

An aerial photograph of a coastal city, likely Miami, showing a mix of high-rise buildings, lower residential areas, and a beach. The ocean is visible on the left. A large black speech bubble with a white dot is positioned in the upper center, containing the word 'WHAT?'. To the left of the bubble, the word 'WHY?' is written in large, blue, outlined letters. To the right of the bubble, the word 'HOW' is written in large, blue, outlined letters.

WHY?

WHAT?

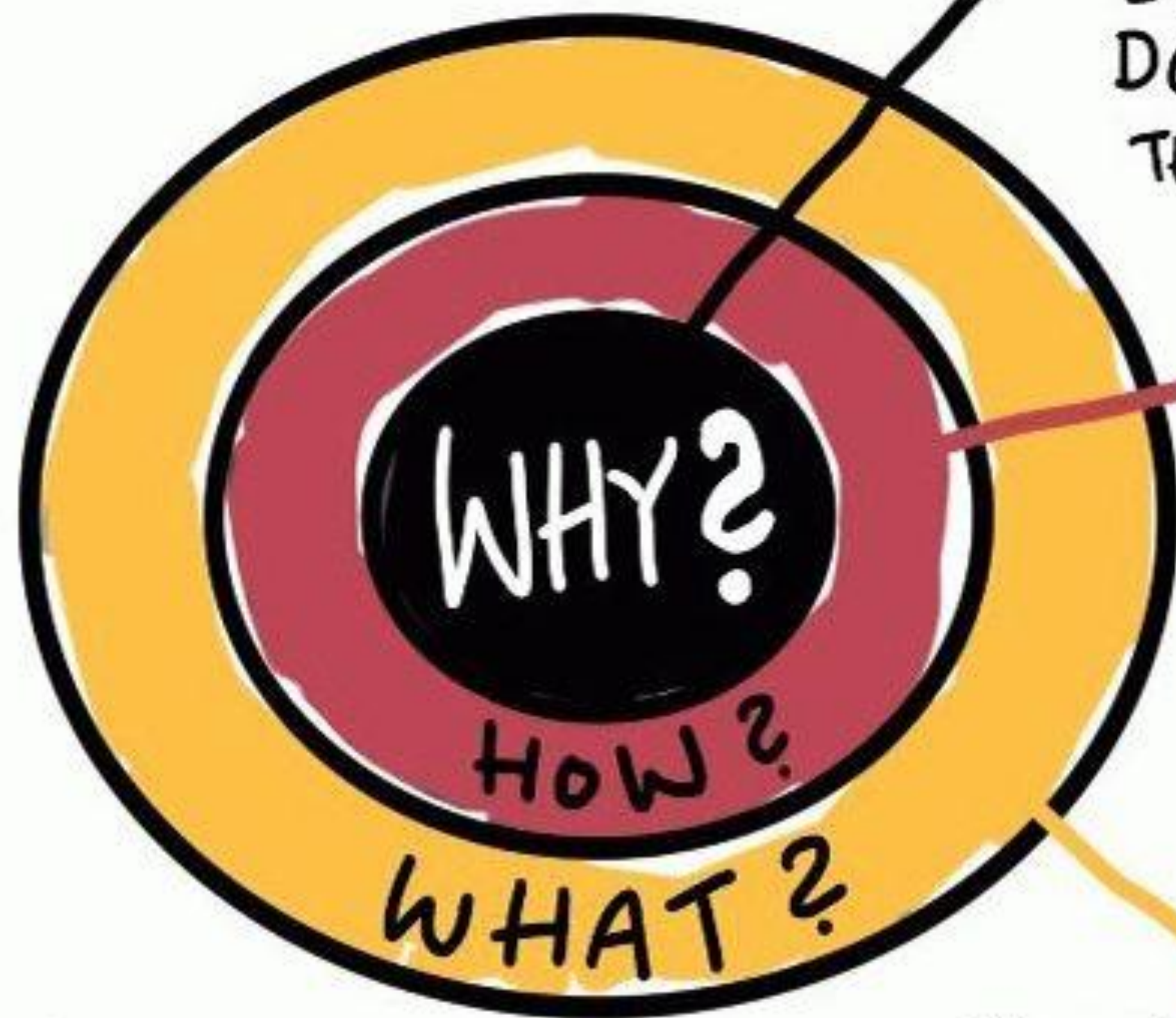
HOW

North American Dental Sleep Medicine Symposium 2020

Jamison R. Spencer, DMD, MS

WHY?

GOLDEN CIRCLE



IDEA: SIMON SINEK

WHY DO YOU
DO WHAT YOU
DO? WHAT IS
THE PURPOSE?

HOW
DO YOU
DO WHAT
YOU DO?

WHAT
DO YOU DO?

START

HOW GREAT LEADERS INSPIRE
EVERYONE TO TAKE ACTION

WITH

SIMON SINEK

WITH A NEW PREFACE AND AFTERWORD

WHY

But we really start with

What?



