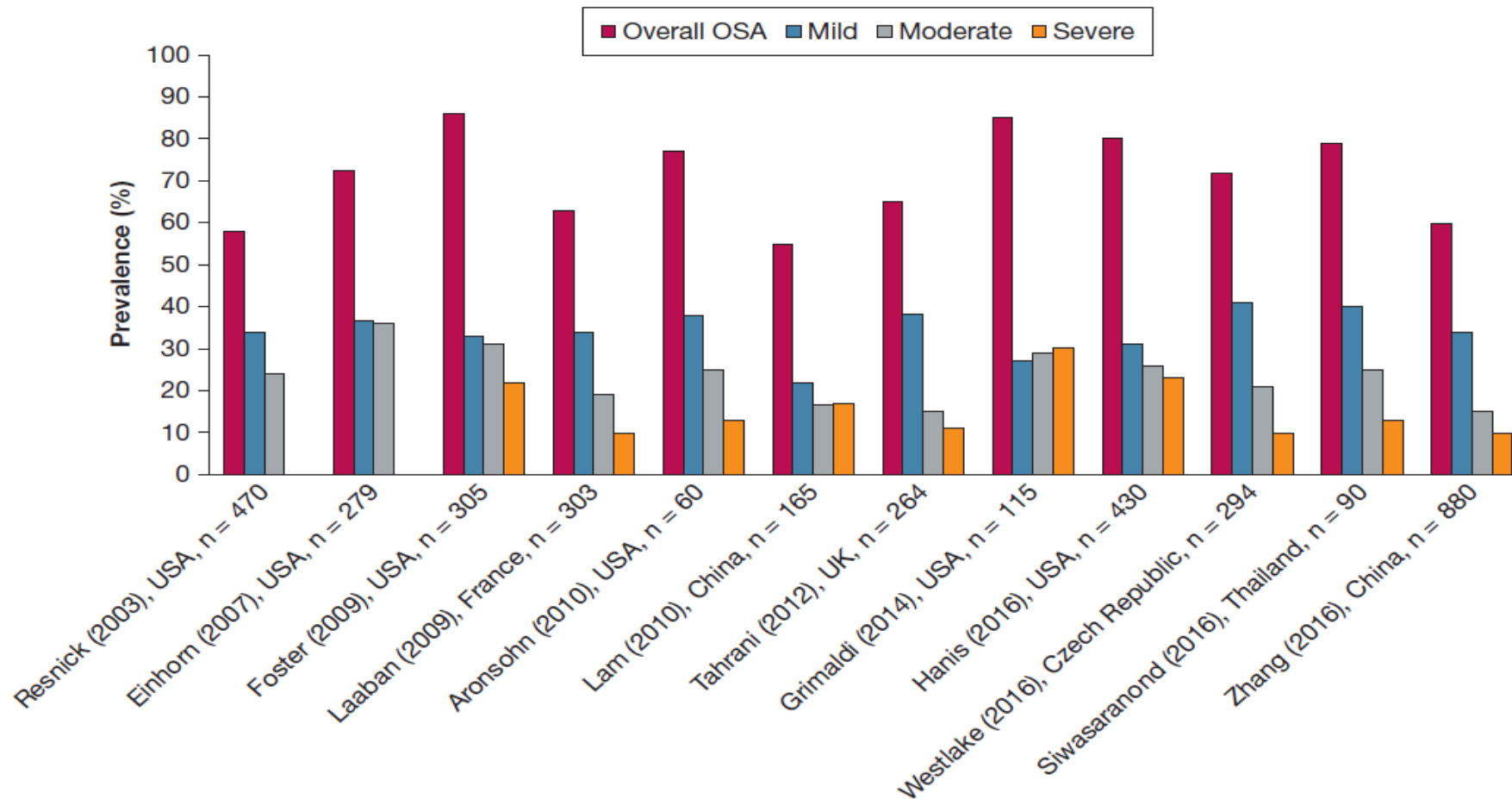


Conclusions: There is a high prevalence of comorbid insomnia with OSA (29.2%), consistent with previous findings in Western studies. Comorbid insomnia with OSA may constitute a cumulative risk factor for cardiovascular disease. These findings warrant further investigation into the mechanisms involved in its pathogenesis and devising more efficient treatments.

Figure 6-Patients with Insomnia Report OSA Treatment Significantly Improves Sleep Quality



ΣΑΥΥ και ΣΔ τύπου 2



//// Primary criteria: We recommend that drivers who meet any of the following three criteria be considered high-risk individuals who should be referred to a board-certified sleep medicine specialist for clinical sleep evaluation and diagnostic testing.

1. Individuals with a BMI ≥ 40 kg/m²
2. Individuals who have admitted fatigue or sleepiness during the duty period OR who have been involved in a sleepiness-related crash or accident;
 - a. Factors suggesting a sleepiness-related crash or accident, including a single-vehicle crash, off-road deviation, or rear-ending another vehicle
3. Individuals with a BMI ≥ 33 kg/m² and either
 - a. Hypertension requiring two or more medications for control; or
 - b. Type 2 diabetes



Obstructive Sleep Apnea and Diabetes

A State of the Art Review

Sirimon Reutrakul, MD; and Babak Mokhlesi, MD

OSA is a chronic treatable sleep disorder and a frequent comorbidity in patients with type 2 diabetes. Cardinal features of OSA, including intermittent hypoxemia and sleep fragmentation, have been linked to abnormal glucose metabolism in laboratory-based experiments. OSA has also been linked to the development of incident type 2 diabetes. The relationship between OSA and type 2 diabetes may be bidirectional in nature given that diabetic neuropathy can affect central control of respiration and upper airway neural reflexes, promoting sleep-disordered breathing. Despite the strong association between OSA and type 2 diabetes, the effect of treatment with CPAP on markers of glucose metabolism has been conflicting. Variability with CPAP adherence may be one of the key factors behind these conflicting results. Finally, accumulating data suggest an association between OSA and type 1 diabetes as well as gestational diabetes. This review explores the role of OSA in the pathogenesis of type 2 diabetes, glucose metabolism dysregulation, and the impact of OSA treatment on glucose metabolism. The association between OSA and diabetic complications as well as gestational diabetes is also reviewed.

