

# CMEO BriefCase

Crafting an Individualized Plan to  
Optimize Patient Outcomes: Safe,  
Effective, and Personalized Treatment

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Pharmaceuticals*

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# Learning Objective

Position treatment strategies for OSA-related EDS based on individual patient profiles.

# Audience Response

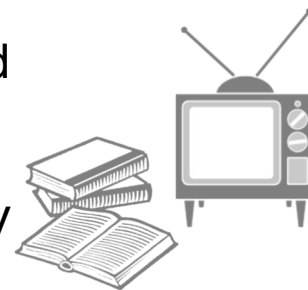


**How confident are you developing individualized treatment plans for continuous positive airway pressure (CPAP)-adherent patients with persistent excessive daytime sleepiness (EDS)?**

- A.** Not very confident
- B.** Somewhat confident
- C.** Confident
- D.** Very confident

# Patient Case: Marty

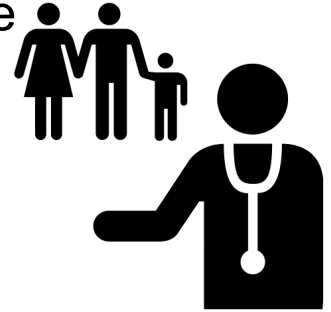
- 48-year-old male diagnosed with severe OSA 5 years prior → AHI = 38 episodes/hour; O<sub>2</sub> sat = 78%; ESS = 15
- At time of diagnosis, experienced loud snoring, frequent awakenings, daytime sleepiness, hypertension, and elevated BMI; EDS occurred around onset of snoring
- CPAP validation study demonstrated efficacy at 11 cm
- Remains on CPAP (97% adherence); AHI = 3.2, average use of 7.5 hours; ESS = 13; FOSQ = 12
- CPAP has improved sleep quality but marked fatigue and EDS remain
- Takes naps during lunch and has missed work due to EDS/fatigue; falls asleep when trying to read or watch TV



AHI = Apnea-Hypopnea Index; BMI = body mass index; CPAP = continuous positive airway pressure; EDS = excessive daytime sleepiness; ESS = Epworth Sleepiness Scale; FOSQ = Functional Outcomes of Sleep Questionnaire; O<sub>2</sub> = oxygen; OSA = obstructive sleep apnea