The Success Formula



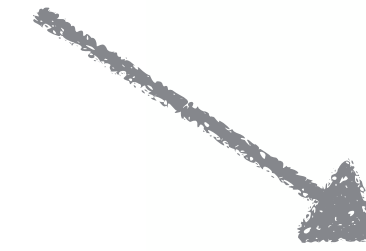
Know your outcome!

The Success Formula



Why?

The Success Formula



Take massive action!

The Success Formula



Measure your results!

Spencer
Study Club



The Success Formula



WHY?





What do MD's really care about?



What do MD's really care about?



Why don't physicians refer (more) to us?

- 64% sleep center director, supervisor or manager
- 23% sleep medicine physician
- 4% pulmonologist
- 4% neurologist
- 2% otolaryngologist

Oral Appliance Therapy Awareness and Perceptions Survey

Sleep Review's inaugural poll suggests that OAT affordability and efficacy concerns may explain why physicians and sleep center directors do not refer more non-CPAP-adherent patients to dentists for treatment.

By Sree Roy

Oral appliance therapy (OAT) is an increasingly popular alternative to CPAP for obstructive sleep apnea (OSA) patients—and *Sleep Review* has correspondingly been increasing our editorial coverage. For the first time, we independently surveyed a segment of our readership to discern their perceptions of OAT, as well as glean insights into patient awareness.

ABOUT THE SURVEY

Sleep Review conducted the online survey between 12/2/15 and 12/29/15. We targeted sleep medicine professionals in the following roles (percentages of actual respondents are in parentheses): sleep center director, supervisor, or manager (64%); sleep medicine physician (23%); pulmonologist (4%); neurologist (4%); and otolaryngologist (2%). We wanted insights into what physicians and sleep center directors think about OAT and what the considerations are when determining whether to refer an OSA patient to a dentist.

The survey was less than 10 questions in length and was developed by the editorial staff in conjunction with several editorial advisory board members. As this was the first time the survey was conducted, we consider these to be preliminary results that provide a general overview only. In the future, we may conduct more focused surveys to more accurately determine practice behavior and refine the questions based on feedback from this survey.

Despite its limitations, the results of this survey point toward several relevant insights. We are sharing this results summary to encourage discussion on the key preliminary findings, as well as to provide a glimpse into the types of timely OAT-related editorial content you can expect *Sleep Review* to cover in 2016 and beyond.

CONSIDERATIONS THAT MATTER MOST

The top 3 reasons that sleep center directors and physicians do not refer non-adherent CPAP patients for OAT are a desire to try other CPAP adherence strategies, affordability concerns, and uncertainty about whether the appliance would be efficacious, the survey suggests. For this question, we provided 8 possible considerations and asked respondents to rate each from 1 ("does not factor") to 5 ("huge factor in my decision"). Here are the average ratings.

1. "I want to try other strategies to get the patient CPAP adherent." Avg: 3.32
2. "The patient won't be able to afford the oral appliance." Avg: 3.13
3. "The oral appliance may not be efficacious." Avg: 3.00
4. "The oral appliance won't record the patient's adherence with the therapy." Avg: 2.83

5. "The patient may develop side effects from using the oral appliance." Avg: 2.55

6. "I worry dentists are acting outside of the scope of practice in all or in part when treating OSA." Avg: 2.48

7. "Patients 'disappear' when I refer them to a dentist." Avg: 2.32

8. "I don't know a local dentist who I trust with my patients." Avg: 1.86

Note these are raw scores unanalyzed for statistical significance.

ARE PATIENTS AWARE OF OAT?

We asked providers several questions to indirectly gauge OSA patients' awareness and interest in oral appliances. According to the survey, in general, the majority of first-time OSA patients do not inquire about CPAP alternatives and do not specifically ask about OAT on their own. (Because the percentages were so low, future surveys should specifically include lower percentages as answer choices, including "0" as an option.)

But when given treatment options that include OAT, there is some patient interest. Though 43% of respondents said that less than 20% of patients express interest in OAT in this scenario and 6% said they don't typically give OSA patients treatment options that include OAT, 19% of sleep professionals said that between 20% and 40% of patients will express interest in OAT in this scenario; 13% said that between 40% and 60% of patients will express interest; 12% said that between 60% and 80% will express interest; and 4% said that between 80% and 100% will express interest.

PRACTICE BEHAVIOR

We asked: "When a first-time patient who has not tried any OSA therapy expresses interest in using an oral appliance, what is your typical response within the confines of that appointment? (Select all that apply.)" For this question, 62% said they explain the pros and cons of CPAP versus OAT; surprisingly, only 15% said they tell the patient to try CPAP first (this number may have been influenced by the ambiguity surrounding the OSA severity in question or by the survey design); 15% said they evaluate or schedule the patient for an OAT evaluation; 5% said they explain to the patient why OAT is not appropriate at this time; and 1% said no patients have expressed interest about OAT specifically. **SR**

Sree Roy is editor of *Sleep Review*. Feedback? sroy@allied360.com or online at www.sleepreviewmag.com/oral-appliance-therapy-awareness-perceptions-survey

Why don't physicians refer (more) to us?