CHEST 2017; ■(■):■-■

COMMENTARY



The Effect of OSA Therapy on Glucose Metabolism: It's All about CPAP Adherence!

Commentary on Ioachimescu et al. VAMONOS (Veterans Affairs' Metabolism, Obstructed and Non-Obstructed Sleep) study: effects of CPAP therapy on glucose metabolism in patients with obstructive sleep apnea. *J Clin Sleep Med*. 2017;13(3):455–466.

Amanpreet Kaur, MD¹; Babak Mokhlesi, MD, MSc²

¹Division of Pulmonary and Critical Care Medicine, Alpert Medical School at Brown University, Providence, RI; ²Department of Medicine, Section of Pulmonary and Critical Care, Sleep Disorders Center, The University of Chicago, Chicago, IL

Obstructive Sleep Apnea and Diabetes

A State of the Art Review

Sirimon Reutrakul, MD; and Babak Mokhlesi, MD

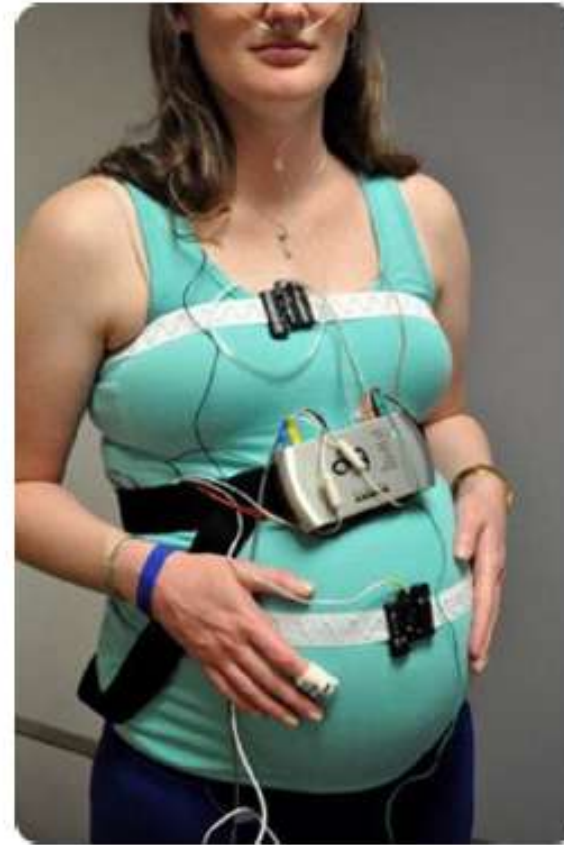
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CHEST 2017; ■(■):■-■

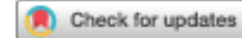
- Overnight PSG



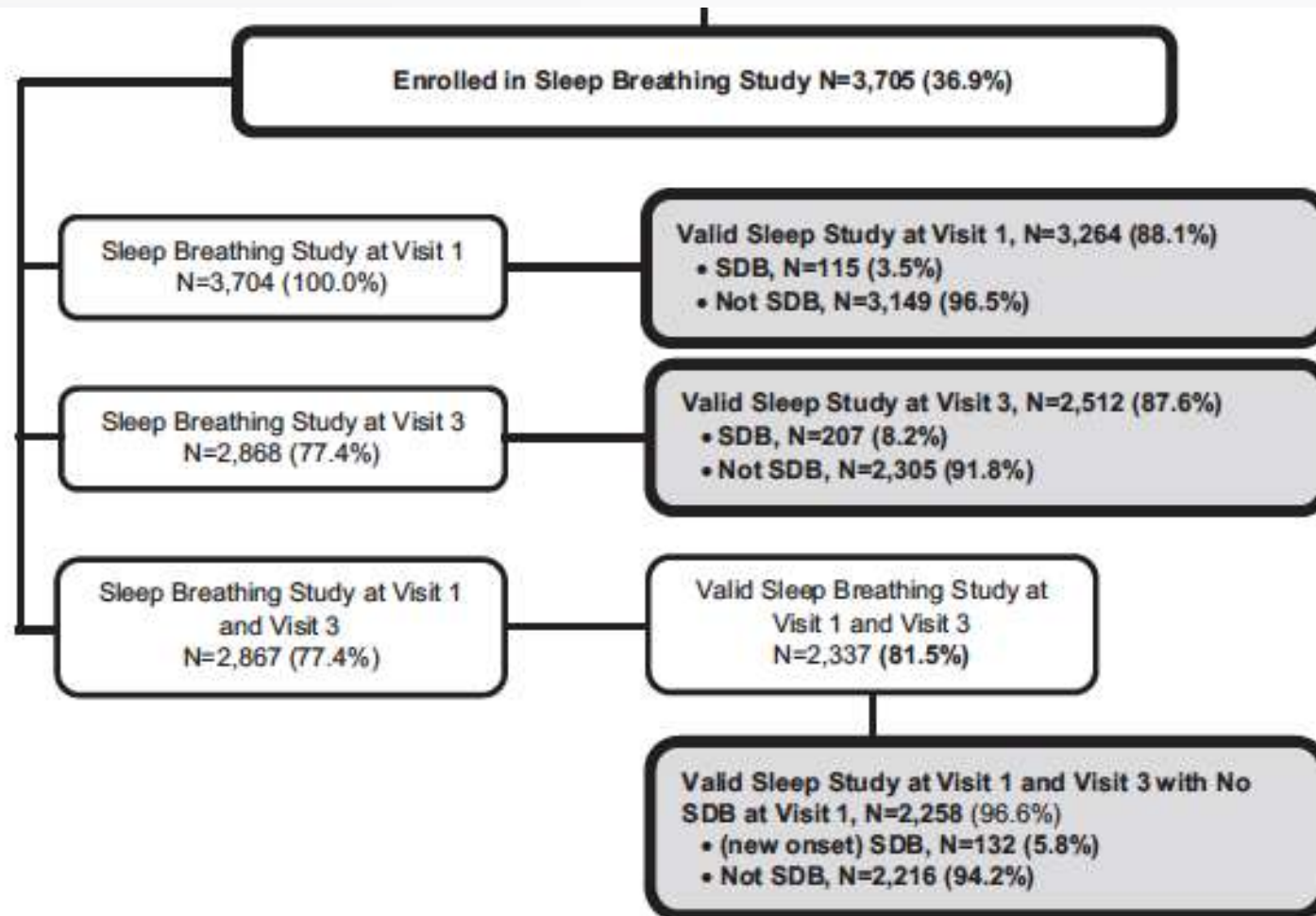
- Portable polysomnography may underestimate AHI



