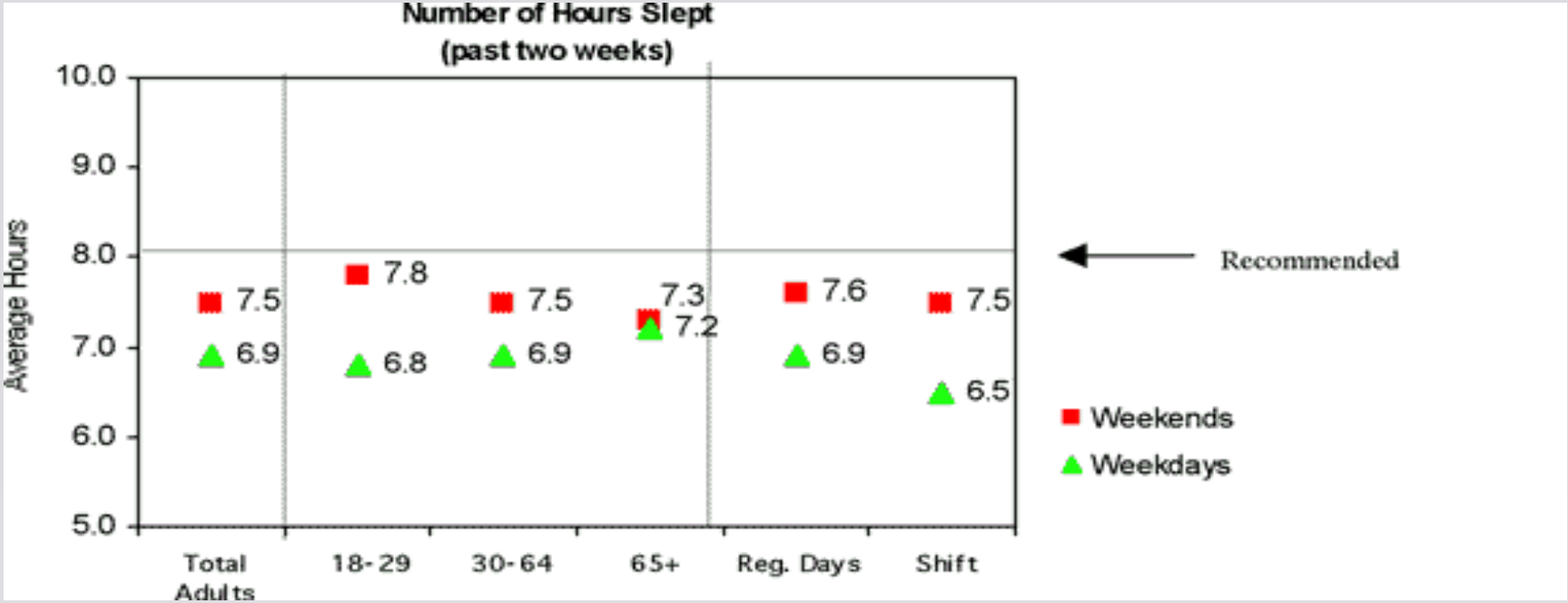
Τι νεότερο στην ιατρική του ύπνου

Χαράλαμπος Μερμίγκης, MD, PhD

Πνευμονολόγος, Ειδικός Ιατρός Ύπνου (ABCISS)

Διευθυντής Εργαστηρίου Ύπνου Ερρίκος Ντυνάν Hospital Center

Το ωράριο ύπνου της «σύγχρονης εποχής»



NSF sleep poll 2000

CONSENSUS STATEMENT

JCSM
Journal of Clinical Sleep Medicine

pii: jc-0X231-15
http://dx.doi.org/10.5664/jcsm.4758

Recommended Amount of Sleep for a Healthy Adult: A Joint Consensus Statement of the American Academy of Sleep Medicine and Sleep Research Society

Consensus Conference Panel: Nathaniel F. Watson, MD, MSc, Moderator[1]; M. Safwan Badr, MD[2]; Gregory Belenky, MD[3]; Donald L. Bliwise, PhD[4]; Orfeu M. Buxton, PhD[5]; Daniel Buysse, MD[6]; David F. Dinges, PhD[7]; James Gangwisch, PhD[8]; Michael A. Grandner, PhD, MSTR, CBSM[7]; Clete Kushida, MD, PhD[9]; Raman K. Malhotra, MD[10]; Jennifer L. Martin, PhD[11]; Sanjay R. Patel, MD, MSc[12]; Stuart F. Quan, MD[12]; Esra Tasali, MD[13]

J Clin Sleep Med 2015

Η αναγκαιότητα των **7 ωρών** ύπνου

CONSENSUS STATEMENT

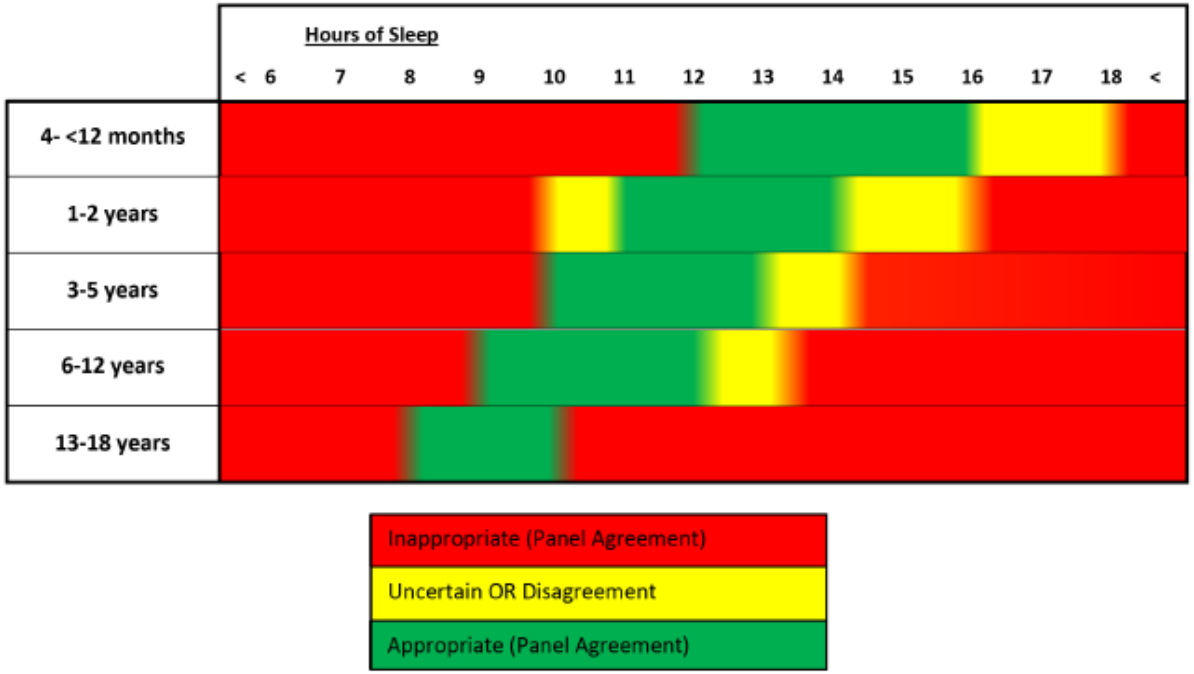
- Adults should sleep 7 or more hours per night on a regular basis to promote optimal health.
  - Sleeping less than 7 hours per night on a regular basis is associated with adverse health outcomes, including weight gain and obesity, diabetes, hypertension, heart disease and stroke, depression, and increased risk of death. Sleeping less than 7 hours per night is also associated with impaired immune function, increased pain, impaired performance, increased errors, and greater risk of accidents.

J Clin Sleep Med 2015;11(6):591–592

- Children 6 to 12 years of age should sleep 9 to 12 hours per 24 hours on a regular basis to promote optimal health.
- Teenagers 13 to 18 years of age should sleep 8 to 10 hours per 24 hours on a regular basis to promote optimal health.

J Clin Sleep Med 2016

Figure 3—Round 3 voting results.



J Clin Sleep Med 2016;12(11):1549–1561.

J Clin Sleep Med 2016

JCSM
Journal of Clinical Sleep Medicine

SPECIAL ARTICLES

Delaying Middle School and High School Start Times Promotes Student Health and Performance: An American Academy of Sleep Medicine Position Statement

Nathaniel F. Watson, MD, MS[1]; Jennifer L. Martin, PhD[2]; Merrill S. Wise, MD[3]; Kelly A. Carden, MD[4]; Douglas B. Kirsch, MD[5]; David A. Kristo, MD[6]; Raman K. Malhotra, MD[7,8]; Eric J. Olson, MD[9]; Kannan Ramar, MD[9]; Ilene M. Rosen, MD, MS[10]; James A. Rowley, MD[11]; Terri E. Weaver, PhD, RN[12]; Ronald D. Chervin, MD, MS[13]; for the American Academy of Sleep Medicine Board of Directors

The AASM asserts that middle school and high school start times should be 8:30 am or later

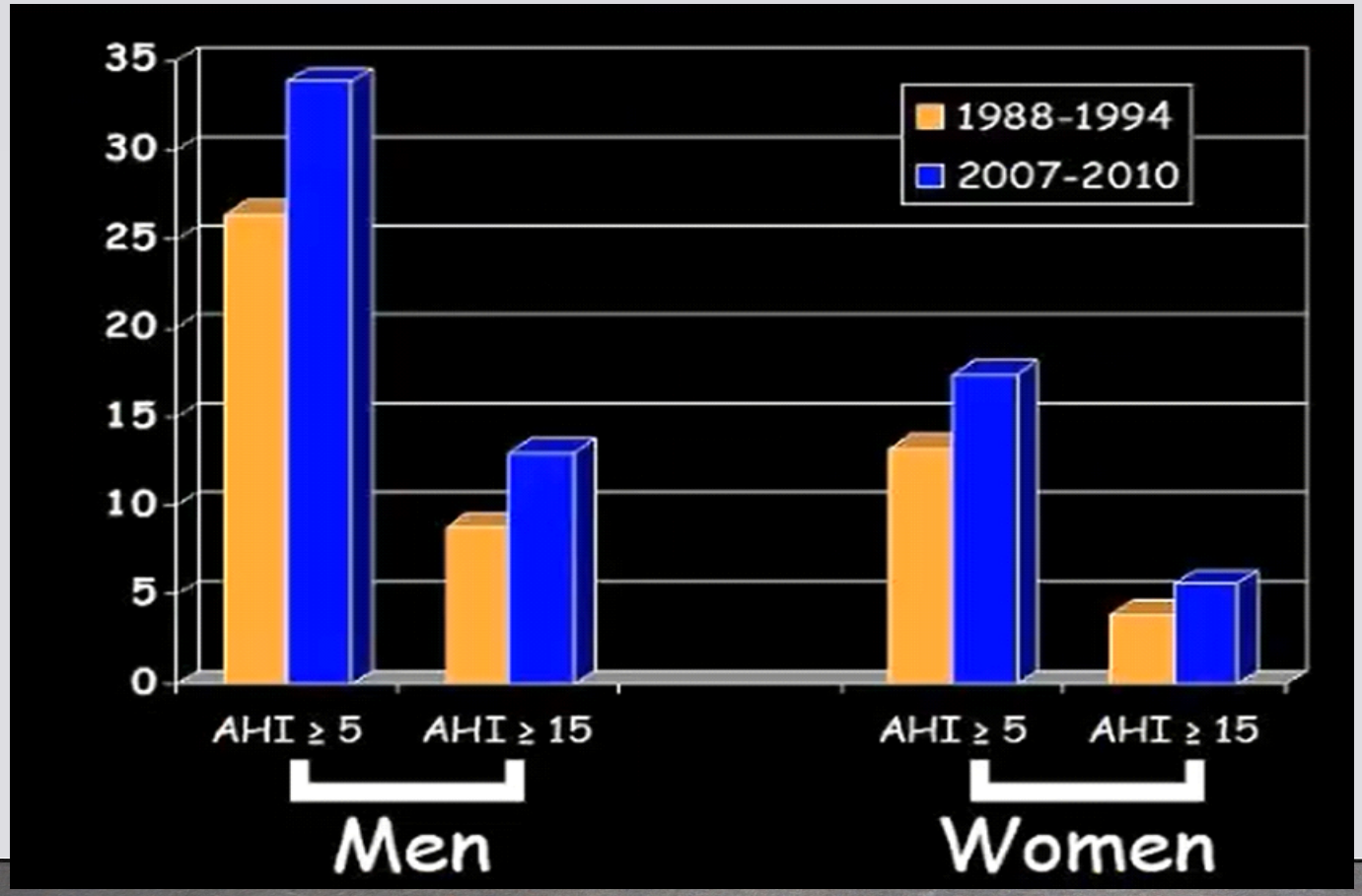
J Clin Sleep Med. 2017;13(4):623–625.