- Top reasons that sleep center directors and physicians do NOT refer non-adherent CPAP patients for OAT
 1. "I want to try other strategies to get the patient CPAP adherent"
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ABOUT THE SURVEY

Sleep Review conducted the survey on 12/29/15. We targeted sleep center directors (23%), physicians (23%), laryngologists (2%), and sleep center directors (2%) when determining the survey population.

The survey was developed by the editorial advisory board members. We conducted a general overview survey to refine the questions.

Despite its limitations, several relevant findings encourage discussion to provide a glimpse of content you can expect.

CONSIDERATIONS

The top 3 reasons for not referring non-adherent CPAP patients to dentists for OAT were:

1. "I want to try other strategies to get the patient CPAP adherent." Avg: 3.32
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**YOUR
NAME
HERE**

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my patients."

significance.

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What do MD's really care about?

- Them, and their team, not having hassles
- Their patients getting quality care, at reasonable costs
- Good, simple, communication



HOW

Review Article, Issue 2.4

Efficacy versus Effectiveness in the Treatment of Obstructive Sleep Apnea: CPAP and Oral Appliances

<http://dx.doi.org/10.15331/jdsm.5120>

Kate Sutherland, PhD^{1,2}; Craig L. Phillips, PhD^{1,2}; Peter A. Cistulli, MD, PhD¹

¹Department of Respiratory and Sleep Medicine, Royal North Shore Hospital and Sydney Medical School, University of Sydney, Sydney, Australia; ²Woolcock Institute of Medical Research, University of Sydney, Sydney, Australia

SLEEP ADJUSTED RESIDUAL AHI (SARAH INDEX) FOR ASSESSMENT OF TREATMENT EFFECTIVENESS

Sleep Adjusted Residual AHI (SARAH Index) =

$$\frac{[AHI_{\text{Treatment}} \times \text{Hours}_{\text{Treatment}}] + [AHI_{\text{Untreated}} \times \text{Hours}_{\text{Untreated}}]}{\text{Hours}_{\text{Total Sleep Time}}}$$

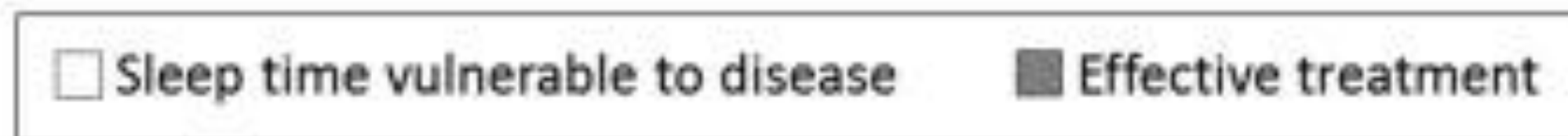
SLEEP ADJUSTED RESIDUAL AHI (SARAH INDEX) FOR ASSESSMENT OF TREATMENT EFFECTIVENESS

Table 1—Efficacy and effectiveness of oral appliances versus CPAP: AHI and health outcome results from randomized trials.