Predictors of sleep-disordered breathing in pregnancy



Judette M. Louis, MD, MPH; Matthew A. Koch, MD, PhD; Uma M. Reddy, MD, MPH; Robert M. Silver, MD; Corette B. Parker, DrPH; Francesca L. Facco, MD, MSCI; Susan Redline, MD, MPH; Chia-Ling Nhan-Chang, MD; Judith H. Chung, MD, PhD; Grace W. Pien, MD, MSCE; Robert C. Basner, MD; William A. Grobman, MD, MBA; Deborah A. Wing, MD, MBA; Hyagriv N. Simhan, MD; David M. Haas, MD, MS; Brian M. Mercer, MD; Samuel Parry, MD; Daniel Mobley, RPSGT; Benjamin Carper, MS; George R. Saade, MD; Frank P. Schubert, MD, MS; Phyllis C. Zee, MD, PhD




Early pregnancy (6-15 weeks of gestation) SDB 3,5%

Mid pregnancy (22-31 weeks of gestation) SDB 8,2%

New onset SDB 5,8%



Predictors?

- BMI
- Snoring
- 
- Age

Clinical Use of a Home Sleep Apnea Test: An Updated American Academy of Sleep Medicine Position Statement

Ilene M. Rosen, MD, MS1; Douglas B. Kirsch, MD2; Kelly A. Carden, MD3; Raman K. Malhotra, MD4;
Kannan Ramar, MD5; R. Nisha Aurora, MD6; David A. Kristo, MD7; Jennifer L. Martin, PhD8,9; Eric J.
Olson, MD5; Carol L. Rosen, MD10; James A. Rowley, MD11; Anita V. Shelgikar, MD, MHPE12; American
Academy of Sleep Medicine Board of Directors



POSITION

It is the position of the AASM that:

- Only a medical provider can diagnose medical conditions such as OSA and primary snoring.
- The need for, and appropriateness of, an HSAT must be based on the patient’s medical history and a face-to-face examination by a medical provider, either in person or via telemedicine.

- An HSAT is a medical assessment that must be ordered by a medical provider to diagnose OSA or evaluate treatment efficacy.
- An HSAT should not be used for general screening of asymptomatic clinical populations.
- Diagnosis, assessment of treatment efficacy, and treatment decisions must not be based solely on automatically scored HSAT data, which could lead to sub-optimal care that jeopardizes patient health and safety.
- The raw data from the HSAT device must be reviewed and interpreted by a physician who is either board-certified in sleep medicine or overseen by a board- certified sleep medicine physician.

Υπνική άπνοια με χαρακτηρισ θέσης

RECOMMENDATIONS FOR POSITIONAL THERAPIES

- 3.5.1** | Positional therapy, consisting of a method that keeps the patient in a non-supine position, is an effective secondary therapy or can be a supplement to primary therapies for OSA in patients who have a low AHI in the non-supine versus that in the supine position.

GUIDELINE

REVIEW ARTICLES

Efficacy of the New Generation of Devices for Positional Therapy for Patients With Positional Obstructive Sleep Apnea: A Systematic Review of the Literature and Meta-Analysis

Madeline J.L. Ravesloot, MD, PhD, MSc¹; David White, MD²; Raphael Heinzer, MD, MPH³; Arie Oksenberg, PhD⁴; Jean-Louis Pépin, MD⁵

¹Department of Otorhinolaryngology, OLVG West, Amsterdam, The Netherlands; ²Department of Sleep Medicine, Harvard Medical School and Brigham and Women's Hospital, Boston, Massachusetts; ³Center for Investigation and Research in Sleep (CIRS), University Hospital of Lausanne, Switzerland; ⁴Sleep Disorders Unit, Loewenstein Hospital - Rehabilitation Center, Raanana, Israel; ⁵Department of Physiology and Sleep, Albert Michallon Hospital, Grenoble, France

Conclusions: There is strong evidence that the new generation of devices for PT are effective in reducing the apnea-hypopnea index during short-term follow-up. These devices are simple-to-use for patients and clinicians and are reversible. Under study conditions with short-term follow-up, compliance is high; however, long-term compliance cannot be assessed because of lack of reliable data. Additional long-term, high-quality studies are needed to confirm the role of PT as a single or as a combination treatment modality for OSA patients and to assess long-term compliance.





Ravesloot MJ, White D, Heinzer R, Oksenberg A, Pépin JL. Efficacy of the new generation of devices for positional therapy for patients with positional obstructive sleep apnea: a systematic review of the literature and meta-analysis. *J Clin Sleep Med.* 2017;13(6):813–824.



Guidelines at-a-Glance

A resource by the American Academy of Sleep Medicine

ΕΝΔΟΣΤΟΜΑΤΙΚΑ ΠΡΟΘΕΜΑΤΑ

QUALITY OF EVIDENCE		RECOMMENDATIONS FOR TREATMENT OF PRIMARY SNORING	
⊕⊕⊕⊕	High		4.1 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). <hr/> STANDARD ⊕⊕⊕⊕ B>H
⊕⊕⊕⊖	Moderate		
⊕⊕⊖⊖	Low		
⊕⊖⊖⊖	Very Low		
BENEFITS VERSUS HARMS		RECOMMENDATIONS FOR TREATMENT OF OSA	
B>h	Benefits outweigh harms		4.2a 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 ⊕⊕⊖⊖ B>H
B=H	Benefits approximately equal harms		
H>b	Harms outweigh benefits		
		4.2b	We recommend that sleep physicians consider prescription of oral appliances, <u>rather than no treatment</u> , for adult patients with obstructive sleep apnea who are intolerant of CPAP therapy or prefer alternate therapy. STANDARD ⊕⊕⊕⊖ B>H
		4.2c	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 ⊕⊕⊖⊖ B>H
		4.2d	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 ⊕⊕⊖⊖ B>H
		4.2e	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 ⊕⊕⊖⊖ B>H