ΣΥΝΔΡΟΜΟ ΥΠΝΙΚΗΣ ΑΠΝΟΙΑΣ

Μια «επιδημία» με αυξανόμενες και ανησυχητικές τάσεις

- 13% των ενηλίκων ανδρών και 6% των γυναικών έχουν μέτριο-σοβαρό ΣΑΥΥ (AHI ≥15)

Peppard P, Young T, et al. Increased Prevalence of Sleep-Disordered Breathing in Adults. American Journal of Epidemiology 2013

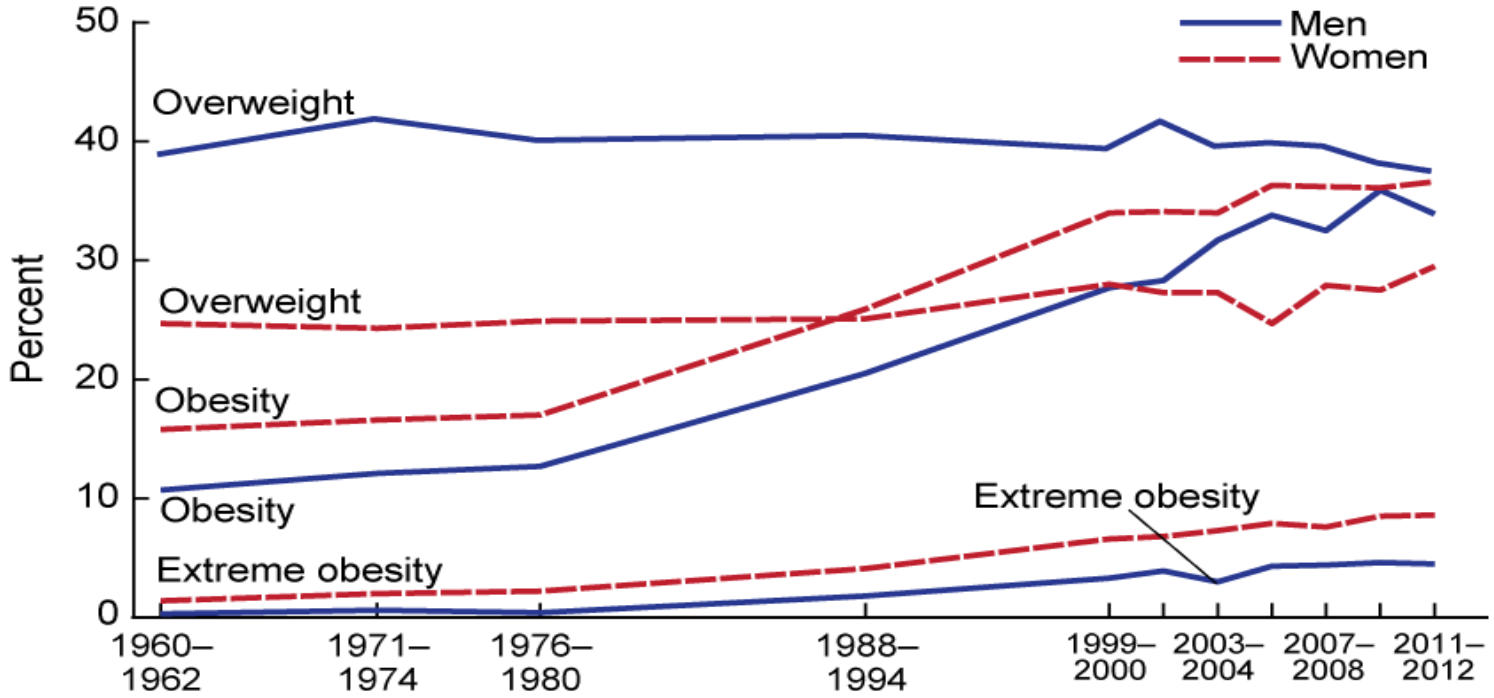


25.000.000 ενηλίκων στις ΗΠΑ

έχει ΣΑΥΥ

Journal of Epidemiology 2013

Figure. Trends in adult overweight, obesity, and extreme obesity among men and women aged 20–74: United States, selected years 1960–1962 through 2011–2012



NOTES: Age-adjusted by the direct method to the year 2000 U.S. Census Bureau estimates using age groups 20–39, 40–59, and 60–74. Pregnant females were excluded. Overweight is body mass index (BMI) of 25 or greater but less 30; obesity is BMI greater than or equal to 30; and extreme obesity is BMI greater than or equal to 40.

SOURCE: CDC/NCHS, National Health Examination Survey 1960–1962; and National Health and Nutrition Examination Surveys 1971–1974; 1976–1980; 1988–1994; 1999–2000, 2001–2002, 2003–2004, 2005–2006, 2007–2008, 2009–2010, and 2011–2012.

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EDITORIALS

Health Care Savings: The Economic Value of Diagnostic and Therapeutic Care for Obstructive Sleep Apnea

Nathaniel F. Watson, MD, MSc

Immediate Past President, American Academy of Sleep Medicine, Darien, IL; Department of Neurology, University of Washington, Seattle, WA; University of Washington Medicine Sleep Center, Seattle, WA

Two new white papers commissioned by the American Academy of Sleep Medicine (AASM) provide an in-depth, detailed analysis of the vast economic burden associated with undiagnosed and untreated obstructive sleep apnea among adults in the United States. While the individual health benefits of treating OSA are well established, these papers emphasize the value of comprehensive OSA testing and treatment, which can provide dramatic health care savings for payors and large employers.

Citation: Watson NF. Health care savings: the economic value of diagnostic and therapeutic care for obstructive sleep apnea. *J Clin Sleep Med* 2016;12(8):1075–1077.


L 08759612 F
ONE DOLLAR

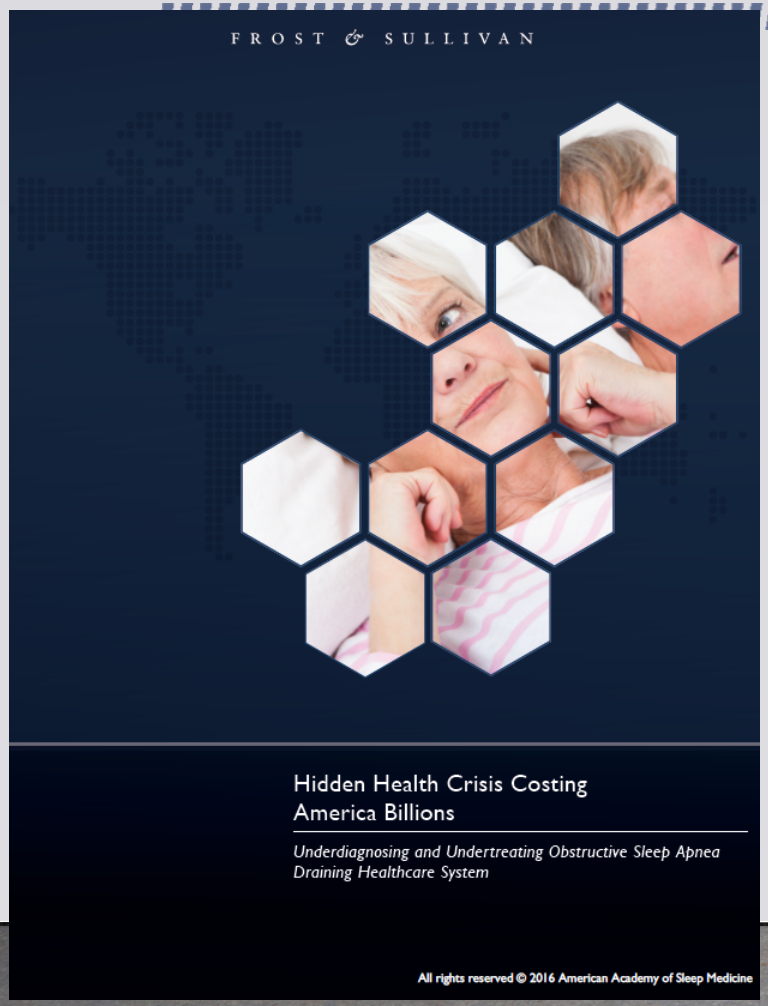
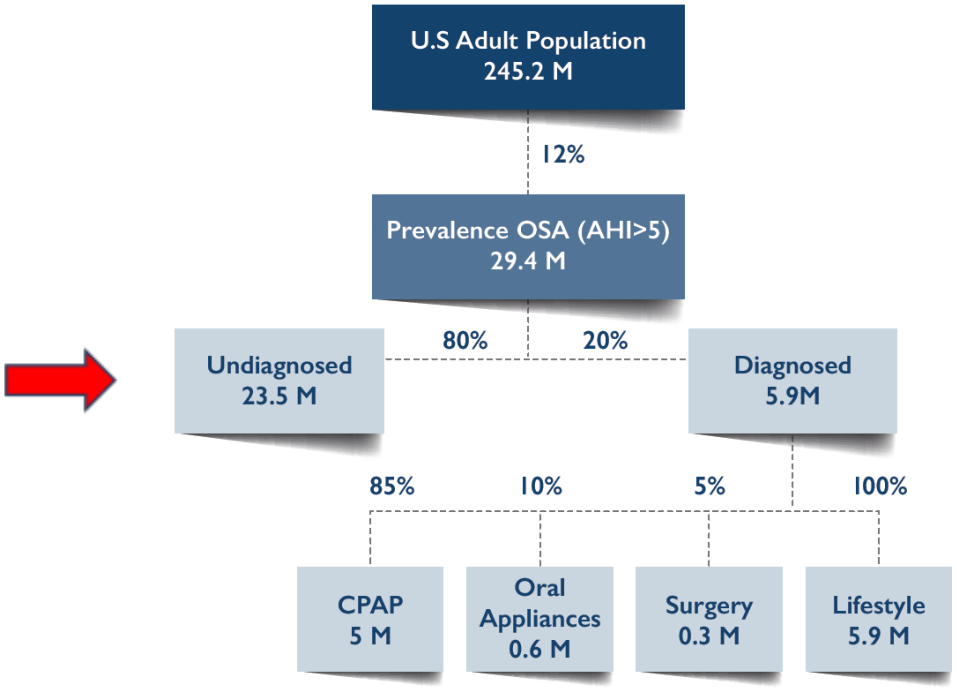
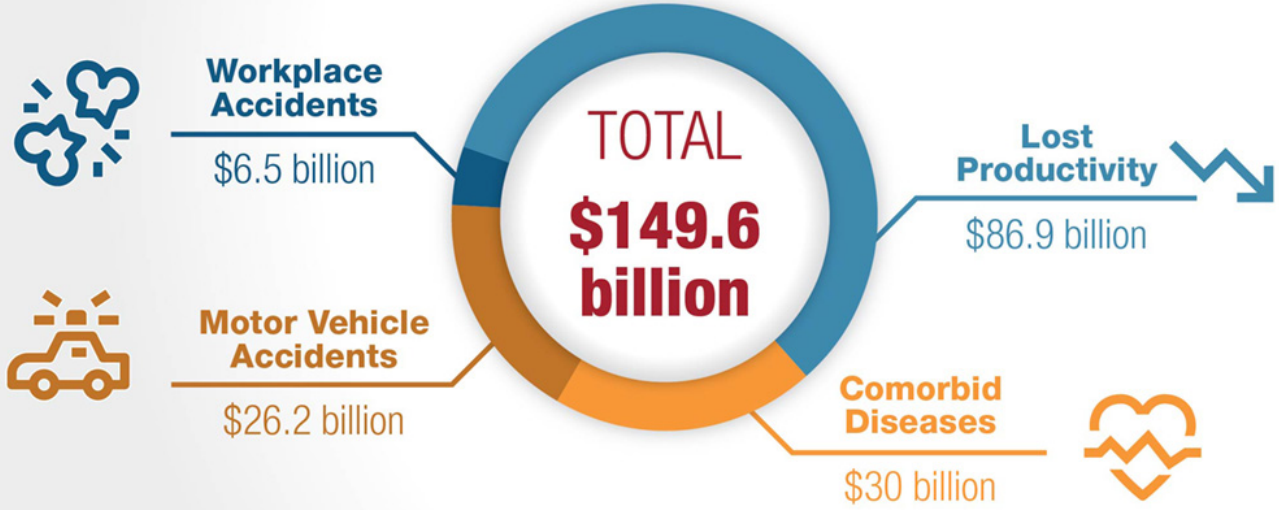


Figure 1-Prevalence, Diagnosis and Treatment of OSA in the United States



Undiagnosed Sleep Apnea: *A Hidden Health Crisis*

In the U.S. the estimated economic cost of undiagnosed obstructive sleep apnea was nearly $150 billion in 2015.