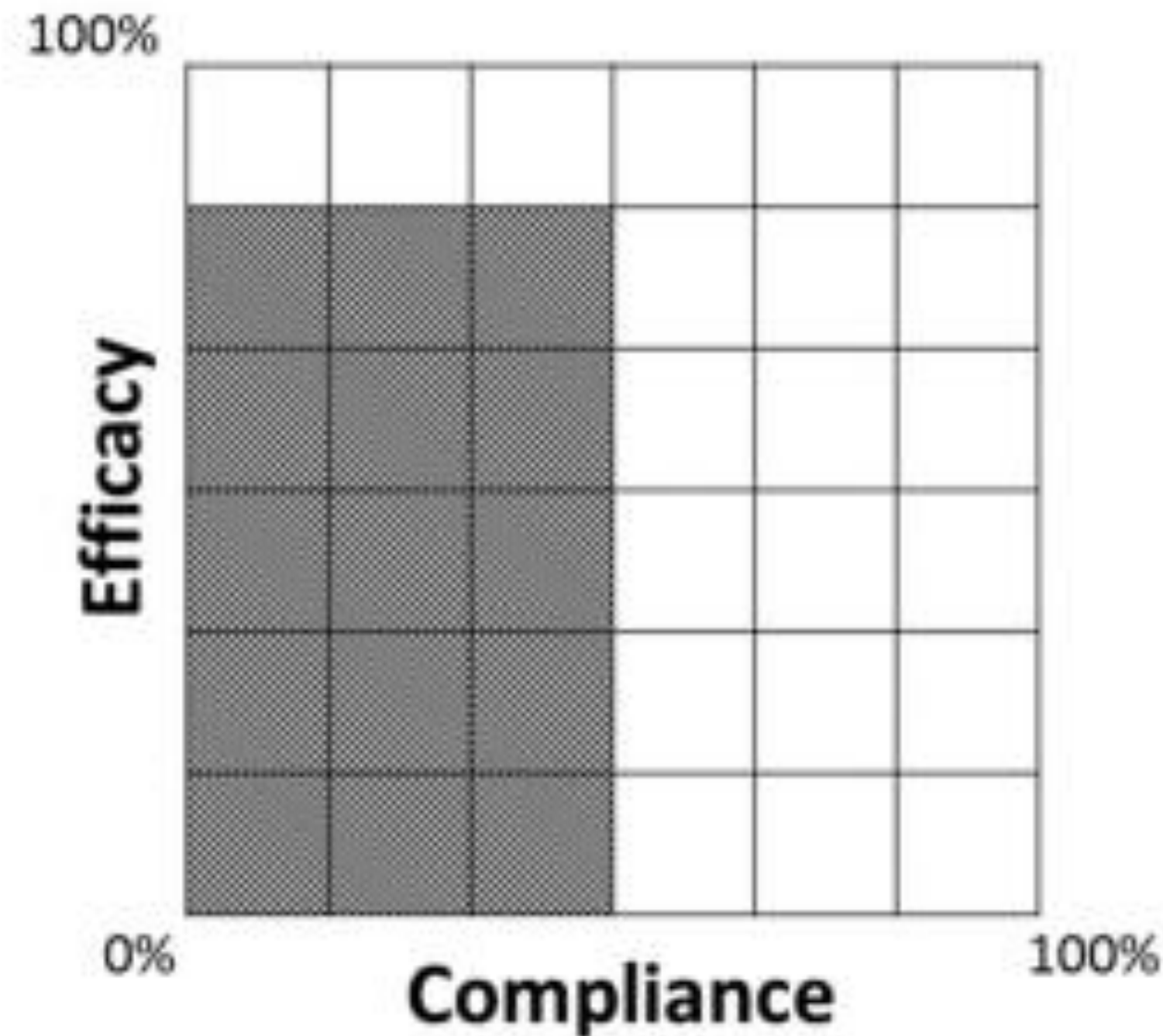
Study	Study Design	N	Baseline AHI	Treatment AHI		Health Outcomes			
						Daytime Sleepiness		Health-Related Quality of Life	Blood Pressure
				CPAP	OA	Subjective (ESS)	Objective		
Aarab, 2010	parallel	57	20.9 ± 9.8	1.4 ± 13.1	5.8 ± 14.9	↔	N/A	↔	N/A
Barnes, 2004	crossover	80	21.5 ± 1.6	4.8 ± 0.5	14.0 ± 1.1	↔	↔ (MWT)	N/A	↔
Engleman, 2002	crossover	48	31 ± 26	8 ± 6	15 ± 16	CPAP	CPAP (MWT)	CPAP	N/A
Ferguson, 1997	crossover	20	26.8 ± 11.9	4.0 ± 2.2	14.2 ± 14.7	↔	N/A	N/A	N/A
Gagnadoux, 2009	crossover	59	34 ± 13	2 (1–8) ^a	6 (3–14) ^a	↔	↔ (OSLER)	OA	N/A
Hoekema, 2008	parallel	103	40.3 ± 27.6	2.4 ± 4.2	7.8 ± 14.4	↔	N/A	↔	N/A
Lam, 2007	parallel	101	23.8 ± 1.9 ^a	2.8 ± 1.1	10.6 ± 1.7	CPAP	N/A	CPAP	↔
Phillips, 2013	crossover	108	25.6 ± 12.3	4.5 ± 6.6	11.1 ± 12.1	↔	N/A	↔	↔
Tan, 2002	crossover	21	22.2 ± 9.6	3.1 ± 2.8	8.0 ± 10.9	↔	N/A	↔	N/A

^aMedian (interquartile range). ^aMean ± standard error. Summary of AHI data with CPAP and oral appliances (OA) in randomized trials comparing treatments. Summary of commonly reported health assessments are presented. "CPAP" or "OA" indicates superior results were found with that treatment, ↔ indicates equivalent findings observed with both treatments. AHI data is mean ± standard deviation, unless otherwise indicated. ESS, Epworth Sleepiness Score; MWT, maintenance of wakefulness test; OSLER, oxford sleep resistance test.