2018

ΧΕΙΡΟΥΡΙΚΗ ΑΝΤΙΜΕΤΩΠΙΣΗ

QUALITY OF EVIDENCE

- ⊕⊕⊕⊕ High/Level 4
- ⊕⊕⊕⊖ Moderate/Level 3
- ⊕⊕⊖⊖ Low/Level 2
- ⊕⊖⊖⊖ Very Low/Level 1

RECOMMENDATIONS FOR SURGICAL PROCEDURES

4.3.1	Tracheostomy: Tracheostomy has been shown to be an effective single intervention to treat obstructive sleep apnea. This operation should be considered only when other options do not exist, have failed, are refused, or when this operation is deemed necessary by clinical urgency.	OPTION ⊕⊕⊕⊖
4.3.2	Maxillo-Mandibular Advancement (MMA): MMA is indicated for surgical treatment of severe OSA in patients who cannot tolerate or who are unwilling to adhere to positive airway pressure therapy, or in whom oral appliances, which are more often appropriate in mild and moderate OSA patients, have been considered and found ineffective or undesirable.	OPTION ⊕⊕⊕⊖
4.3.3	Uvulopalatopharyngoplasty (UPPP) as a single surgical procedure: UPPP as a sole procedure, with or without tonsillectomy, does not reliably normalize the AHI when treating moderate to severe obstructive sleep apnea syndrome. Therefore, patients with severe OSA should initially be offered positive airway pressure therapy, while those with moderate OSA should initially be offered either PAP therapy or oral appliances.	OPTION ⊕⊕⊕⊖
4.3.4	Multi-Level or Stepwise Surgery (MLS): Use of MLS, as a combined procedure or as stepwise multiple operations, is acceptable in patients with narrowing of multiple sites in the upper airway, particularly if they have failed UPPP as a sole treatment.	OPTION ⊕⊕⊕⊖
4.3.5	Laser Assisted Uvulopalatoplasty (LAUP): LAUP is not routinely recommended as a treatment for obstructive sleep apnea syndrome.	STANDARD ⊕⊕⊕⊖
4.3.6	Radiofrequency ablation (RFA): RFA can be considered as a treatment in patients with mild to moderate obstructive sleep apnea who cannot tolerate or who are unwilling to adhere to positive airway pressure therapy, or in whom oral appliances have been considered and found ineffective or undesirable.	OPTION ⊕⊕⊕⊖
4.3.7	Palatal Implants: Palatal implants may be effective in some patients with mild obstructive sleep apnea who cannot tolerate or who are unwilling to adhere to positive airway pressure therapy, or in whom oral appliances have been considered and found ineffective or undesirable.	OPTION ⊕⊕⊕⊖





Upper Airway Surgery Does Have a Major Role in the Treatment of Obstructive Sleep Apnea

“The Tail End of the Dog”

Nelson Powell M.D.

Journal of Clinical Sleep Medicine, Vol. 1, No. 3, 2005

- Πλαστική σταφυλής και μαλθακής υπερώας
- Τεχνικές προώθησης γνάθου με ή προώθηση υοειδούς
- Τεχνικές μείωσης όγκου γλώσσας
- Τεχνικές αποκατάστασης ρινικής αναπνοής

(29 years). The resultant surgical effectiveness from part of the report has been used by our sleep medicine physicians as proof that surgery is “< 50% effective”. This effective percentage was cited only for uvulopalatopharyngoplasty (UPPP). Surgery for OSAS is “NOT” a UPPP. This is “NOT” the mid 80’s; it is 2005. If other

Clinical Practice Guideline for the Surgical Treatment of OSA in Adults

(Expected publication: Winter 2019)

This clinical practice guideline will provide recommendations regarding if and under what circumstances adult patients with OSA should be referred for surgical consultation. This guideline will update and replace the existing practice parameters.

Task Force Chair: Steve Park, MD



Patient Populations:

Adult OSA patients

Subgroups include: patients with large tonsils

Adult OSA patients who are intolerant to PAP or fail PAP

Subgroups include: patients w/ nasal compromise
getting nasal surgery, patients with large tonsils
getting tonsillectomy

Adult OSA patients with Class III obesity (BMI > 40kg/m²)

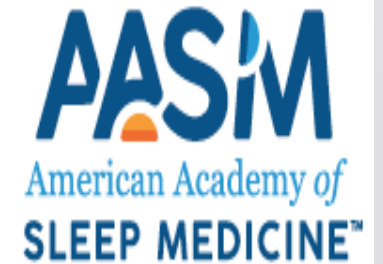
Interventions:

Upper airway surgery as a salvage treatment

Upper airway surgery as an adjunctive treatment to PAP

Upper airway surgery as a first-line treatment

Bariatric surgery



Outcomes:

Symptoms (sleepiness, snoring)

Quality of Life (sleep-related, nasal-related)

Motor Vehicle Accident Risk

Health (long-term mortality risk, blood pressure, BMI)

Sleep Apnea Test Outcomes (AHI)

Positive-Airway Pressure (use, acceptance, pressure, oral leak)

Serious Adverse Events (peri-operative death, permanent dysphagia impairing eating, disabling bariatric events).