Source: American Academy of Sleep Medicine, 2016 | www.sleepeducation.org

Figure 2-Cost Burden of OSA in Undiagnosed Versus Diagnosis and Treatment Costs in the United States (2015)

Undiagnosed		Diagnosed	
# People with OSA	23,500,000		5,900,000
	Cost of Undiagnosed OSA ($US Bil)		Cost of Diagnosed OSA ($US Bil)
Comorbidities & Mental Health	$30.0	Diagnosis, Testing and Follow-up	$0.8
Motor Vehicle Accidents	$26.2	Non-surgical Treatment (PAP and Oral Appliances)	$6.2
Workplace Accidents	$6.5	Surgical Treatment	$5.4
Lost Productivity	$86.9		
Total Costs ($US Bil)	**$149.6**		**$12.4**
Cost per Person	$6,366		$2,105

PRO/CON DEBATE
ANALYSIS AND PERSPECTIVES
JCSM
Journal of Clinical Sleep Medicine
http://dx.doi.org/10.5664/jcsm.2324

PRO: Sliding into Home: Portable Sleep Testing Is Effective for Diagnosis of Obstructive Sleep Apnea

Douglas B. Kirsch, M.D., F.A.A.S.M.
Clinical Instructor, Harvard Medical School, Regional Medical Director, Sleep HealthCenters, Brighton, MA

Management) estimate is as high as 70%.[18] Clearly, the view of these insurance companies is that money will be saved in this process as a home sleep study costs about $200-$300, whereas a sleep study may be $800 and up. Other health in-

JCSM2013

JCSM
Journal of Clinical Sleep Medicine

SPECIAL ARTICLES

Clinical Practice Guideline for Diagnostic Testing for Adult Obstructive Sleep Apnea: An American Academy of Sleep Medicine Clinical Practice Guideline

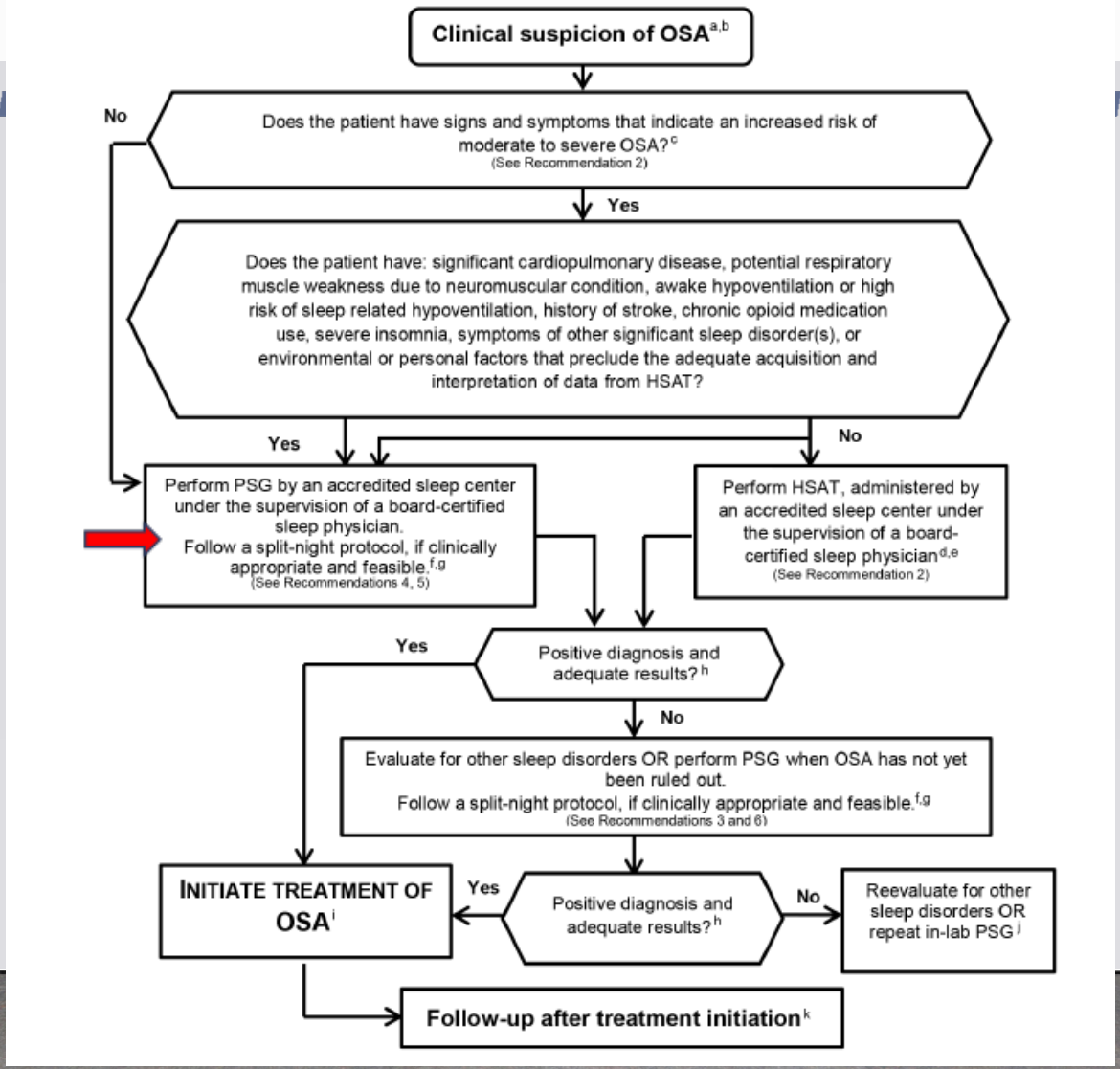
Vishesh K. Kapur, MD, MPH[1]; Dennis H. Auckley, MD[2]; Susmita Chowdhuri, MD[3]; David C. Kuhlmann, MD[4]; Reena Mehra, MD, MS[5]; Kannan Ramar, MBBS, MD[6]; Christopher G. Harrod, MS[7]

[1]University of Washington, Seattle, WA; [2]MetroHealth Medical Center and Case Western Reserve University, Cleveland, OH; [3]John D. Dingell VA Medical Center and Wayne State University, Detroit, MI; [4]Bothwell Regional Health Center, Sedalia, MO; [5]Cleveland Clinic, Cleveland, OH; [6]Mayo Clinic, Rochester, MN; [7]American Academy of Sleep Medicine, Darien, IL

J Clin Sleep Med. 2017;13(3):479–504

Recommendation Statement	Strength of Recommendation	Evidence Quality	Benefits versus Harms	Patient Values and Preferences
1. We recommend that clinical tools, questionnaires or prediction algorithms not be used to diagnose OSA in adults, in the absence of PSG or HSAT.	Strong	Moderate	High certainty that harms outweigh benefits	Vast majority of well-informed patients would most likely not choose clinical tools, questionnaires or prediction algorithms for diagnosis
2. We recommend that PSG, or HSAT with a technically adequate device, be used for the diagnosis of OSA in uncomplicated adult patients presenting with signs and symptoms that indicate an increased risk of moderate to severe OSA.	Strong	Moderate	High certainty that benefits outweigh harms	Vast majority of well-informed patients would want PSG or HSAT
3. We recommend that if a single HSAT is negative, inconclusive or technically inadequate, PSG be performed for the diagnosis of OSA.	Strong	Low	High certainty that benefits outweigh harms	Vast majority of well-informed patients would want PSG performed if the initial HSAT is negative, inconclusive, or technically inadequate
4. We recommend that PSG, rather than HSAT, be used for the diagnosis of OSA in patients with significant cardiorespiratory disease, potential respiratory muscle weakness due to neuromuscular condition, awake hypoventilation or suspicion of sleep related hypoventilation, chronic opioid medication use, history of stroke or severe insomnia.	Strong	Very Low	High certainty that benefits outweigh harms	Vast majority of well-informed patients would most likely choose PSG to diagnose suspected OSA
5. We suggest that, if clinically appropriate, a split-night diagnostic protocol, rather than a full-night diagnostic protocol for PSG be used for the diagnosis of OSA.	Weak	Low	Low certainty that benefits outweigh harms	Majority of well-informed patients would most likely choose a split-night diagnostic protocol to diagnose suspected OSA
6. We suggest that when the initial PSG is negative, and there is still clinical suspicion for OSA, a second PSG be considered for the diagnosis of OSA.	Weak	Very low	Low certainty that benefits outweigh harms	Majority of well-informed patients would most likely choose a second PSG to diagnose suspected OSA when the initial PSG is negative and there is still a suspicion that OSA is present

J Clin Sleep Med. 2017



J Clin Sleep Med. 2017

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Journal of Clinical Sleep Medicine

SCIENTIFIC INVESTIGATIONS

How Do Sleep-Related Health Problems Affect Functional Status According to Sex?

Allegra Boccabella, MPH; John Malouf, MBBS

The SleepGP, Coolangatta, Australia Study

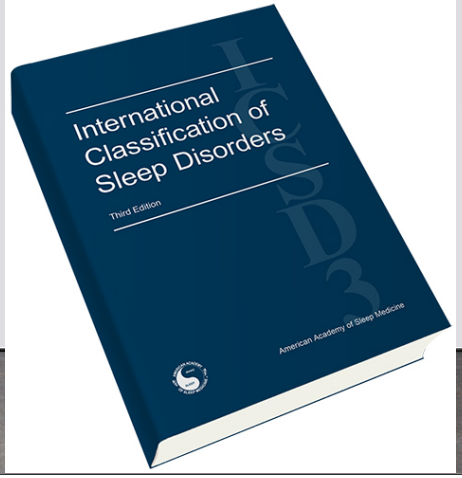
BRIEF SUMMARY
Current Knowledge/Study Rationale: Men and women experience sleep-related health problems differently in terms of symptomatology, prevalence, and pathophysiology. The main aim of this study was to understand the difference in functional status between sexes when they present to general practitioners.
Study Impact: Our research shows that men and women do have different functional status on presentation to general practitioners. A larger proportion of women reported issues with depression, trouble sleeping, concentration, memory, and effect on relationships compared to men.

J Clin Sleep Med. 2017;13(5):685–692.

ΣΑΥΥ και ΣΔ τύπου 2

- Το ΣΑΥΥ είναι **πιθανόν ανεξάρτητος** παράγοντας κινδύνου για ανάπτυξη ΣΔ τύπου 2 ICSD 3
- Το ΣΑΥΥ είναι ιδιαίτερα συχνό ασθενείς με ΣΔ τύπου2
- Η αντιμετώπιση με CPAP είναι πεδίο έρευνας (12 θετικές και 13 αρνητικές μελέτες) κυρίως ως προς τον αναγκαίο χρόνο εφαρμογής

Grimaldi D et al Diabetes Care 2014



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; ■(■):■-■

Chest 2017

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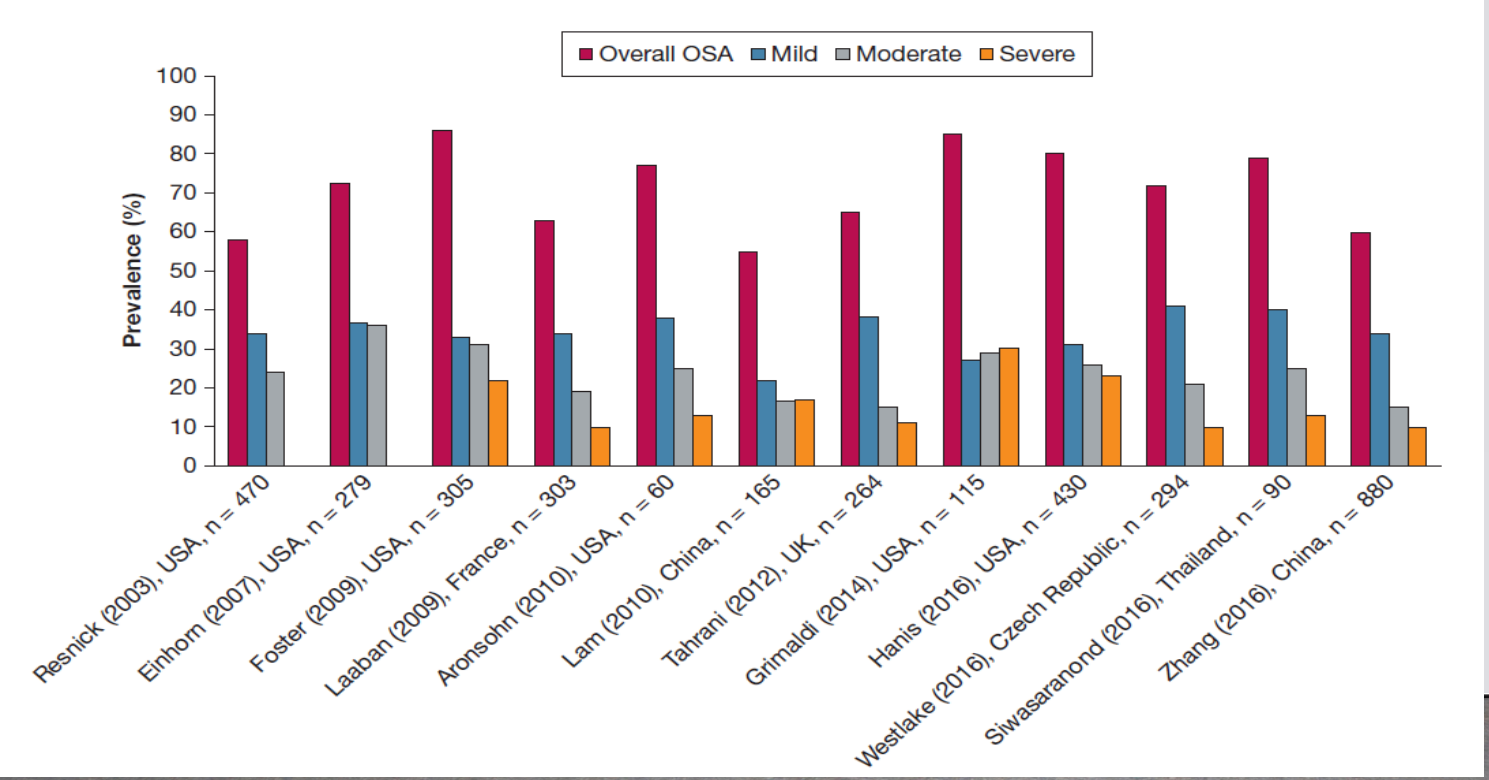
CHEST 2017; ■(■):■-■