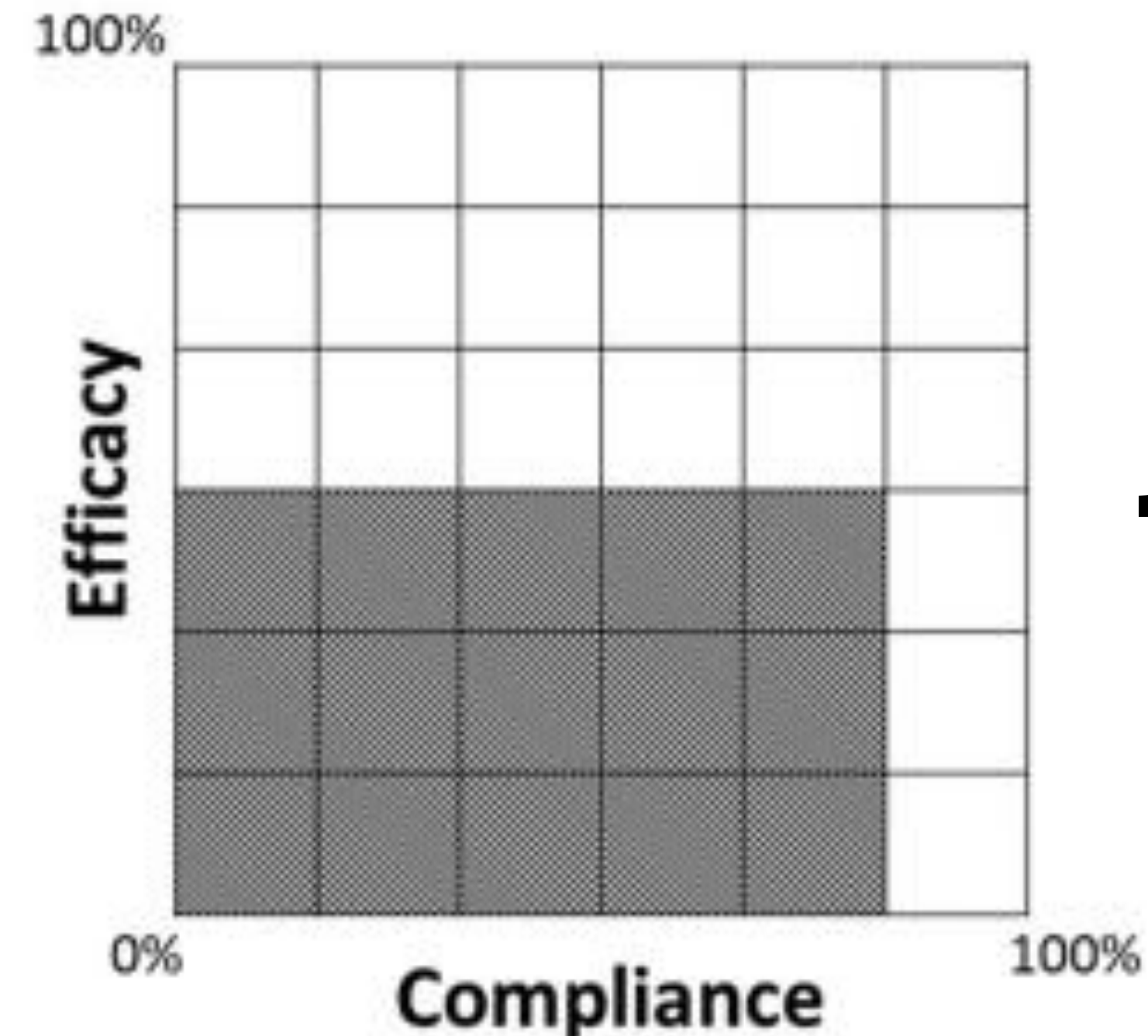
Figure 1—Comparison of treatment effectiveness profile of CPAP and oral appliances.



CPAP



Oral Appliance



Efficacy (y axis) reflects the ability of treatment to prevent obstructive breathing events when it is physically applied. Compliance (x axis) reflects the hours the treatment is applied for over the total sleep time when obstructive events can occur. "Effectiveness" requires both efficacy and compliance and the balance of these likely reflects over health outcomes. This schematic illustrates the scenario of an oral appliance which is only half as efficacious as CPAP but has two-fold greater compliance which results in equivalent effectiveness (shaded area).