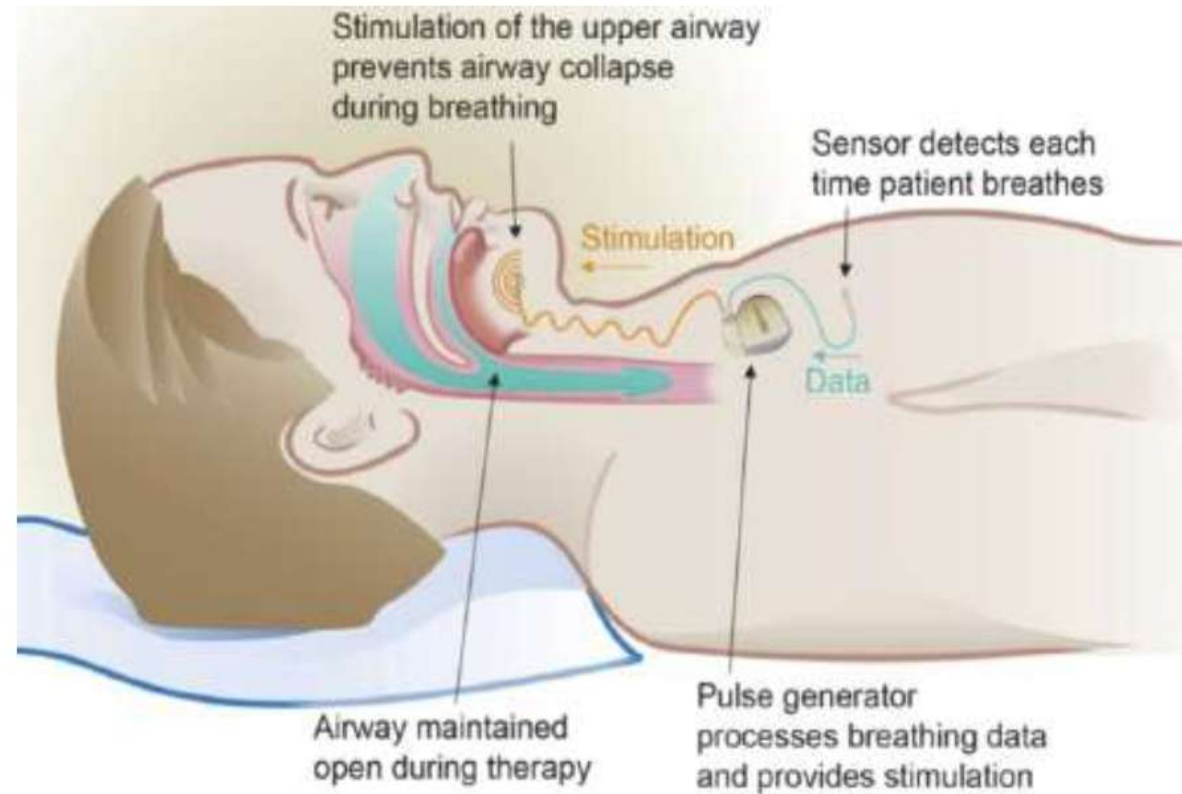
The final recommendations will be based upon the available evidence, and must be approved by the AASM Board of Directors.



Hypoglossal nerve stimulation



- Implanted device
- Receives input from sensing lead to time delivery of stimulation to nerve with onset of inspiration
- Outcome (STAR Trial):
 - Reduced AHI by 68%; 29.3 to 9.0
 - Therapy maintenance group showed sustained reduction



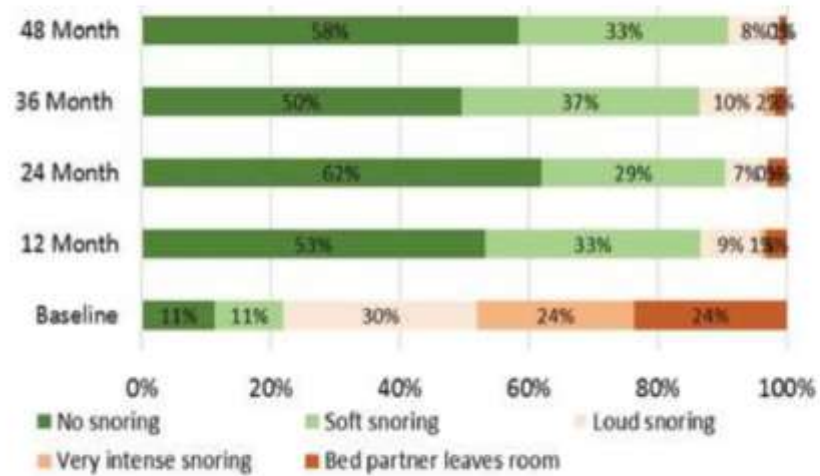
NEJM 2014



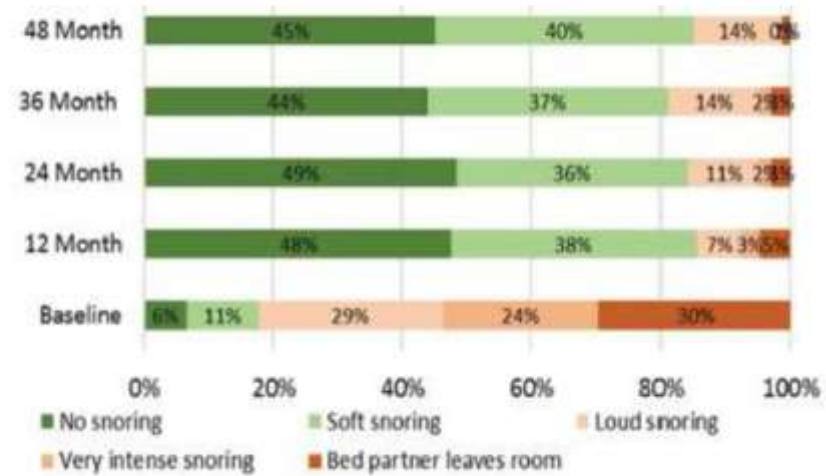
Analysis of STAR trial

- 95 subjects showed up; 4 had incomplete data
 - Of the original cohort:
 - 3 had died: 2 from CVD, 1 homicide
 - 3 had elective explantation of HGNS
 - 25 lost to followup:
 - 15 missed 48 month visit
 - 5 exited study
 - 5 were from study sites that closed

Snoring



Patient Report (A)