Chest 2017

ΣΑΥΥ και ΣΔ τύπου 2



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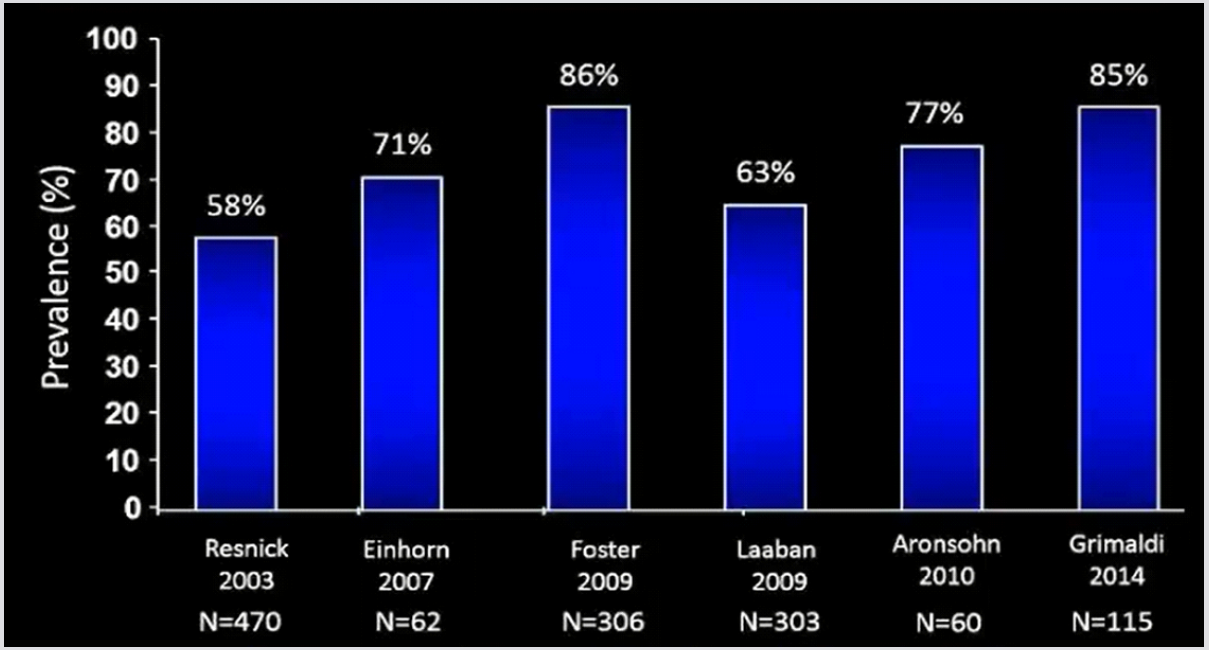
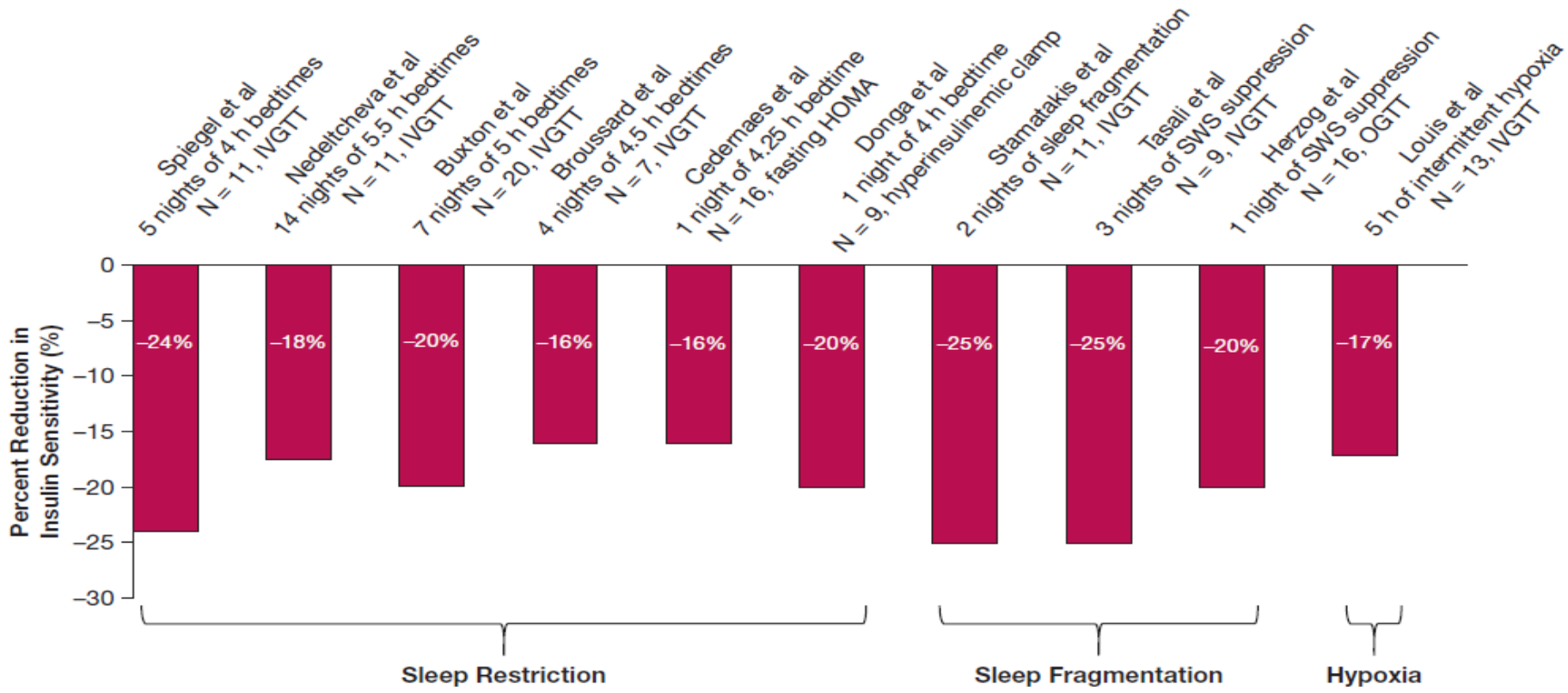
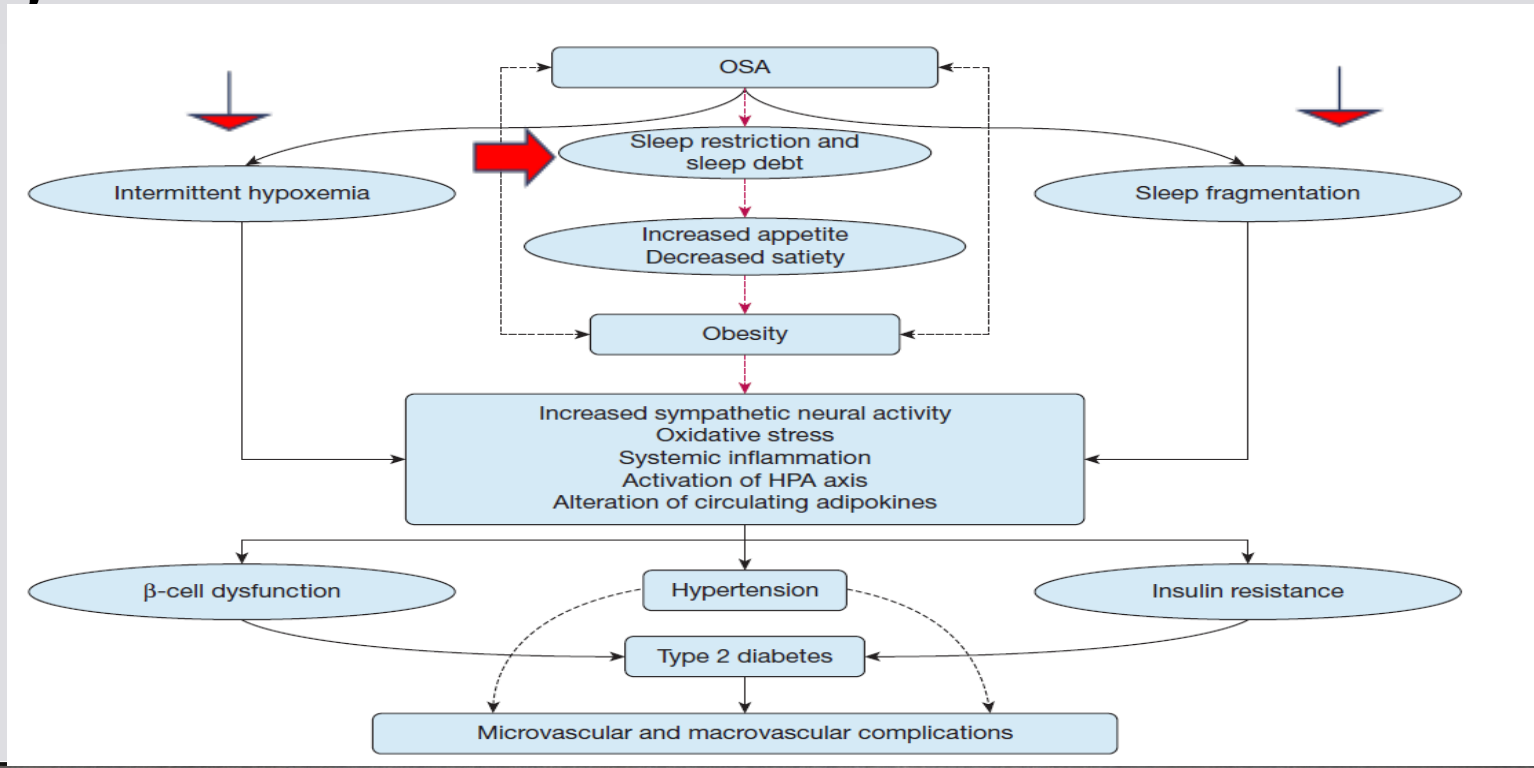
Συχνότητα ΣΑΥΥ σε ασθενείς με ΣΔ τύπου 2




Spiegel et al
5 nights of 4 h bedtimes
N = 11, IVGTT
Nedeltcheva et al
14 nights of 5.5 h bedtimes
N = 11, IVGTT
Buxton et al
7 nights of 5 h bedtimes
N = 20, IVGTT
Broussard et al
4 nights of 4.5 h bedtimes
N = 7, IVGTT
Cedernaes et al
1 night of 4.25 h bedtime
N = 16, fasting HOMA
Donga et al
1 night of 4 h bedtime
N = 9, hyperinsulinemic clamp
Stamatakis et al
2 nights of sleep fragmentation
N = 11, IVGTT
Tasali et al
3 nights of SWS suppression
N = 9, IVGTT
Herzog et al
1 night of SWS suppression
N = 16, OGTT
Louis et al
5 h of intermittent hypoxia
N = 13, IVGTT
Percent Reduction in Insulin Sensitivity (%)
0
−5
−10
−15
−20
−25
−30
−24%
−18%
−20%
−16%
−16%
−20%
−25%
−25%
−20%
−17%
Sleep Restriction
Sleep Fragmentation
Hypoxia