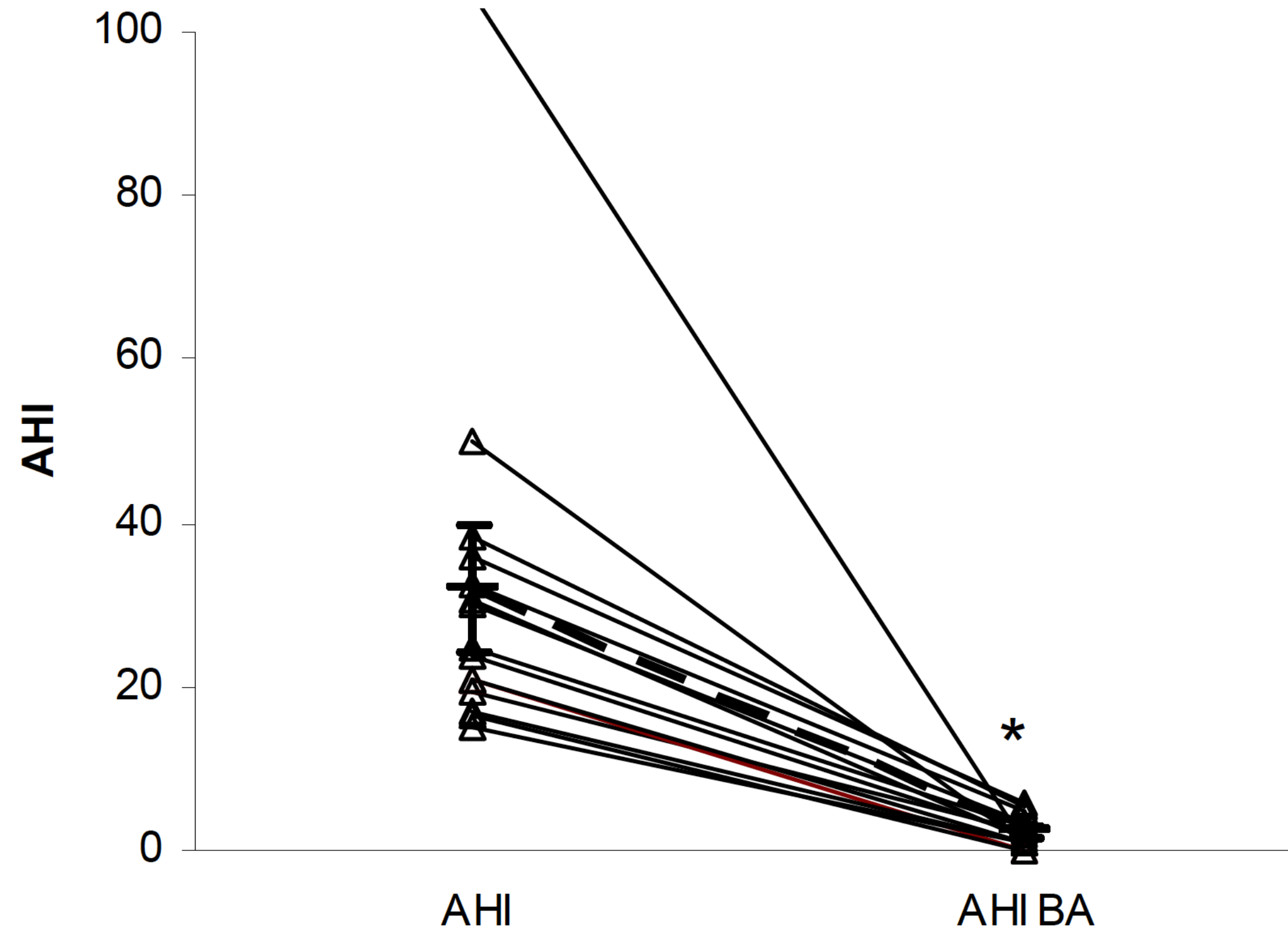
Effect of a Titration Polysomnogram on Treatment Success with a Mandibular Repositioning Appliance

Almeida, F, Parker, J, Hodges, J, Lowe, A, Ferguson, K.