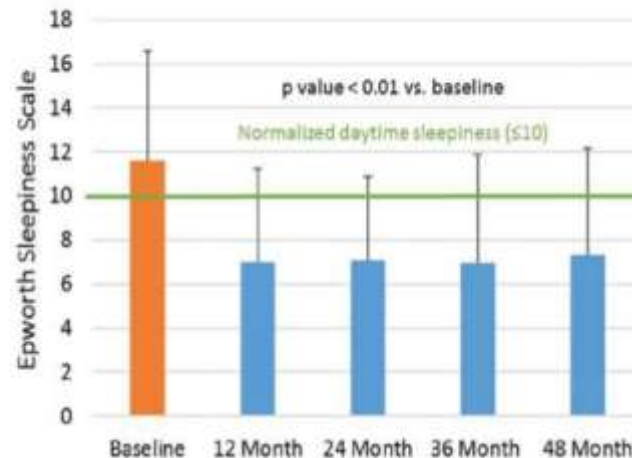
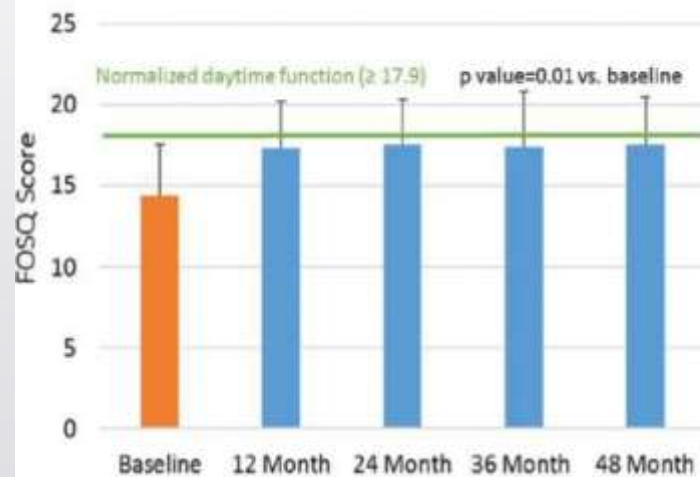


Bed Partner Report (B)

Otolaryngol Head Neck Surg, 2018

Upper Airway Stimulation for
Obstructive Sleep Apnea: Patient-
Reported Outcomes after 48 Months of
Follow-up

Epworth and FOSQ Scores



EDITORIALS

Standardized Reporting for Hypoglossal Nerve Stimulation Outcomes

Raj C. Dedhia, MD, MSCR^{1,2}; B. Tucker Woodson, MD³

¹Emory Sleep Center, Emory Healthcare, Atlanta, Georgia; ²Department of Otolaryngology-Head and Neck Surgery, Emory University School of Medicine, Atlanta, Georgia;

³Department of Otolaryngology-Head and Neck Surgery, Medical College of Wisconsin, Milwaukee, Wisconsin

Hypoglossal nerve stimulation (HGNS) therapy is an increasingly popular tool for the treatment of obstructive sleep apnea (OSA) in patients unable to tolerate positive airway (PAP) pressure. Since the publication of the pivotal Stimulation Therapy for Apnea Reduction (STAR) trial leading to FDA approval in 2014,¹ the majority of publications are composed of single institution experiences with inconsistent, perhaps misleading, reporting of outcomes. In this editorial, we will argue for the following measurements to be reported in all future HGNS publications:

1. Full-night efficacy (ie, single device setting) studies from either a home sleep apnea test (HSAT) or in-laboratory polysomnography (PSG)
2. 4% oxygen desaturation index as the primary outcome of therapy effectiveness

Sleep and Neurodegeneration

A Critical Appraisal



Jagan A. Pillai, MBBS, PhD; and James B. Leverenz, MD

Sleep abnormalities are clearly recognized as a distinct clinical symptom of concern in neurodegenerative disorders. Appropriate management of sleep-related symptoms has a positive impact on quality of life in patients with neurodegenerative disorders. This review provides an overview of mechanisms that are currently being considered that tie sleep with neurodegeneration. It appraises the literature regarding specific sleep changes seen in common neurodegenerative diseases, with a focus on Alzheimer disease and synucleinopathies (ie, Parkinson disease, dementia with Lewy bodies, multiple system atrophy), that have been better studied. Sleep changes may also serve as markers to identify patients in the preclinical stage of some neurodegenerative disorders. A hypothetical model is postulated founded on the conjecture that specific sleep abnormalities, when noted to increase in severity beyond that expected for age, could be a surrogate marker reflecting pathophysiological processes related to neurodegenerative disorders. This provides a clinical strategy for screening patients in the preclinical stages of neurodegenerative disorders to enable therapeutic trials to establish the efficacy of neuroprotective agents to prevent or delay the development of symptoms and functional decline. It is unclear if sleep disturbance directly impacts neurodegenerative processes or is a secondary outcome of neurodegeneration; this is an active area of research. The clinical importance of recognizing and managing sleep changes in neurodegenerative disorders is beyond doubt.

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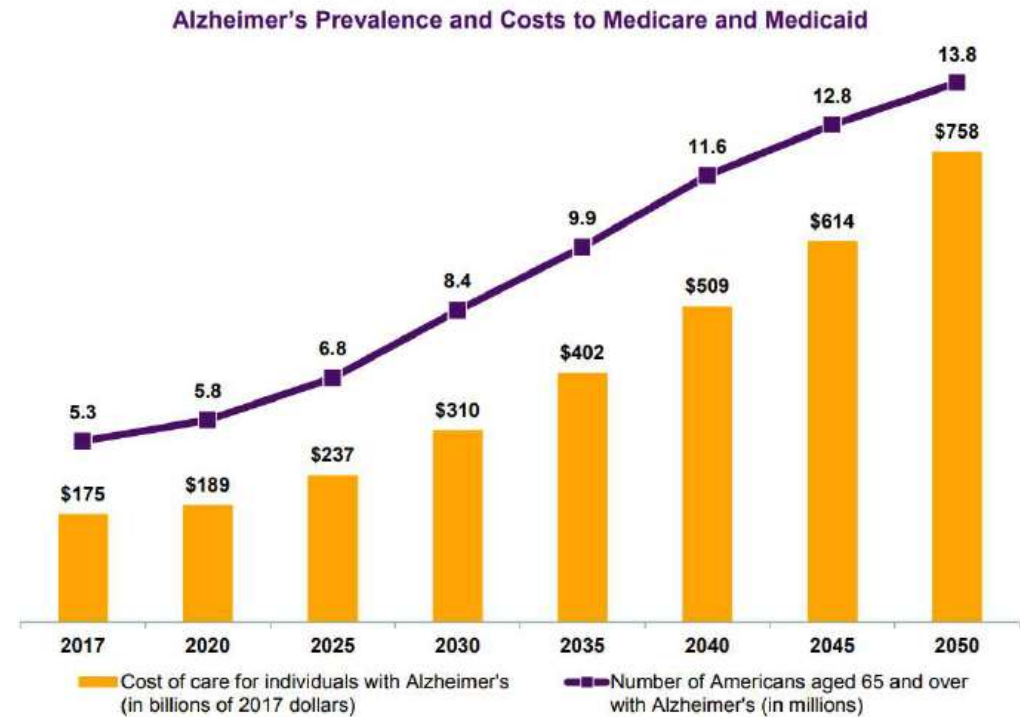
TABLE 1] Common Sleep-Related Clinical Changes Noted in NDD Phenotypes