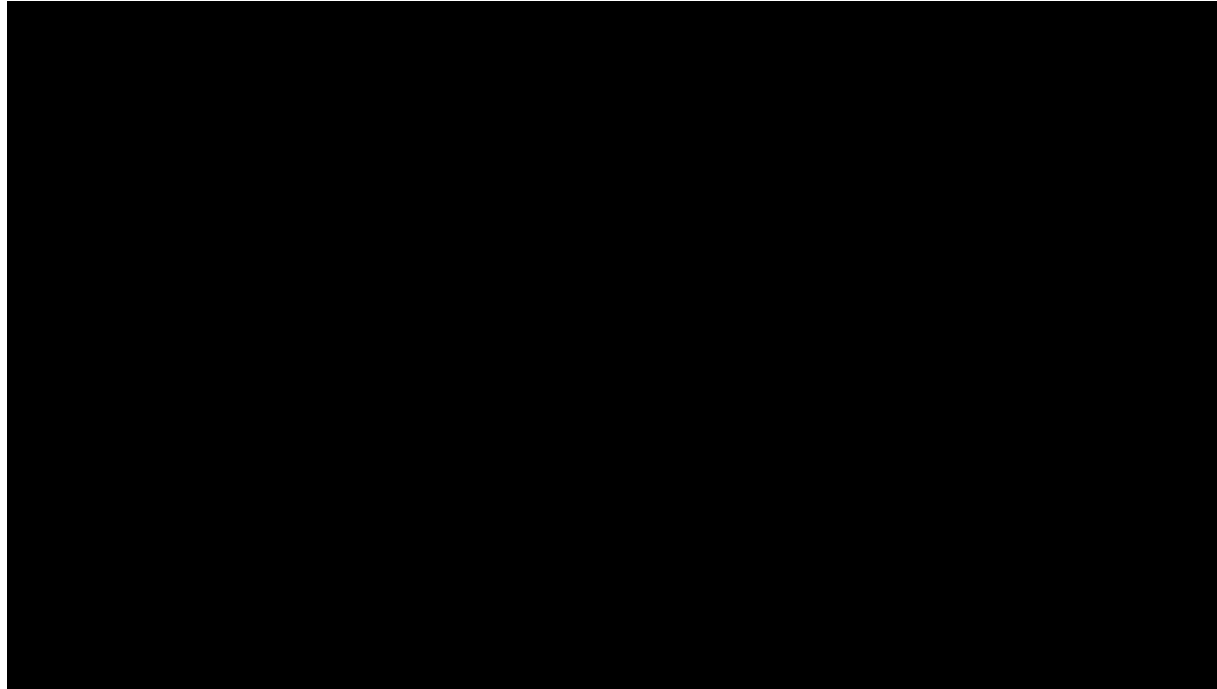
# Medical History

- Adult attention-deficit/hyperactivity disorder; significant for hypertension, dyslipidemia, and glucose intolerance
- Family history: Hypertension and ischemic heart disease (strong); myocardial infarction (father)
- No history of nocturnal motor activity, REM dissociative symptoms, or RLS
- No mood disturbance
- Medication: methylphenidate ER 54 mg, olmesartan, hydrochlorothiazide, metformin, rosuvastatin
- Reports no alcohol, smoking, or illicit drug use



ER = extended release; REM = rapid eye movement; RLS = restless legs syndrome

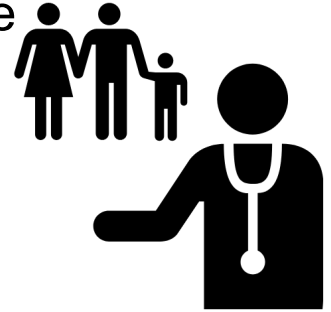
# Meet Marty





# Medical History

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# Audience Response



**In what percentage of patients with OSA-related EDS do you consider cardiometabolic risk factors when making treatment selections?**

- A.** 0% patients
- B.** 1%-25% patients
- C.** 26%-50% patients
- D.** 51%-75% patients
- E.** 76%-100% patients

# Causes and Clinical Manifestation of Sleepiness

Causes	Clinical Manifestations
Work schedule	Mood changes
Illicit Drugs	Depression
Alcohol	Automatic activity
Physical inactivity	Poor performance in work/school
Obesity	Impaired alertness
Prescription drugs	Impaired memory and concentration
Depression	Accident prone
	Increased motor vehicle crashes
	Visual disturbances
	Apathy
	Lower perceived quality of life

# Potential Factors that Impact OSA-related EDS

- EDS severity
- Number of hours of sleep
- Comorbidities
- Overall health status
- Weight class (BMI/obesity class)
- Sex
- Age
- Coping strategies
- Lifestyle
- Adherence

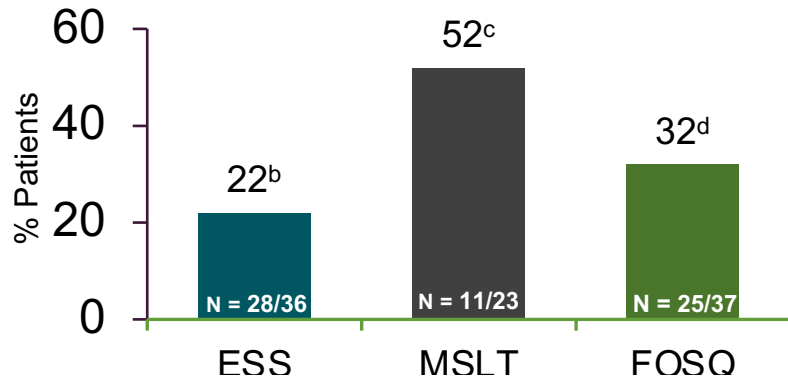


- Treatment status and regimen
- Financial status
- Social support
- Insurance coverage
- Employment status



# Excessive Sleepiness May Persist Despite $\geq 6$ Hours CPAP Use Per Night

Percent Patients Failing to Achieve a Normal Score With  $\geq 6$  h CPAP Use per Night for 3 Months<sup>2,a</sup>



<sup>a</sup>Evaluated in patients with pre- and post-treatment assessments who had abnormal pretreatment values<sup>2</sup>

<sup>b</sup>Subjective EDS defined as ESS ( $> 10$ )<sup>2</sup>

<sup>c</sup>Objective EDS according to MSLT sleep latency  $< 7.5$  min<sup>2</sup>

<sup>d</sup>Functional impairment defined as FOSQ  $< 17.9$ <sup>2</sup>



- Despite adequate treatment with CPAP, patients with OSA still have residual EDS<sup>1</sup>
- In a multicenter trial (n = 128 patients with AHI  $\geq 15$ ) patients with OSA were treated with CPAP for 3 months and assessed for sleepiness before and after airway treatment using<sup>2</sup>:
  - Self reported ESS and FOSQ
  - Clinically-derived MSLT