Chest 2017

ΥΠΝΙΚΗ ΑΠΝΟΙΑ ΚΑΙ ΣΑΚΧΑΡΩΔΗΣ ΔΙΑΒΗΤΗΣ ΤΥΠΟΥ2



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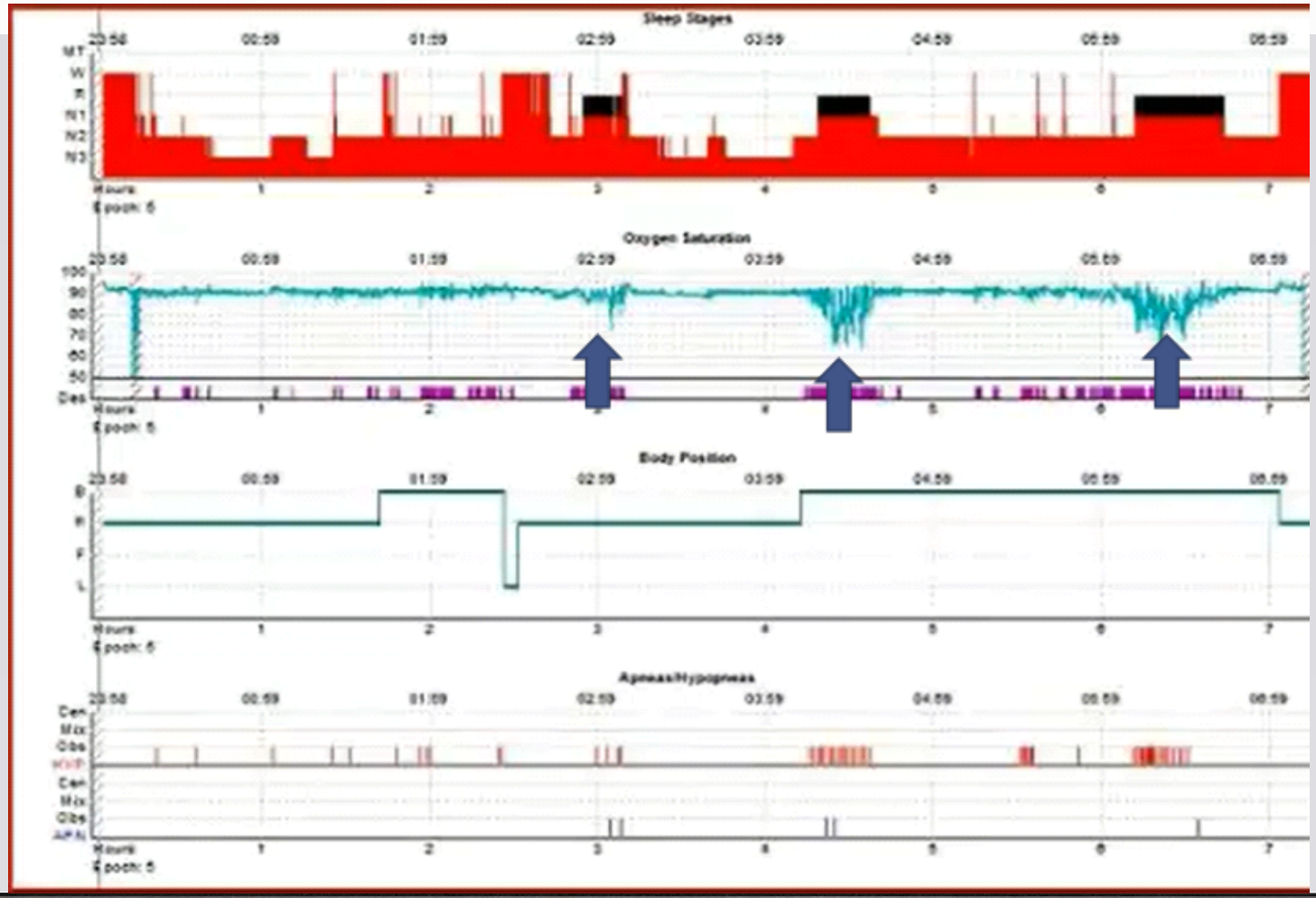
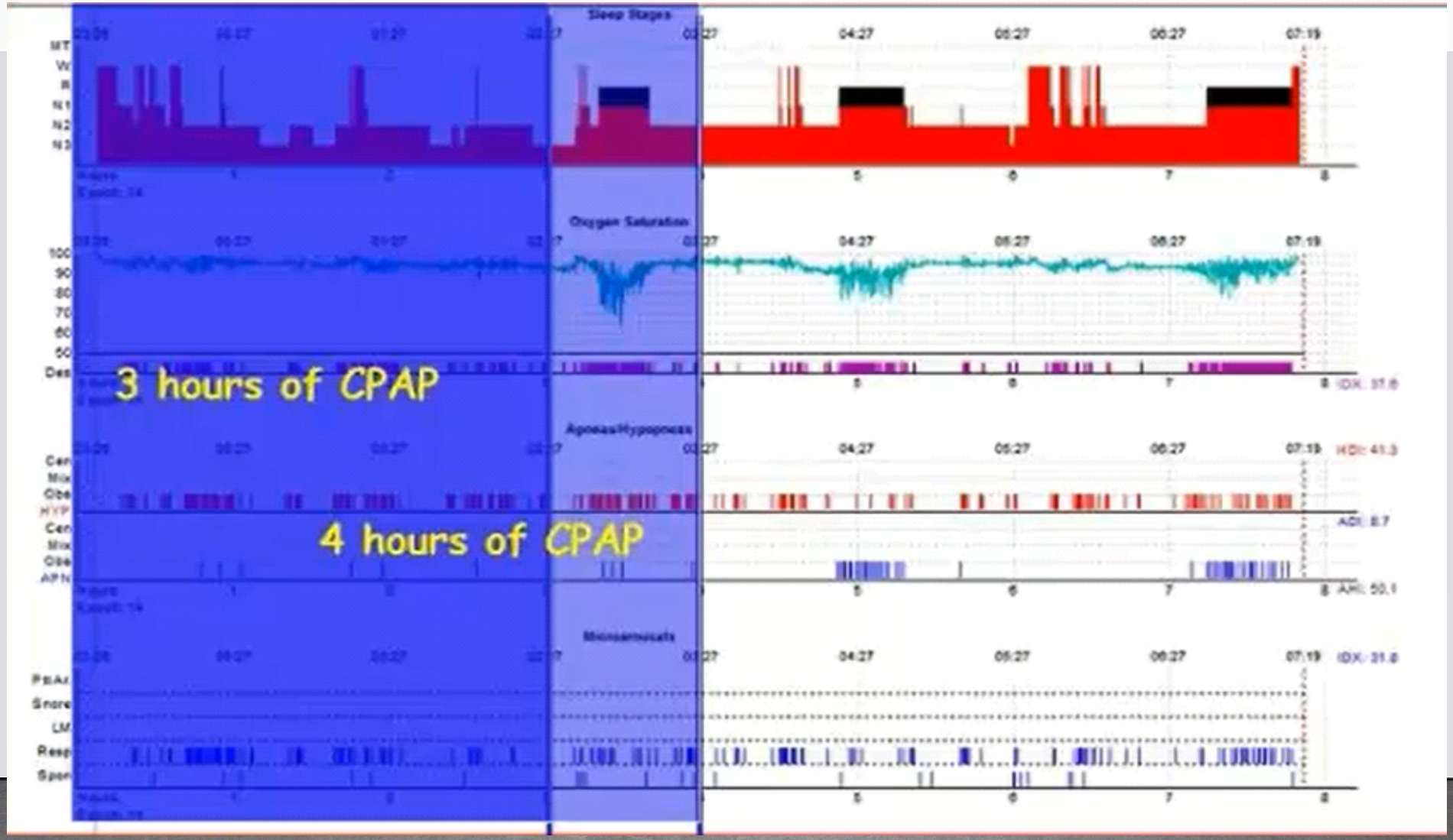

Sleep Stages
Oxygen Saturation
Body Position
Apneas/Hypopneas


Sleep Stages
Oxygen Saturation
Apneas/Hypopneas
Miscarousals
3 hours of CPAP
4 hours of CPAP

CHEST

Insomnia and Risk of Cardiovascular Disease

Sogol Javaheri, MD, MPH; and Susan Redline, MD, MPH

Insomnia is the most prevalent sleep disorder in the United States and has high comorbidity with a number of cardiovascular diseases (CVDs). In the past decade, a number of observational studies have demonstrated an association between insomnia and incident cardiovascular disease (CVD) morbidity and mortality, including hypertension (HTN), coronary heart disease (CHD), and heart failure (HF). Despite some inconsistencies in the literature, likely due to variations in how insomnia is defined and measured, the existing data suggest that insomnia, especially when accompanied by short sleep duration, is associated with increased risk for HTN, CHD and recurrent acute coronary syndrome, and HF. Purported mechanisms likely relate to dysregulation of the hypothalamic-pituitary axis, increased sympathetic nervous system activity, and increased inflammation. This paper reviews the most recent studies of insomnia and CVD and the potential pathophysiological mechanisms underlying this relationship and highlights the need for randomized trials to further elucidate the nature of the relationship between insomnia and CVD.

CHEST 2017; 152(2):435-444

Αϋπνία και καρδιαγγειακές επιπλοκές

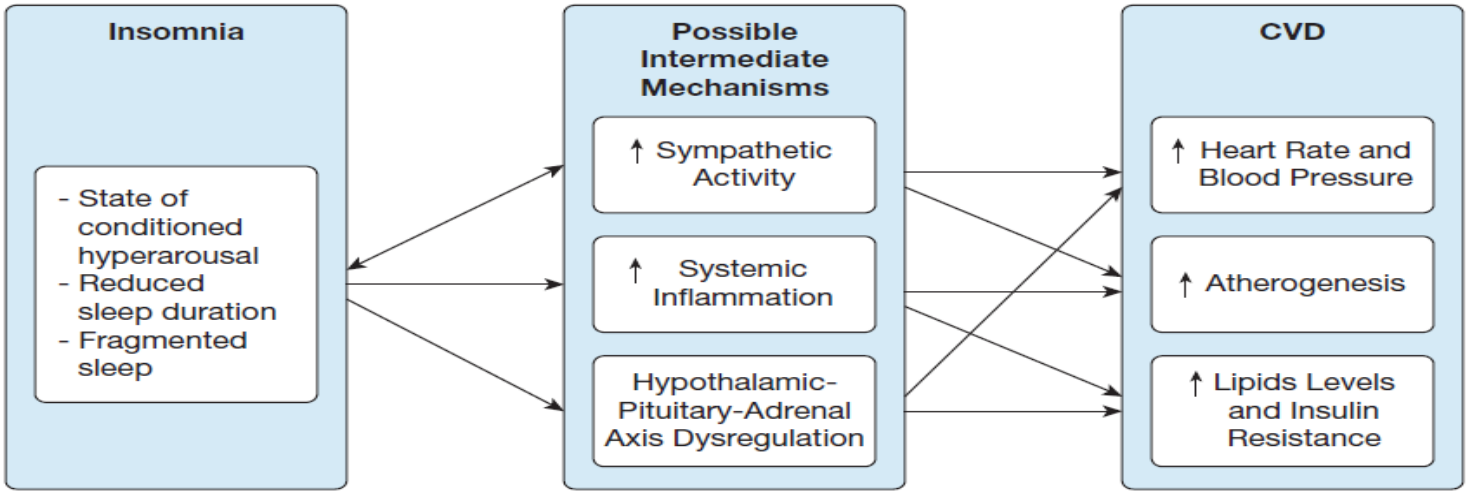


Figure 1 – *Flow diagram regarding possible pathophysiological mechanisms underlying the relationship between insomnia and cardiovascular disease (CVD).*

Chest 2017

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Journal of Clinical Sleep Medicine

SPECIAL ARTICLES

Clinical Practice Guideline for the Pharmacologic Treatment of Chronic Insomnia in Adults: An American Academy of Sleep Medicine Clinical Practice Guideline

Michael J. Sateia, MD[1]; Daniel J. Buysse, MD[2]; Andrew D. Krystal, MD, MS[3]; David N. Neubauer, MD[4]; Jonathan L. Heald, MA[5]

[1]Geisel School of Medicine at Dartmouth, Hanover, NH; [2]University of Pittsburgh School of Medicine, Pittsburgh, PA; [3]University of California, San Francisco, San Francisco, CA; [4]Johns Hopkins University School of Medicine, Baltimore, MD; [5]American Academy of Sleep Medicine, Darien, IL

J Clin Sleep Med. 2017;13(2):307–349.

Recommended for Treating Sleep Onset Insomnia	
Eszopiclone	**Sleep latency:** Mean reduction was 14 min greater, compared to placebo (95% CI: 3 to 24 min reduction); **Quality of sleep*:** Moderate-to-Large [a] improvement in quality of sleep, compared to placebo; **Side effects:** See Recommendation 2, "Harms" *This recommendation is based on trials of 2 mg and 3 mg doses of eszopiclone.*
Ramelteon	**Sleep latency:** Mean reduction was 9 min greater, compared to placebo (95% CI: 6 to 12 min reduction); **Quality of sleep*:** No improvement [b] in quality of sleep, compared to placebo; **Side effects:** See Recommendation 7, "Harms" *This recommendation is based on trials of 8 mg doses of ramelteon.*
Temazepam	**Sleep latency:** Mean reduction was 37 min greater, compared to placebo (95% CI: 21 to 53 min reduction); **Quality of sleep*:** Small [a] improvement in quality of sleep, compared to placebo; **Side effects:** See Recommendation 6, "Harms" *This recommendation is based on trials of 15 mg doses of temazepam.*
Triazolam	**Sleep latency*:** Mean reduction was 9 min greater, compared to placebo (95% CI: 4 to 22 min reduction); **Quality of sleep*:** Moderate [c] improvement in quality of sleep, compared to placebo; **Side effects:** See Recommendation 5, "Harms" *This recommendation is based on trials of 0.25 mg doses of triazolam.*
Zaleplon	**Sleep latency:** Mean reduction was 10 min greater, compared to placebo (95% CI: 0 to 19 min reduction); **Quality of sleep*:** No improvement [b] in quality of sleep, compared to placebo; **Side effects:** See Recommendation 3, "Harms" *This recommendation is based on trials of 5 mg and 10 mg doses of zaleplon.*
Zolpidem	**Sleep latency:** Mean reduction was 5–12 min greater, compared to placebo (95% CI: 0 to 19 min reduction); **Quality of sleep*:** Moderate [a] improvement in quality of sleep, compared to placebo; **Side effects:** See Recommendation 4, "Harms" *This recommendation is based on trials of 10 mg doses of zolpidem.*

Recommended for Treating Sleep Maintenance Insomnia	
Doxepin	**Total sleep time:** Mean improvement was 26–32 min longer, compared to placebo (95% CI: 18 to 40 min improvement); **Wake after sleep onset:** Mean reduction was 22–23 min greater, compared to placebo (95% CI: 14 to 30 min reduction); **Quality of sleep*:** Small-to-moderate [a] improvement in quality of sleep, compared to placebo; **Side effects:** See Recommendation 8, "Harms" *This recommendation is based on trials of 3 mg and 6 mg doses of doxepin.*
Eszopiclone	**Total sleep time:** Mean improvement was 28–57 min longer, compared to placebo (95% CI: 18 to 76 min improvement); **Wake after sleep onset:** Mean reduction was 10–14 min greater, compared to placebo (95% CI: 2 to 18 min reduction); **Quality of sleep*:** Moderate-to-Large [a] improvement in quality of sleep, compared to placebo; **Side effects:** See Recommendation 2, "Harms" *This recommendation is based on trials of 2 mg and 3 mg doses of eszopiclone.*
Temazepam	**Total sleep time:** Mean improvement was 99 min longer, compared to placebo (95% CI: 63 to 135 min improvement); **Wake after sleep onset:** Not reported; **Quality of sleep*:** Small [a] improvement in quality of sleep, compared to placebo; **Side effects:** See Recommendation 6, "Harms" *This recommendation is based on trials of 15 mg doses of temazepam.*
Suvorexant	**Total sleep time:** Mean improvement was 10 min longer, compared to placebo (95% CI: 2 to 19 min improvement); **Wake after sleep onset:** Mean reduction was 16–28 min greater, compared to placebo (95% CI: 7 to 43 min reduction); **Quality of sleep*:** Not reported; **Side effects:** See Recommendation 1, "Harms" *This recommendation is based on trials of 10, 15/20, and 20 mg doses of suvorexant.*
Zolpidem	**Total sleep time:** Mean improvement was 29 min. longer, compared to placebo (95% CI: 11 to 47 min. improvement); **Wake after sleep onset:** Mean reduction was 25 min greater, compared to placebo (95% CI: 18 to 33 min reduction); **Quality of sleep*:** Moderate [a] improvement in quality of sleep, compared to placebo; **Side effects:** See Recommendation 4, "Harms" *This recommendation is based on trials of 10 mg doses of zolpidem.*

[Contemporary Reviews in Sleep Medicine]