NDD Phenotype	Common Sleep-Related Clinical Changes
Parkinson disease	Difficulty maintaining sleep, awakening 2-5 times/night ^{93,94} EDS more severe as a result of more fragmented nocturnal sleep ⁹⁴ Parasomnias noted in PD include nocturnal hallucinations, vivid dreams, and RBD ⁹⁸ SDB ¹⁰⁴⁻¹⁰⁹
Dementia with Lewy bodies	RBD ¹¹⁰ Fluctuating daytime cognition and alertness ¹¹⁰
Multiple system atrophy	Nocturnal insomnia ¹¹¹ RBD ^{111,112} SDB ^{113,114} Stridor ^{114,115} Central sleep apnea ¹¹⁶
Alzheimer disease	Circadian rhythm changes and sun downing ¹¹⁷ Decreased duration of REM sleep ¹¹⁸ Decreased NREM and increased nighttime awakenings ^{119,120} SDB ^{121,122}

EDS = excessive daytime sleepiness; NDD = neurodegenerative disease; NREM = non-rapid eye movement; RBD = REM sleep behavior disorder; REM = rapid eye movement; SDB = sleep-disordered breathing.

Η υπνική άπνοια είναι μόνο ένα από τα πολλά προβλήματα κατά ύπνο στους ασθενείς αυτούς

- OSA increases with age *and* is very common in AD: 40% overall, 70% of institutionalized AD



Alzheimer's Association website



Health Advisory: Sleep and Alzheimer's Disease

Clinicians should screen adults for signs of a possible sleep disorder. These signs include excessive daytime sleepiness, snoring, and unrefreshing sleep. The American Academy of Sleep Medicine believes that existing evidence is sufficient to justify this important health advisory: Early intervention to ensure sufficient sleep and treat sleep disorders such as obstructive sleep apnea *may* help prevent or delay Alzheimer's disease.

Adopted by the AASM Board of Directors: June 3, 2018

Pharmacotherapy of Apnea by Cannabimimetic Enhancement, the PACE Clinical Trial: Effects of Dronabinol in Obstructive Sleep Apnea

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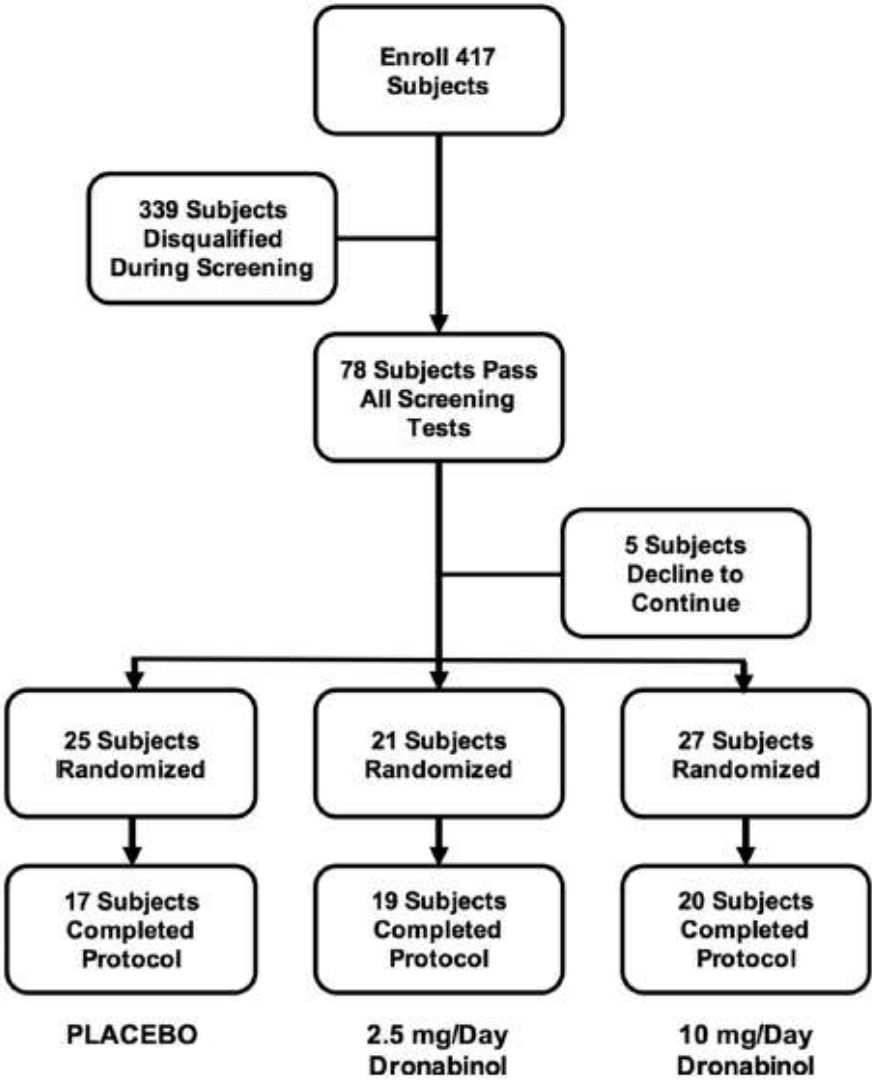
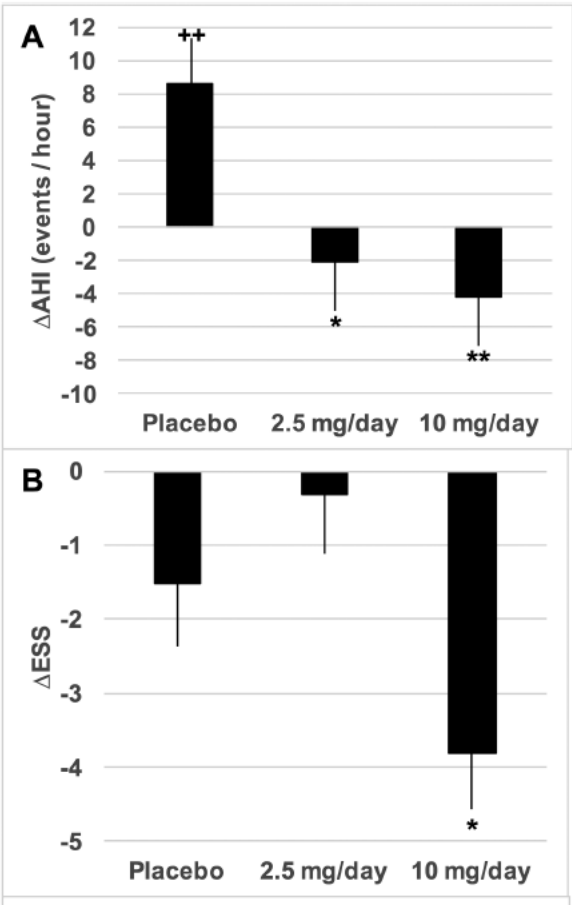