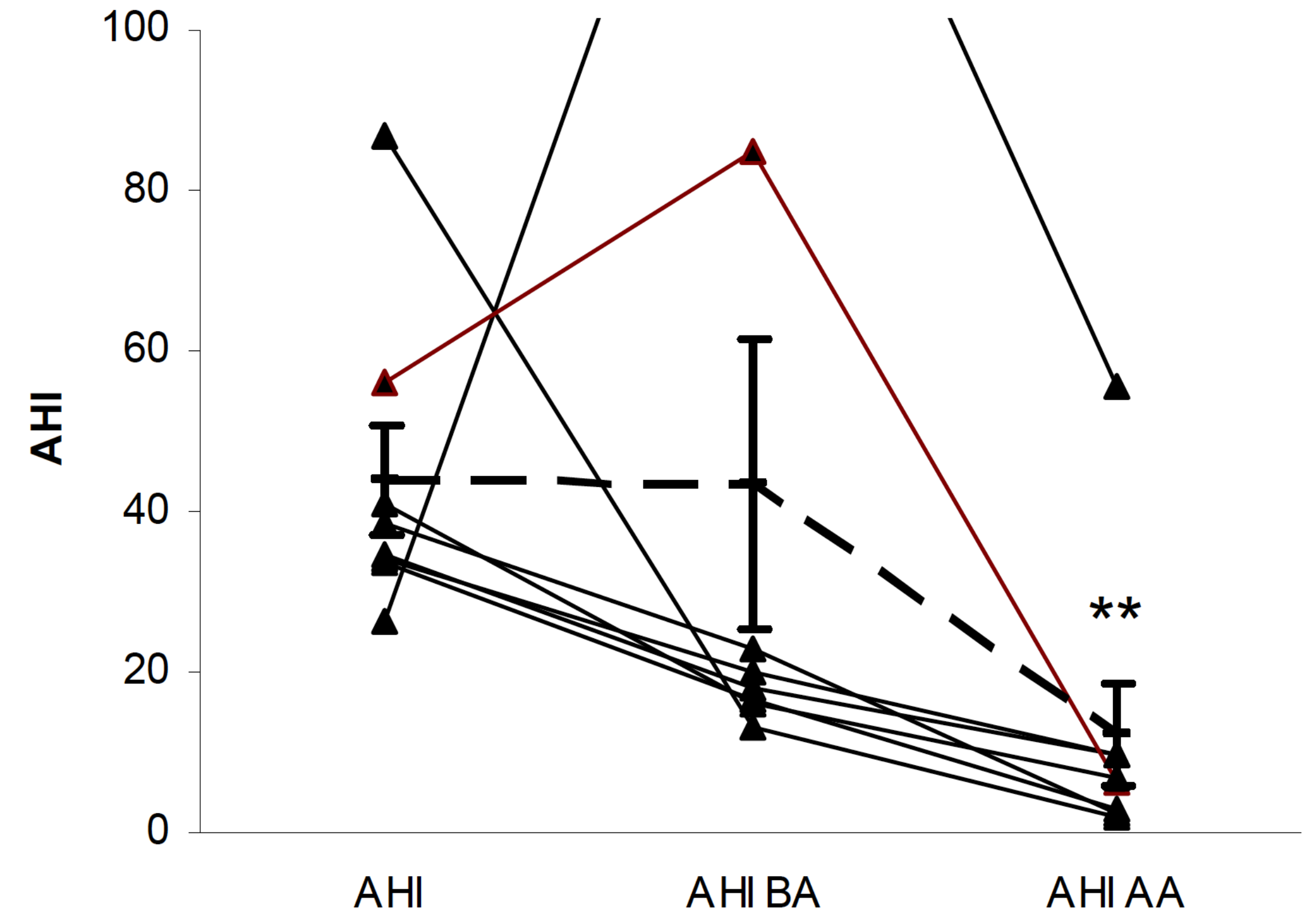
J Clin Sleep Med. 5(3): 198-204, 2009

- 23 patients (17 men, 6 women) with moderate to severe OSA (mean of 36.2)
- 15/23 (65%) did NOT require further titration in lab (avg. baseline AHI of 32.1 reduced to 2.2)
- In lab titration improved success (AHI<10) from 65.2% to 95.6%
- Average adjustment was 2.7mm

Success Group (n=15)



Incomplete Success Group (n=8)



	Patient	AHI				RDI			
		Baseline	Before further advancement	After further advancement	#		Baseline	Before further advancement	After further advancement
	1	21.0	0.0			a c	33.0	4.0	e
	2	16.4	0.0			a c	41.5	2.1	e
	3	50.0	1.0			a c	52.0	27.0	
	4	21.0	1.0			a c	48.0	1.0	e
	5	15.0	1.0	1.0	1	a c	30.0	24.0	15.0 f
	6	17.0	1.0	2.0	3	a c	32.0	12.0	4.0 e
	7	105.0	1.0	0.0	2	a c	106.0	9.0	1.0 e
	8	30.6	1.4			a c	56.5	11.1	e
	9	23.9	2.1			a c	33.7	9.7	e
	10	19.5	2.6			a c	26.7	13.7	e
	11	24.6	2.8			a c	28.3	10.5	e
	12	30.0	3.2			a c	30.0	13.0	e
	13	32.7	4.8			a c	35.3	18.8	
	14	38.2	5.2	1.2	3	a d	45.9	26.1	6.0 f
	15	36.0	6.0	8.0	1	a	51.0	16.0	15.0 f
	16	87.0	13.0	2.0	3	b d	95.0	43.0	17.0
	17	41.0	16.0	6.8	3	b	52.0	20.1	26.2
	18	33.9	16.4	3.0	2	b d	35.3	20.9	6.8 f
	19	34.4	17.9	9.8	1	b	42.8	19.8	14.4 f
	20	34.0	20.0	10.0	2	b	35.0	49.0	23.0
	21	38.7	23.1	2.6	2	b d	38.7	23.1	2.6 f
	22	56.1	84.8	6.4	3	b	57.3	84.8	37.0
	23	26.1	155.5	55.8	3		76.0	161.9	61.9
	Mean	36.2	16.5	8.4			47.0	27.0	17.7
	SD		35.1	14.7			20.6	34.5	16.8