CHEST

Sleep as a New Target for Improving Outcomes in Idiopathic Pulmonary Fibrosis

Charalampos Mermigkis, MD, PhD; Izolde Bouloukaki, MD, PhD; and Sophia E. Schiza, MD, PhD

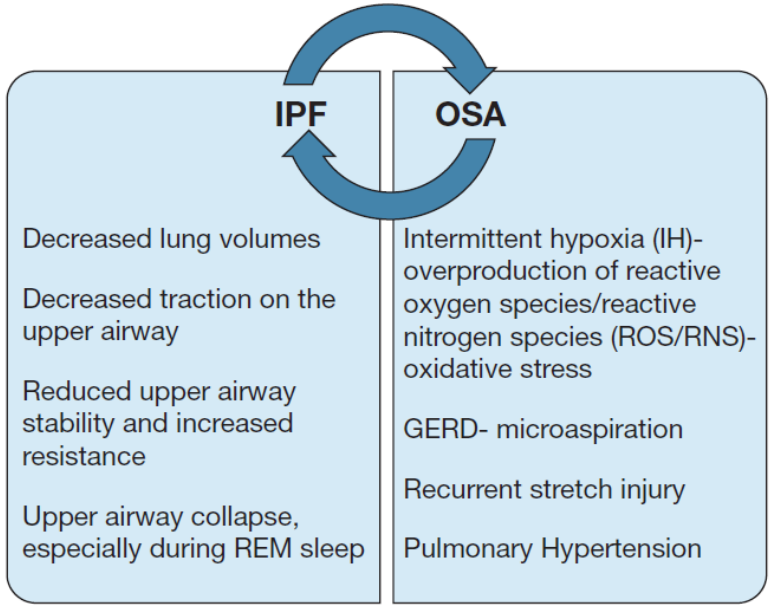


Figure 1 – *Possible pathophysiologic pathways connecting IPF and OSA. GERD = gastroesophageal reflux disease; IPF = idiopathic pulmonary fibrosis; REM = rapid eye movement.*

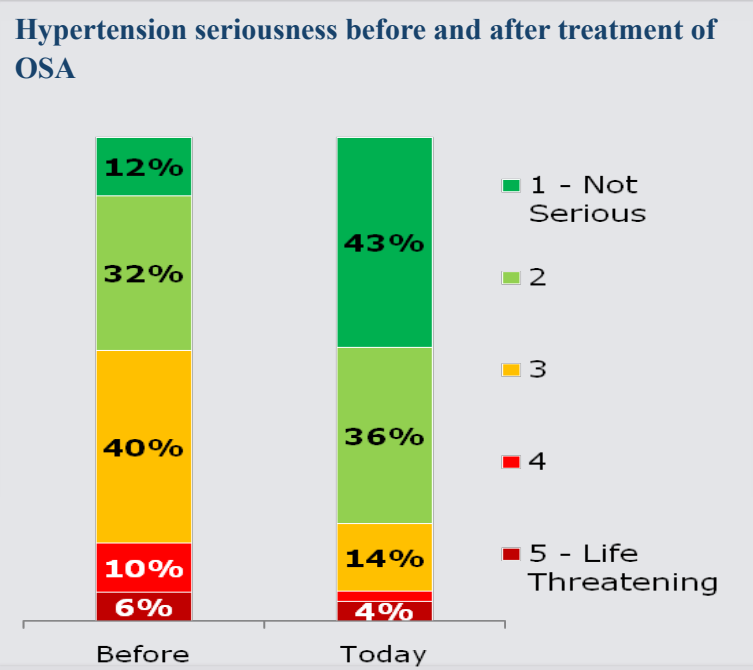
Chest 2017

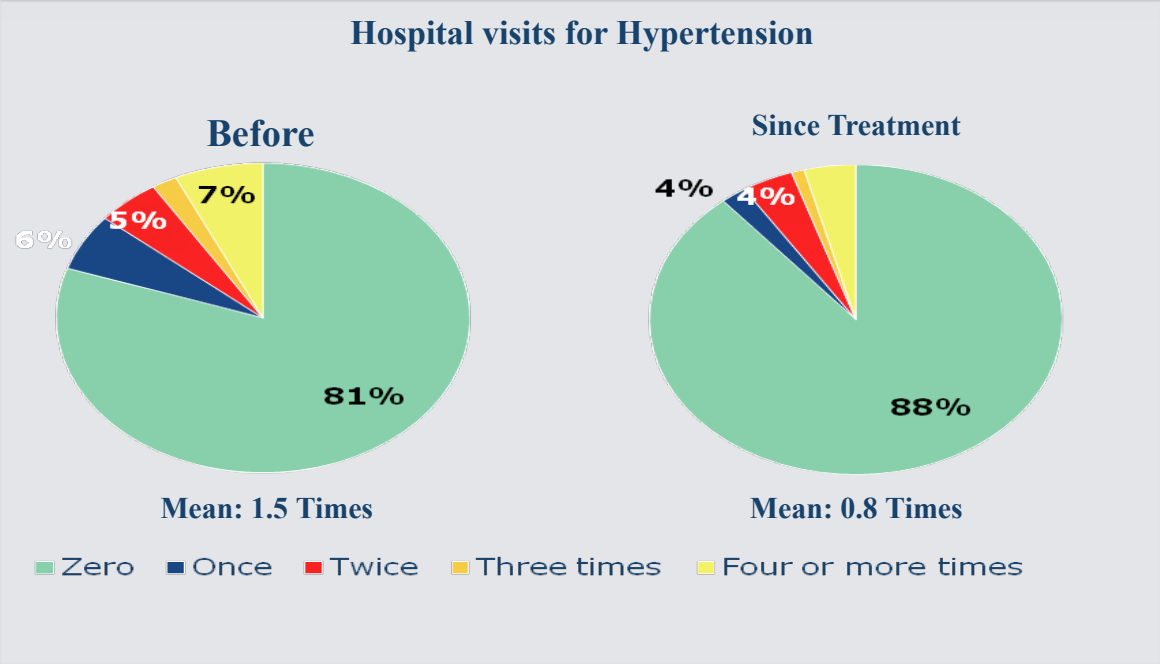
TABLE 5] Sleep in Patients With IPF: Future Research Directions

Future Research Direction	Specific Questions That Need to Be Addressed
OSA and IPF (prevalence and diagnosis)	Studies with large numbers of patients with newly diagnosed IPF to evaluate the prevalence of OSA in patients with IPF before using the term "overlap syndrome" Predictors for OSA in patients with IPF (pulmonary functions tests, high-resolution CT scan features, 6-min walking test, and so on) Possible role of overnight oximetry in daily clinical practice for evaluation of OSA and other sleep oxygenation parameters Clarification of the indications for referral to the sleep laboratory Investigation of the efficacy CPAP therapy on survival and frequency of IPF exacerbations
New drugs (pirfenidone and nintedanib) and sleep in patients with IPF	Effects on sleep quality
	Possible alterations in sleep architecture
	Possible adverse effects during sleep or associations with sleep disorders
Supplemental nocturnal oxygen therapy	Effects on sleep architecture
	Effects on coexisting OSA
Disease-specific causes of sleep disruption Cough Insomnia Restless legs syndrome or periodic leg movements	Increased awareness among physicians about evaluations of clinical symptoms affecting sleep quality Studies on prevalence of these symptoms and determination of therapeutic strategies How do disease-related symptoms relate to prevalence of sleep disruption and predisposition to OSA, and how do theyimpact treatment of sleep disruption and CPAP tolerance?
Sleep pathophysiologic characteristics in patients with IPF with or without OSA	Impact of intermittent hypoxia superimposed on chronic hypoxia on disease progression and outcome Exploring possible association of impaired inflammatory pathways, oxidative stress, cytokine profile with sleep disruption, fatigue complaints, and disease progress

Chest 2017

Hypertension Severity
Before and after sleep apnea treatment





Base: n=288 (Percentages under 3% are not shown for transparency).

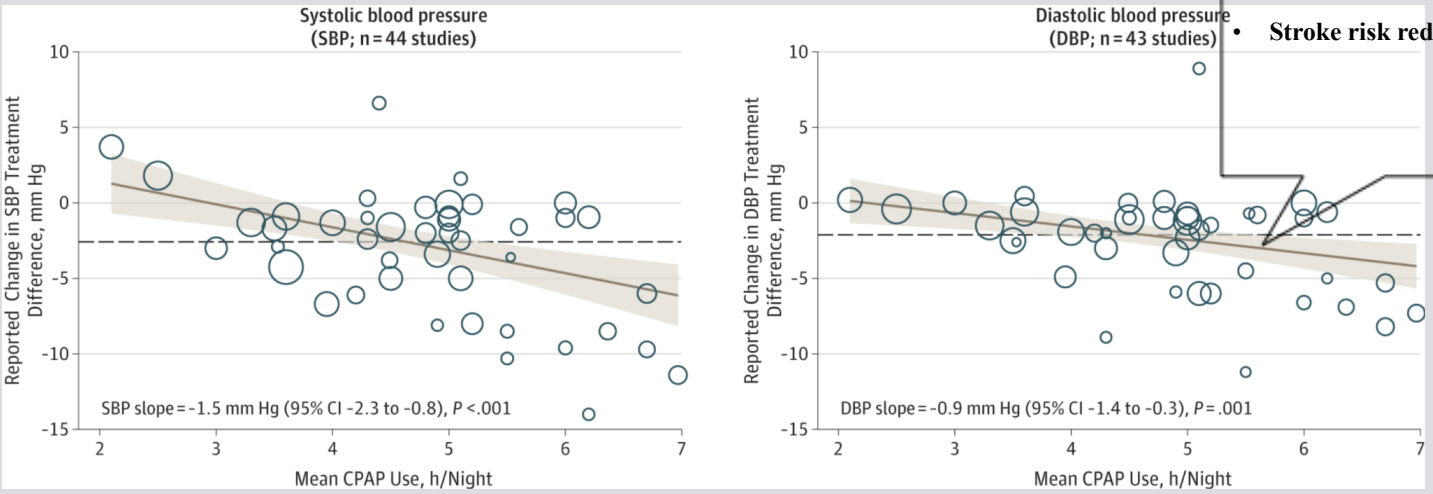
The JAMA Network

From: **CPAP vs Mandibular Advancement Devices and Blood Pressure in Patients With Obstructive Sleep Apnea: A Systematic Review and Meta-analysis**

JAMA. 2015;314(21):2280-2293. doi:10.1001/jama.2015.16303

Average 10 mm Hg reduction in BP predicts:

- **Coronary artery disease risk reduced by 37%**
- **Stroke risk reduced by 56%**



A 1-hour-per-night increase in mean CPAP use was associated with an additional reduction in SBP of 1.5 mm Hg (95% CI, 0.8 to 2.3 mm Hg; $P < .001$) and an additional reduction in DBP of 0.9 mm Hg (95% CI, 0.3 to 1.4 mm Hg; $P = .001$).

Hypertension Is Associated With Undiagnosed OSA During Rapid Eye Movement Sleep FREE TO VIEW

Sarah L. Appleton, PhD; Andrew Vakulin, PhD; Sean A. Martin, PhD; Carol J. Lang, PhD; Gary A. Wittert, MD; Anne W. Taylor, PhD; R. Doug McEvoy, MD; Nick A. Antic, MBBS, PhD; Peter G. Catcheside, PhD; Robert J. Adams, MD, MBBS

[+] Author Information

Chest. 2016,150(3):495-505 doi:10.1016/j.chest.2016.03.010

Conclusions In men not considered to have OSA (AHI < 10), hypertension was associated with OSA during REM sleep. REM OSA may need consideration as an important clinical entity requiring treatment but further systematic assessment and evidence is needed.

Europace (2014) **16**, 1309–1314
doi:10.1093/europace/euu066

CLINICAL RESEARCH
Ablation for atrial fibrillation

Efficacy of catheter ablation of atrial fibrillation in patients with obstructive sleep apnoea with and without continuous positive airway pressure treatment: a meta-analysis of observational studies

Li Li[1]*, Zeng-wu Wang[2], Jie Li[1], Xing Ge[1], Li-zhu Guo[1], Ying Wang[1], Wei-hua Guo[1], Chen-xi Jiang[3], and Chang-sheng Ma[1,3]*

What's new?

- Among patients with AF and OSA:
- The obstructive sleep apnoea (OSA) patients had a 31% greater risk of atrial fibrillation (AF) recurrence after successful catheter ablation than did the non-OSA patients.
- This risk of AF recurrence increased by 57% in patients who did not undergo continuous positive airway pressure (CPAP) therapy.
- Patients who underwent CPAP therapy had a risk of AF recurrence similar to that of the non-OSA patients.

Methods and results

We performed an online search and identified five studies involving 3743 patients with AF. Patients with OSA had a 31% greater risk of AF recurrence after catheter ablation than did patients without OSA [relative ratio (RR) = 1.31, $P = 0.00$], and this risk increased by 57% in patients with OSA not undergoing CPAP therapy (RR = 1.57, $P = 0.00$). However, CPAP users had a risk of AF recurrence similar to that of patients without OSA (RR = 1.25, $P = 0.37$), and this similarity was maintained even after the removal of study heterogeneity (RR = 0.99, $P = 0.39$).

Conclusion

Obstructive sleep apnoea was associated with AF recurrence after catheter ablation. The efficacy of catheter ablation for AF was similar between patients without OSA and patients with OSA undergoing CPAP treatment.