Figure 1.—Workflow diagram illustrating the disposition of 417 enrolled in the protocol.

Table 7—Responder Versus Non-Responder Characteristics.

	Nonresponder	Responder	<i>p</i>
<i>N</i>	33	6	—
Age	54.8 ± 5.9	47.8 ± 11.6	0.03
BMI	33.8 ± 4.9	34.9 ± 4.0	0.61
Change in BMI	−0.1 ± 3.39	0.13 ± 1.10	0.92
Baseline AHI	28.3 ± 13.0	23.3 ± 5.4	0.36
Baseline ESS	11.7 ± 4.2	13.3 ± 3.5	0.37
Missed doses/14 D	0.94 ± 1.46	1.17 ± 1.47	0.73
No. of AEs reported	4.5 ± 4.8	5.5 ± 4.8	0.65
Baseline TST	374.1 ± 59.5	423.4 ± 29.6	0.05
Baseline REM AHI	37.0 ± 19.7	55.5 ± 17.3	0.04
Baseline NREM AHI	26.2 ± 16.6	14.5 ± 6.0	0.1
Base REM/total AHI	1.6 ± 1.0	2.4 ± 0.6	0.05
Base mean event Dur	26.9 ± 5.4	22.1 ± 3.2	0.04

Values are mean ± standard deviation.

BMI = body mass index; AHI = apnea–hypopnea index; ESS = Epworth Sleepiness Scale; D = days; AE = adverse event; TST = total sleep time; AHI = apnea–hypopnea index; Base = baseline; Dur = duration. Bold text indicates statistical significance at $p < .05$.

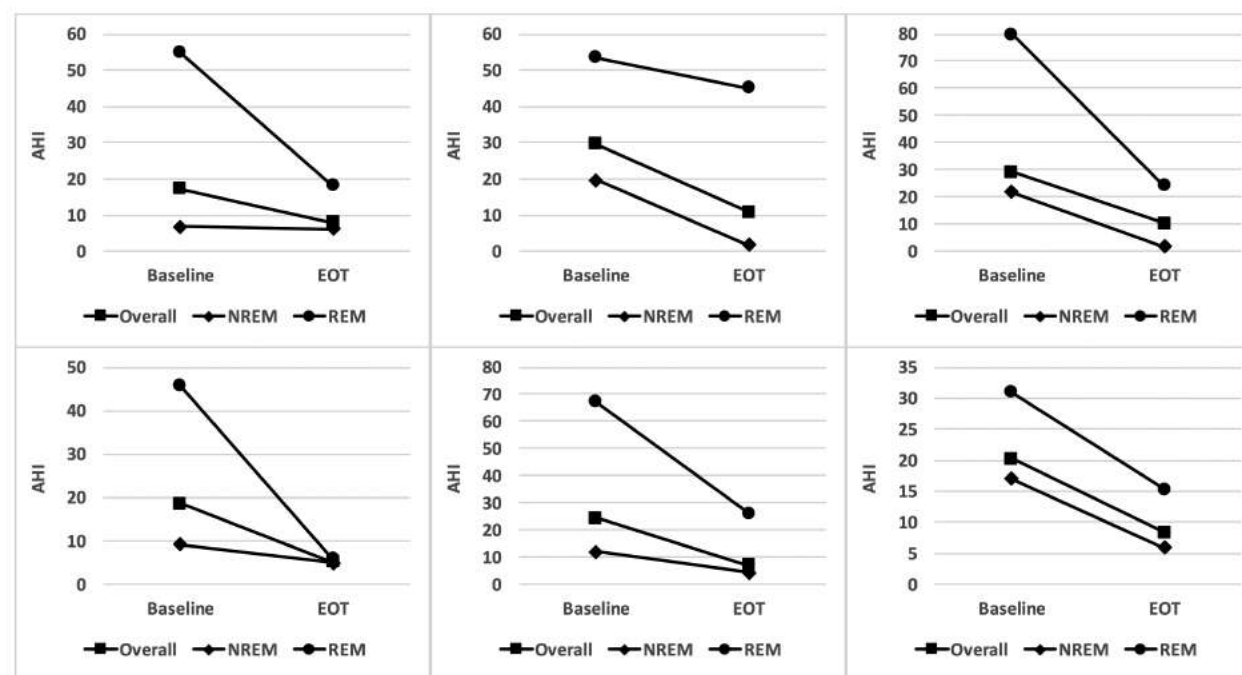


Figure 3—Treatment-related changes in AHI individual “responders.” Each panel depicts the AHI measured at baseline and at the end of treatment for a single responder (square symbols). In addition, AHI stratified according the NREM sleep (diamond symbols) and REM sleep (circle symbols) are depicted for each of these participants.

SPECIAL ARTICLES

Medical Cannabis and the Treatment of Obstructive Sleep Apnea: An American Academy of Sleep Medicine Position Statement

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POSITION

It is the position of the AASM:



- That medical cannabis and/or its synthetic extracts should not be used for the treatment of OSA due to unreliable delivery methods and insufficient evidence of treatment effectiveness, tolerability, and safety, and OSA should be excluded from the list of chronic medical conditions for state medical cannabis programs.
- That patients with OSA should be advised to discuss their treatment options with a licensed medical provider at an accredited sleep facility.



The Time is NOW!