For patients reporting  $\geq 6$  hours of CPAP use per night, **based on MSLT (n = 23), more than half of participants** continued to experience EDS<sup>2</sup>

MSLT = Multiple Sleep Latency Test

1. Foster SN, et al. *Sleep Breath.* 2020;24(1):143-150. 2. Weaver TE et al. *Sleep.* 2007;30(6):711-719.

# Audience Response



## Regarding the impact of sleep apnea on heart health:

- A. The risk of developing afib is 1.5-2x higher in those with sleep apnea
- B. People with severe, untreated sleep apnea are twice as likely to have a stroke
- C. Half of individuals with type 2 diabetes have sleep apnea
- D. 25% of people with hypertension also have OSA
- E. I don't know

# Sleep Apnea Impact on Heart Health

- Sleep apnea increases the risk of:

- Heart failure
- Elevated blood pressure
- Atrial fibrillation
- Resistant hypertension
- Type 2 diabetes
- Stroke



- The risk of afib in people with sleep apnea is **2-4x** higher
- **30-40%** of people with hypertension also have OSA
- In middle-aged men w/ severe sleep apnea, there is a **58%** increased risk of developing heart failure
- Among people who have type 2 diabetes, approx. **7 in 10** have sleep apnea
- The increased risk of stroke in people w/ severe, untreated sleep apnea is **2x** higher

# Impact of OSA-related EDS on HRQoL and Psychosocial and Work Functioning



Worsened  
HRQoL



Falling asleep  
throughout the day



Strain on  
relationships



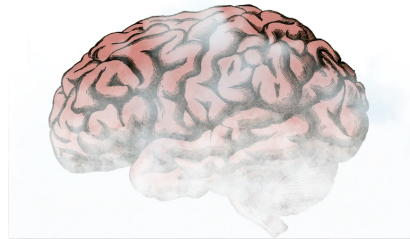
Increased risk of  
accidents while driving



Memory problems



Impaired critical thinking



Brain fog



Employment: job loss,  
frequent job changes,  
absenteeism / presenteeism

HRQoL = health-related quality of life

Waldman LT, et al. *Health Qual Life Outcomes*. 2020;18:128.



# Treatment Goals in OSA



1. Reduce EDS
2. Improve psychosocial dysfunction and quality of life
3. Improve fatigue and brain fog
4. Improve safety of patient and public
5. Optimize risk/benefit of pharmacotherapies

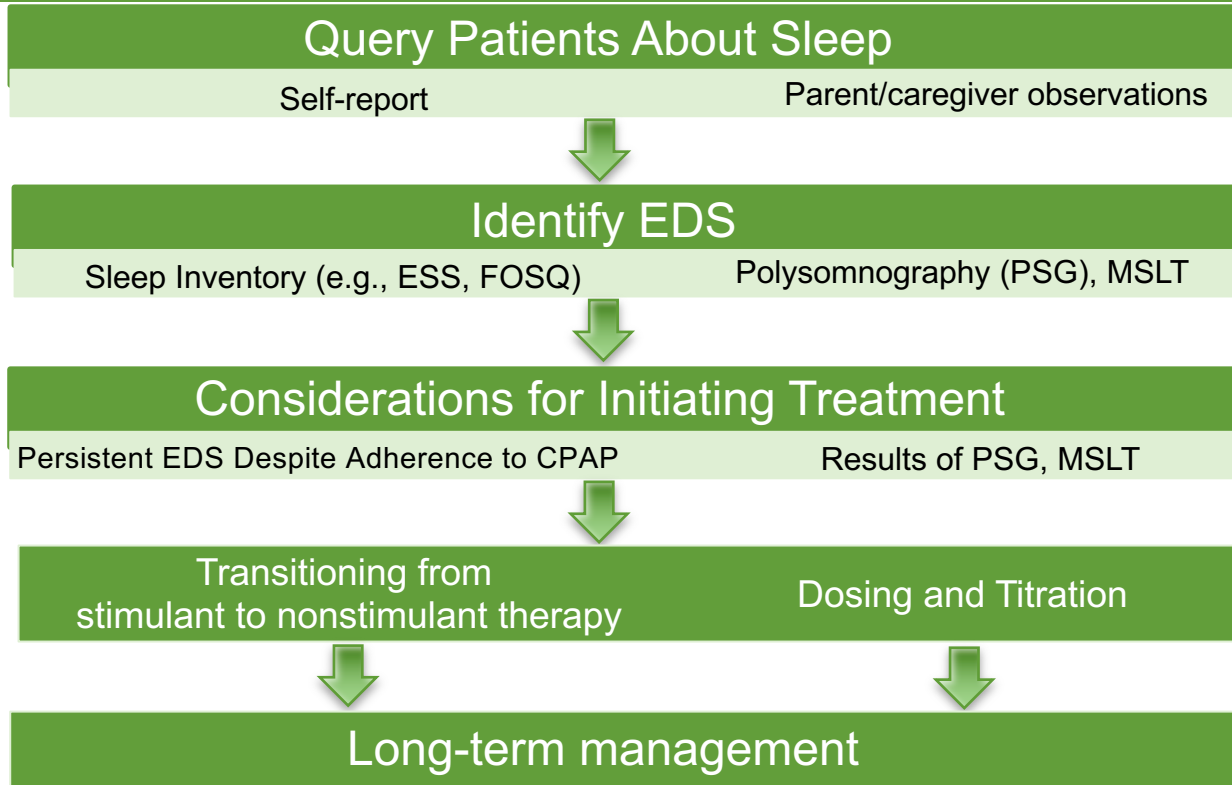
# FDA-Approved Treatments for EDS in OSA