JCSM
Journal of Clinical Sleep Medicine

SPECIAL ARTICLES

Updated Adaptive Servo-Ventilation Recommendations for the 2012 AASM Guideline: "The Treatment of Central Sleep Apnea Syndromes in Adults: Practice Parameters with an Evidence-Based Literature Review and Meta-Analyses"

R. Nisha Aurora, MD, MHS[1]; Sabin R. Bista, MD[2]; Kenneth R. Casey, MD, MPH[3]; Susmita Chowdhuri, MD[4]; David A. Kristo, MD[5]; Jorge M. Mallea, MD[6]; Kannan Ramar, MD[7]; James A. Rowley, MD[8]; Rochelle S. Zak, MD[9]; Jonathan L. Heald, MA[10]

[1]Johns Hopkins University, School of Medicine, Baltimore, MD; [2]University of Nebraska Medical Center, Omaha, NE; [3]William S. Middleton Memorial Veterans Hospital, Madison, WI; [4]John D. Dingell VA Medical Center and Wayne State University, Detroit, MI; [5]University of Pittsburgh, Pittsburgh, PA; [6]Mayo Clinic Florida, Transplant Center, Jacksonville, FL; [7]Mayo Clinic, Rochester, MN; [8]Department of Medicine, Wayne State University School of Medicine, Detroit, MI; [9]Sleep Disorders Center, University of California, San Francisco, San Francisco CA; [10]American Academy of Sleep Medicine, Darien, IL

An update of the 2012 systematic review and meta-analyses were performed and a modified-GRADE approach was used to update the recommendation for the use of adaptive servo-ventilation (ASV) for the treatment of central sleep apnea syndrome (CSAS) related to congestive heart failure (CHF). Meta-analyses demonstrated an improvement in LVEF and a normalization of AHI in all patients. Analyses also demonstrated an increased risk of cardiac mortality in patients with an LVEF of ≤ 45% and moderate or severe CSA predominant sleep-disordered breathing. These data support a *Standard level recommendation against* the use of ASV to treat CHF-associated CSAS in patients with an LVEF of ≤ 45% and moderate or severe CSAS, and an *Option level recommendation* for the use of ASV in the treatment CHF-associated CSAS in patients with an LVEF > 45% or mild CHF-related CSAS. The application of these recommendations is limited to the target patient populations; the ultimate judgment regarding propriety of any specific care must be made by the clinician.

J Clin Sleep Med 2016;12(5):757–761.

Αποφρακτικό ΣΑΥΥ στην καρδιακή ανεπάρκεια

Guidelines featuring sleep apnea and heart failure disease

AHA-ASA Guideline
Primary Prevention of Ischemic Stroke
Questioning bed partners and patients, particularly those with abdominal obesity and hypertension, about symptoms of SDB and referral to a sleep specialist for further evaluation as appropriate may be reasonable, especially in the setting of drug-resistant hypertension. Treating potential stroke patients with CPAP may reduce the risk of stroke.

U.S. Department of Health and Human Services
Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7)
Sleep Apnea is an identifiable cause of Hypertension.

Heart Failure Society of America
Comprehensive Heart Failure Practice Guideline
Continuous positive airway pressure to improve daily functional capacity and quality of life is recommended in patients with HF and obstructive sleep apnea documented by approved methods of polysomnography. (Strength of Evidence = B).

ΚΑΝΟΝΙΚΑ CPAP
ΑΛΛΑ ΜΕ ΠΡΟΣΟΧΗ
ΚΑΙ ΑΠΟ ΕΙΔΙΚΟ

SLEEP-DISORDERED BREATHING

Management and Risk Reduction of Rheumatoid Arthritis in Individuals with Obstructive Sleep Apnea: A Nationwide Population-Based Study in Taiwan

Wei-Sheng Chen, MD[1,7]; Yu-Sheng Chang, MD[4]; Chi-Ching Chang, MD[2,3]; Deh-Ming Chang, MD, PhD[1,7,8]; Yi-Hsuan Chen, MD[5]; Chang-Youh Tsai, MD, PhD[1,*]; Jin-Hua Chen, PhD[5,*]

Significance

In the current study, evaluation of data from the largest cohort used to investigate epidemiological associations between OSA and the development of autoimmune diseases demonstrated that the presence of OSA is associated with higher risk for development of rheumatoid arthritis, Sjögren syndrome, and Behçet disease and that management of OSA may reduce the risk of RA.

SLEEP 2016;39(10):1883–1890.

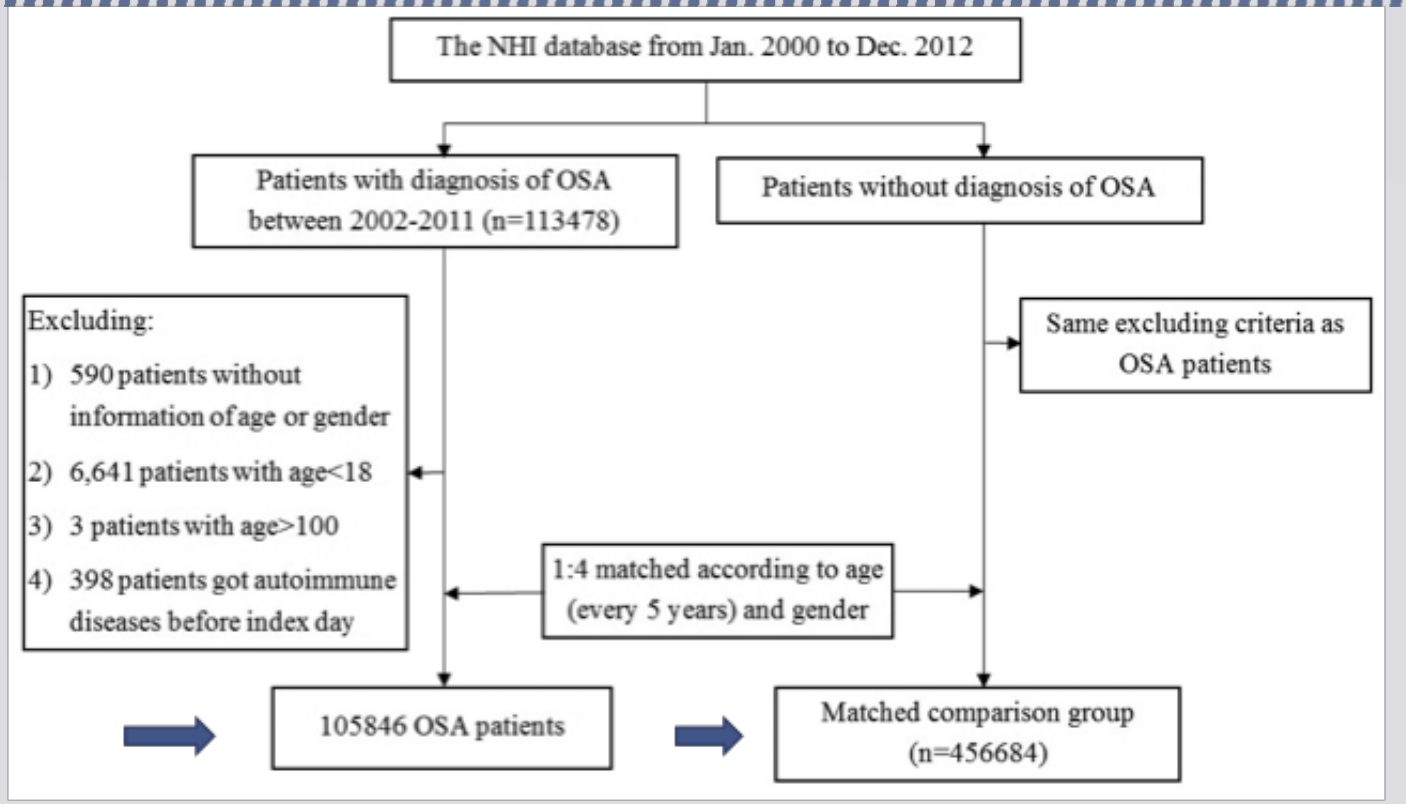


Figure 1—Study profile. NHI, National Health Insurance; OSA, obstructive sleep apnea.

Sleep 2016

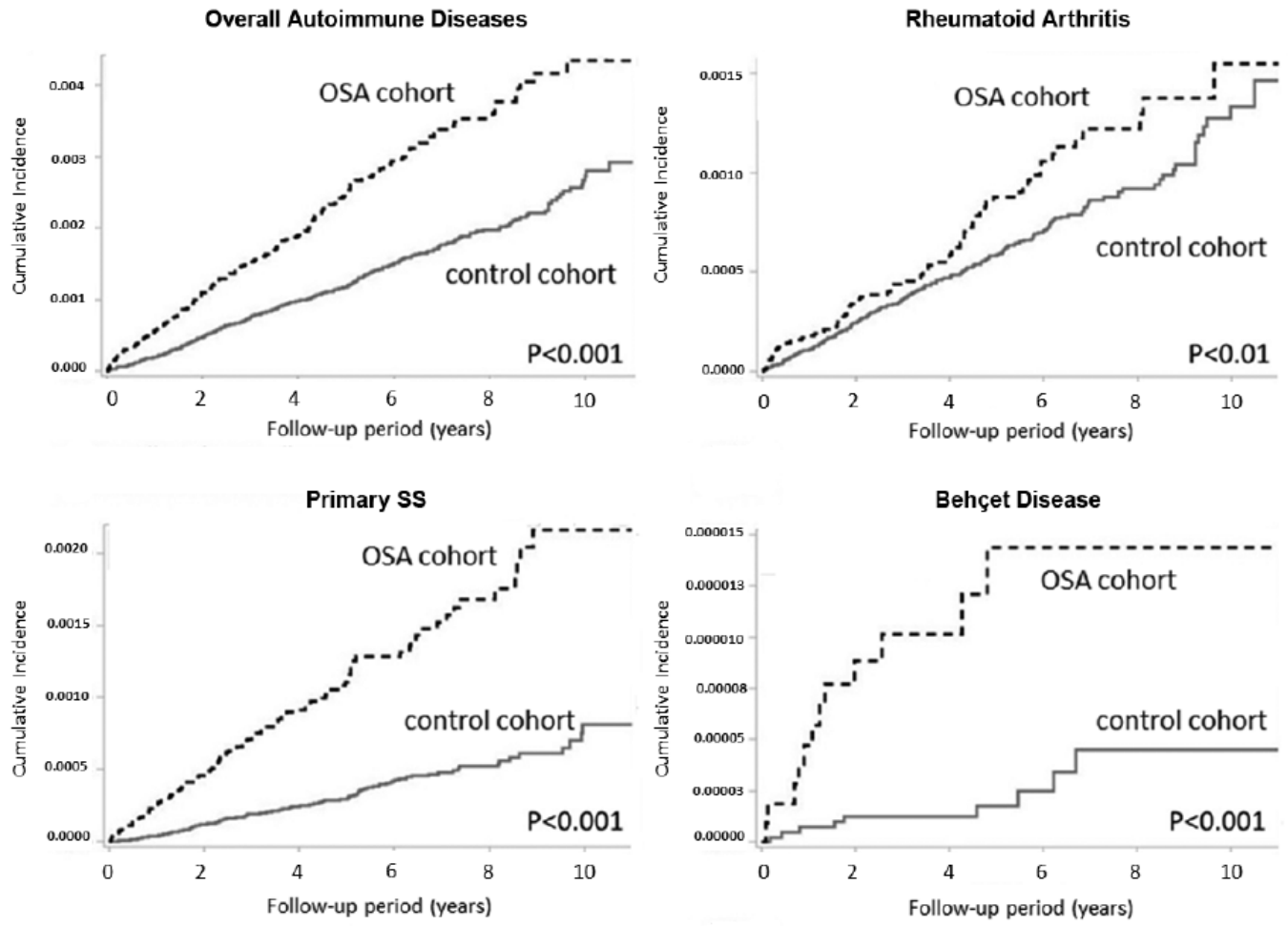


Figure 2—Kaplan-Meier plots of cumulative incidence of autoimmune diseases. OSA, obstructive sleep apnea; RA, rheumatoid arthritis; SS, Sjögren syndrome.