Agent	
Modafinil	<b>Indication:</b> Adult patients with excessive sleepiness associated with narcolepsy, OSA, or shift work sleep disorder
	<b>AEs (<math>\geq 5\%</math>):</b> Anxiety, back pain, diarrhea, dizziness, dyspepsia, headache, insomnia, nausea, nervousness, rhinitis
	<b>MOA:</b> DA reuptake inhibitor
Armodafinil	<b>Indication:</b> Adult patients with excessive sleepiness associated with narcolepsy, OSA, or shift work sleep disorder
	<b>AEs (<math>\geq 5\%</math>):</b> Dizziness, headache, insomnia, nausea
	<b>MOA:</b> DA reuptake inhibitor
Solriamfetol	<b>Indication:</b> Adult patients with EDS associated with narcolepsy or OSA
	<b>AEs (<math>\geq 5\%</math>):</b> Anxiety, decreased appetite, headache, insomnia, nausea
	<b>MOA:</b> DA-NE reuptake inhibitor

AEs = adverse events; DA = dopamine; MOA = mechanism of action; NE = norepinephrine

Drugs@FDA Website.

# Clinical Approach to EDS



# Considerations for EDS Treatment Selection



History of drug misuse



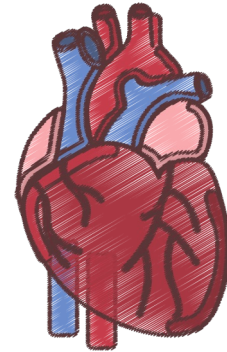
Psychiatric comorbidities



Polypharmacy



Age



History of cardiometabolic or other medical disease

# Audience Response



**Now, how confident are you developing individualized treatment plans for CPAP-adherent patients with persistent EDS?**

- A. Not very confident
- B. Somewhat confident
- C. Confident
- D. Very confident

# Audience Response



**In what percentage of patients with OSA-related EDS will you consider cardiometabolic risk factors when making treatment selections?**

- A.** 0% patients
- B.** 1%-25% patients
- C.** 26%-50% patients
- D.** 51%-75% patients
- E.** 76%-100% patients

# SMART Goals

Specific, Measurable, Attainable, Relevant, Timely



- Identify CPAP-adherent patients who are eligible to receive treatment for persistent EDS
- Develop individualized, successful strategies to reduce EDS and improve QoL and functioning in patients with OSA
- Consider patient comorbidities, including obesity, cardiovascular disease risks (such as hypertension), and depression, when making treatment selections
- Identify best practices to transition patients from stimulant to nonstimulant therapy

CMEO  **BriefCase** **1**

The Impact of OSA-Related  
EDS on HRQoL: Time for a  
Wake-Up Call

CMEO  **BriefCase** **3**

Plugging Recent Clinical Trial  
Data into Treatment Decisions:  
A Fundamental Formula

[www.CMEOutfitters.com/liver-hub](http://www.CMEOutfitters.com/liver-hub)



# Sleep Disorders Hub

Free resources and education to educate health care professionals and patients on sleep disorders

<https://www.cmeoutfitters.com/sleep-disorders-hub/>

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