Sleep 2016

ΚΑΡΔΙΟΑΓΓΕΙΑΚΑ ΕΠΕΙΣΟΔΙΑ ΚΑΙ ΣΑΥΥ

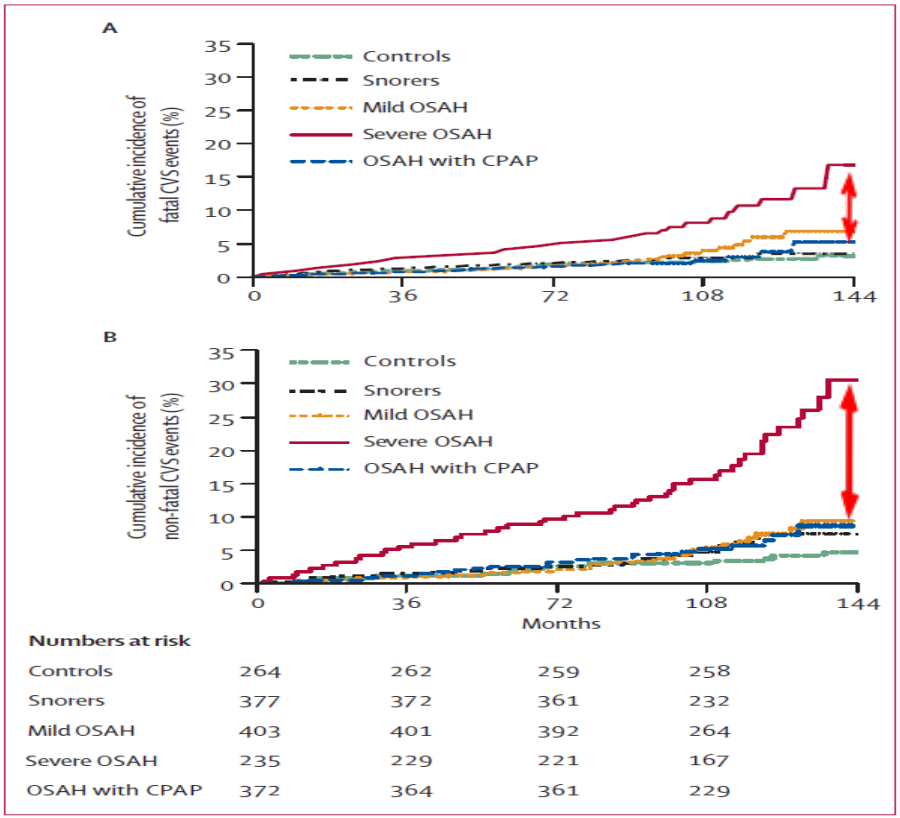


Figure 2: Cumulative percentage of individuals with new fatal (A) and non-fatal (B) cardiovascular events in each of the five groups studied

Marin J et al. Lancet 2005;365:1046-53

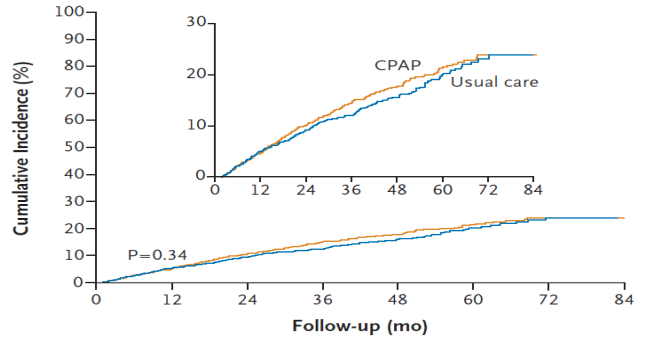
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

CPAP for Prevention of Cardiovascular Events in Obstructive Sleep Apnea

CONCLUSIONS

Therapy with CPAP plus usual care, as compared with usual care alone, did not prevent cardiovascular events in patients with moderate-to-severe obstructive sleep apnea and established cardiovascular disease. (Funded by the National Health and Medical Research Council of Australia and others; SAVE ClinicalTrials.gov number, NCT00738179; Australian New Zealand Clinical Trials Registry number, ACTRN12608000409370.)



No. at Risk								
CPAP	1346	1222	1118	754	482	278	146	146
Usual care	1341	1211	1108	727	499	290	103	103

The diagnosis of moderate-to severe OSA was defined as an oxygen desaturation index (≥4 percentage points from baseline) of at least 12, and was established with the use of a home sleep study screening device (ApneaLink, ResMed)

Participants in the SAVE study who were assigned to CPAP adhered to the treatment for a mean of 3.3 hours per night over several years,

NEJM 2016

ORIGINAL ARTICLE

Effect of Continuous Positive Airway Pressure Treatment on Health-Related Quality of Life and Sleepiness in High Cardiovascular Risk Individuals With Sleep Apnea: Best Apnea Interventions for Research (BestAIR) Trial

Ying Y. Zhao, MD, MPH[1,2]; Rui Wang, PhD[1–3]; Kevin J. Gleason[1,4]; Eldrin F Lewis, MD, MPH[1,2,5]; Stuart F. Quan, MD[1,2]; Claudia M. Toth[1,2]; Michael Morrical[1]; Michael Rueschman, MPH[1]; Jia Weng, PhD[1]; James H. Ware, PhD[2,3]; Murray A. Mittleman, MD, DrPH[2,6,7]; Susan Redline, MD, MPH[1,2,6,7]; on behalf of the BestAIR Investigators

[1]Division of Sleep Medicine and Circadian Disorders, Department of Medicine, Brigham and Women's Hospital, Boston, MA; [2]Harvard Medical School, Boston, MA; [3]Department of Biostatistics, Harvard T.H. Chan School of Public Health, Boston, MA; [4]Department of Public Health Sciences, University of Chicago, Chicago, IL; [5]Division of Cardiovascular Medicine, Department of Medicine, Brigham and Women's Hospital, Boston, MA; [6]Department of Epidemiology, Harvard T.H. Chan School of Public Health, Boston, MA; [7]Department of Medicine, Beth Israel Deaconess Medical Center, Boston, MA

In conclusion, CPAP improved multiple domains of HRQOL in relatively asymptomatic patients with moderate to severe OSA at high risk of CVD. Our findings are likely important for patients and clinicians to help inform therapeutic choices and may also have important implications for policy makers and reimbursement decisions.

SLEEP 2017

EDITORIAL

Screening for Obstructive Sleep Apnea
Implications for the Sleep Health of the Population

Susan Redline, MD, MPH

The observational data are therefore consistent with a link between OSA and adverse cardiovascular outcomes and mortality. Although the USPSTF identified inconsistencies in associations between study outcomes and apnea-hypopnea index, other sleep metrics that characterize OSA severity, such as hypoxemia and arousal frequency, may provide superior prediction for important outcomes, such as sudden cardiac death and hypertension, respectively.[14,15] In addition, the relationship between hours of continuous positive airway pressure (CPAP) use and change in health parameters provides dose-response information. Studies of blood pressure, sleepiness, and quality of life demonstrate dose-response associations between CPAP adherence level and clinical outcomes,[16] providing evidence that health benefits increase in proportion to the degree to which OSA is suppressed.

Redline S. US Preventive Services Task Force. *JAMA.* 2017;317:407-414 JAMA. 2017;317:368-370

JCSM
Journal of Clinical Sleep Medicine

LETTERS TO THE EDITOR

Making Dollars and Sense of SAVE

Emerson M. Wickwire, PhD, FAASM

Department of Psychiatry and Sleep Disorders Center, Division of Pulmonary and Critical Care Medicine, Department of Medicine, University of Maryland School of Medicine, Baltimore, Maryland

men.[2] Although positive airway pressure therapy (PAP) is a highly effective treatment when used, the challenges associated with PAP adherence are well documented. In the Sleep Apnea Cardiovascular Endpoints (SAVE) trial, PAP adherence was particularly low (ie, mean use was only 3.3 hours, and only 42% of users used PAP > 4 hours on ≥ 70% of nights), making it impossible to determine whether greater PAP usage might have improved cardiovascular outcomes.[3] In addition to high-

J Clin Sleep Med. 2017;13(5):765–766.

[Original Research **Sleep Disorders**]

CHEST

Impact of OSA on Cardiovascular Events After Coronary Artery Bypass Surgery

Carlos Henrique G. Uchôa, PT; Naury de Jesus Danzi-Soares, PhD, RN; Flávia S. Nunes, MD, PhD; Altay A. L. de Souza, PhD; Flávia B. Nerbass, PT; Rodrigo P. Pedrosa, MD, PhD; Luiz Antonio M. César, MD, PhD; Geraldo Lorenzi-Filho, MD, PhD; and Luciano F. Drager, MD, PhD

CONCLUSIONS: OSA is independently associated with a higher rate of long-term cardiovascular events after CABG and may have prognostic and economic significance in CABG surgery.

CHEST 2015; 147(5):1352-1360

To maximize the effect on public health and ensure the availability of sleep medicine services, sleep medicine specialists must (1) provide excellent, patient-centered, outcomes-driven clinical care; (2) differentiate care provided by sleep specialists from nonspecialists; and (3) understand, demonstrate, and articulate the value of sleep specialty care. A health economic perspective is central to achieving each of these objectives.

Chest 2015

31371

ΕΦΗΜΕΡΙΣ ΤΗΣ ΚΥΒΕΡΝΗΣΕΩΣ
ΤΗΣ ΕΛΛΗΝΙΚΗΣ ΔΗΜΟΚΡΑΤΙΑΣ

ΤΕΥΧΟΣ ΔΕΥΤΕΡΟ Αρ. Φύλλου 2734
16 Δεκεμβρίου 2015

ΚΛΙΜΑΚΑ ΜΕΤΡΗΣΗΣ ΗΜΕΡΗΣΙΑΣ ΥΠΝΗΛΙΑΣ EPWORTH

Υποθέστε ότι βρίσκεστε στις καταστάσεις που περιγράφονται παρακάτω και στη συνέχεια επιλέξατε ποια είναι η πιθανότητα να κοιμηθείτε με βάση μια κλίμακα από το 0 έως 3. Αθροίστε τα νούμερα από τις επιμέρους καταστάσεις.

Βαθμολογήστε από 0-3 όλες τις παραπάνω καταστάσεις
0 = δεν θα με έπαιρνε ποτέ ο ύπνος
1 = μικρή πιθανότητα να αποκοιμηθώ
2 = μέτρια πιθανότητα να κοιμηθώ
3 = μεγάλη πιθανότητα να κοιμηθώ

	ΚΑΤΑΣΤΑΣΗ	ΤΑΣΗ ΓΙΑ ΥΠΝΗΛΙΑ
1	Καθισμένος διαβάζοντας	
2	Παρακολουθώντας τηλεόραση	
3	Καθισμένος χωρίς δραστηριότητα σε δημόσιο χώρο (θέατρο, συνάντηση)	
4	Σαν συνοδός αυτοκινήτου για απόσταση μιας ώρας χωρίς διάλειμμα	
5	Καθισμένος χωρίς δραστηριότητα το απόγευμα (όταν το επιτρέπουν οι περιστάσεις)	
6	Καθισμένος και συζητώντας με κάποιον	
7	Καθισμένος σε ήσυχο μέρος μετά από φαγητό χωρίς λήψη αλκοόλ	
8	Στο αυτοκίνητο ενώ έχει σταματήσει για λίγο σε κίνηση	
	ΣΥΝΟΛΟ	

ΑΠΟΤΕΛΕΣΜΑ

Αποτέλεσμα Κλίμακας Ημερήσιας Υπνηλίας Epworth - ESS	Τιμή προσθήκης στο τελικό αποτέλεσμα
0-10: Φυσιολογικές τιμές υγιούς ενήλικα	0
11-14: Ήπια υπνηλία	2
15-17: Μέτρια Υπνηλία	4
18 και πάνω: Σοβαρή υπνηλία	4

Ε1: Γυναίκα= 1, Άνδρας = 2
Ε2: Ηλικία μικρότερη των 30 ετών = 2, ηλικία από 31 και πάνω: 1
Ε3-4: BMI μικρότερο των 30 kg/m2 = 1, 31-35 kg/m2 = 2, 36 kg/m2 και πάνω = 3
Ε5: Θετική απάντηση = 3, αρνητική απάντηση = 0, δεν ξέρω/ δεν θυμάμαι = 2
Ε6: Θετική απάντηση = 4, αρνητική απάντηση = 0, δεν ξέρω/ δεν θυμάμαι = 3
Ε7: Θετική απάντηση = 2, αρνητική απάντηση = 0, δεν ξέρω/ δεν θυμάμαι = 1
Ε8: Θετική απάντηση = 1, αρνητική απάντηση = 0, δεν ξέρω/ δεν θυμάμαι = 0
Ε9: Θετική απάντηση = 0, αρνητική απάντηση = 2, δεν ξέρω/ δεν θυμάμαι = 1
Ε10: Θετική απάντηση = 2, αρνητική απάντηση = 0, δεν ξέρω/ δεν θυμάμαι = 1
Ε11: Από 11 έως 14 = 2, 15 και πάνω = 4, βλέπε παρακάτω για λεπτομέρειες

Εάν το αποτέλεσμα, όπως εκφράζεται από το άθροισμα των απαντήσεων, είναι 10 ή μεγαλύτερο, τότε η εξέταση θεωρείται ότι είναι θετική για πιθανό ΣΑΥ και επομένως ο υποψήφιος οδηγός χρήζει περαιτέρω ιατρικής αξιολόγησης και χρήζει παραπομπής σε ειδικό ιατρό κατάλληλα εκπαιδευμένο στην πολυσωματογραφική (πολυκαταγραφική) μελέτη ύπνου και στις διαταραχές ύπνου ή Πνευμονολόγο.

JCSM
Journal of Clinical Sleep Medicine

SPECIAL ARTICLES

Management of Obstructive Sleep Apnea in Commercial Motor Vehicle Operators: Recommendations of the AASM Sleep and Transportation Safety Awareness Task Force

Indira Gurubhagavatula, MD, MPH[1,2]; Shannon Sullivan, MD[3]; Amy Meoli, MD[4]; Susheel Patil, MD[5]; Ryan Olson, PhD[6]; Michael Berneking, MD[7]; Nathaniel F. Watson, MD, MS[8]

J Clin Sleep Med. 2017;13(5):745–758

Immediate Suspension

Workers should be disqualified immediately from engaging in safety-sensitive duties if any of the following conditions are met:

1. The worker reports experiencing excessive sleepiness during the major wake period while engaging in safety-sensitive duties, or
2. The worker experienced an accident associated with drowsiness, or
3. The worker fell asleep while performing a safety-sensitive duty, or
4. The worker is found to be non-adherent with treatment recommendations or follow-up, and has AHI ≥ 20 events/h, or is deemed to have severe OSA based on clinical manifestations other than AHI (severe desaturation, comorbidities)

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/m^2
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/m^2 and either
   a. Hypertension requiring two or more medications for control; or
   b. Type 2 diabetes

J Clin Sleep Med. 2017;13(5):745–758

the student, the professor and the birth of modern

SLEEP RESEARCH

story by Lynne Lamberg
art by Michael Hagelberg

THE CHICAGO 5
For more than a half a century, University of Chicago researchers have led the field of sleep research. *From left:* Nathaniel Kleitman, Eugene Aserinsky, Eve Van Cauter, William Dement and Allan Rechtschaffen.