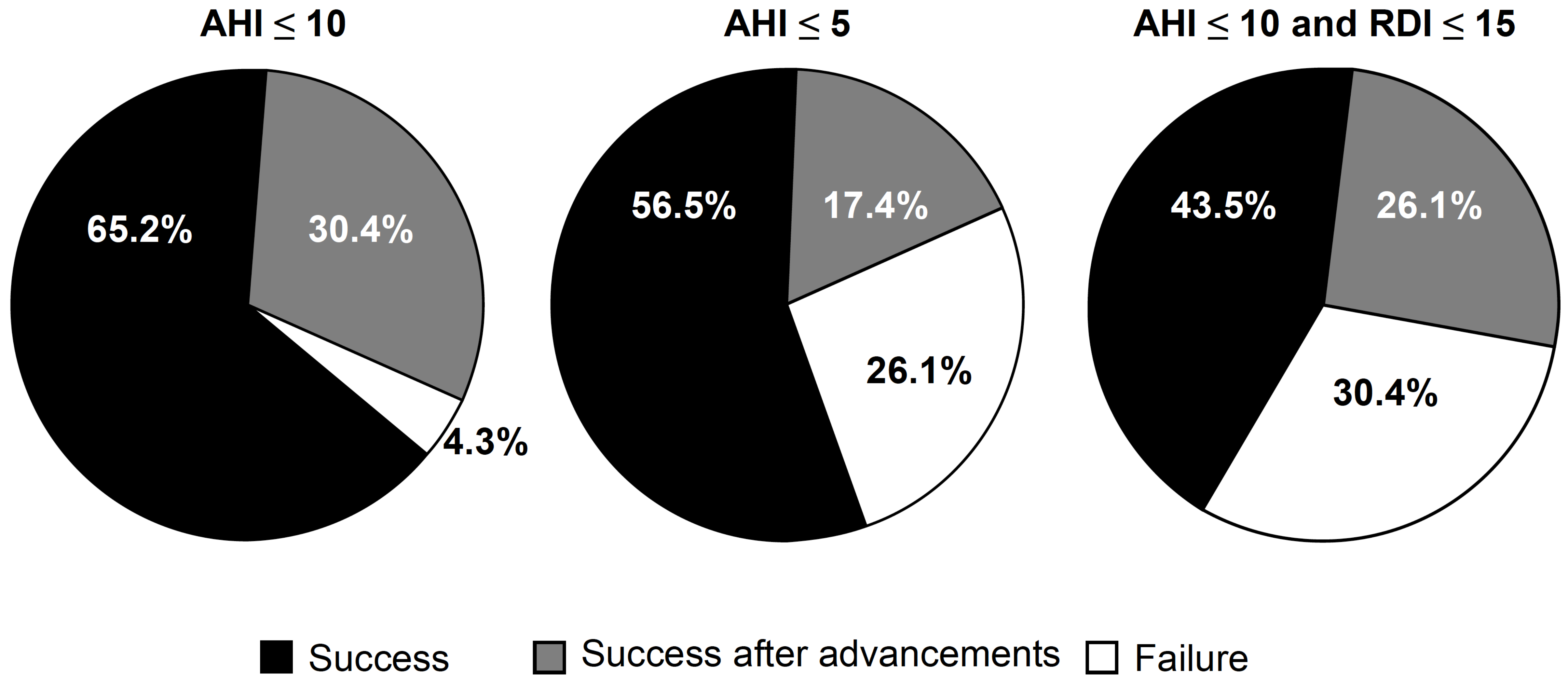


Figure 2—Percentage of oral appliance therapy success according to different success criteria.

Conclusions

This study assessed the use of a titration PSG in addition to a simple clinical titration protocol to optimize success with MRAs. This study showed that this protocol significantly increased success rates for MRA by 17% to 30%. Based on this information, it is likely that the previously reported success rates of MRA therapy could be substantially improved. Future studies assessing the effectiveness of MRA therapy should include a post-treatment titration PSG to improve treatment success.



In lab titration (by sleep tech)

Clinical Data of Mark Rasmus, MD, Cameron Kuehne, DMD, MS and Jamison Spencer, DMD, MS

- 383 consecutive patients with **mild – severe** OSA
- Treated with a pull style appliance titrated during the sleep study by the sleep technician
- Baseline and follow-up studies all done by one doctor in one lab with one lead technician scoring the data



In lab titration

	Baseline	Titration
Overall	19.8	5.9
Responders (327/383)	17.3	3.3
Mild (185)	9.8	3.5
Moderate (142)	21.0	5.6
Severe (68)	44.2	10.9

86% **AHI < 10**



Oral Appliance Titration Prescription Form

Date: _____ Patient Name: _____ DOB: _____

Appliance Type: EMA Dorsal Silent Sleep

Initial Position/Band: _____

Titration sequence:

First titration _____

Second titration _____

Third titration* _____

Fourth titration _____

**If on the third titration there appears to be a trend of worsening of the AHI with further protrusion, take the appliance back to the initial position to finish the study.*

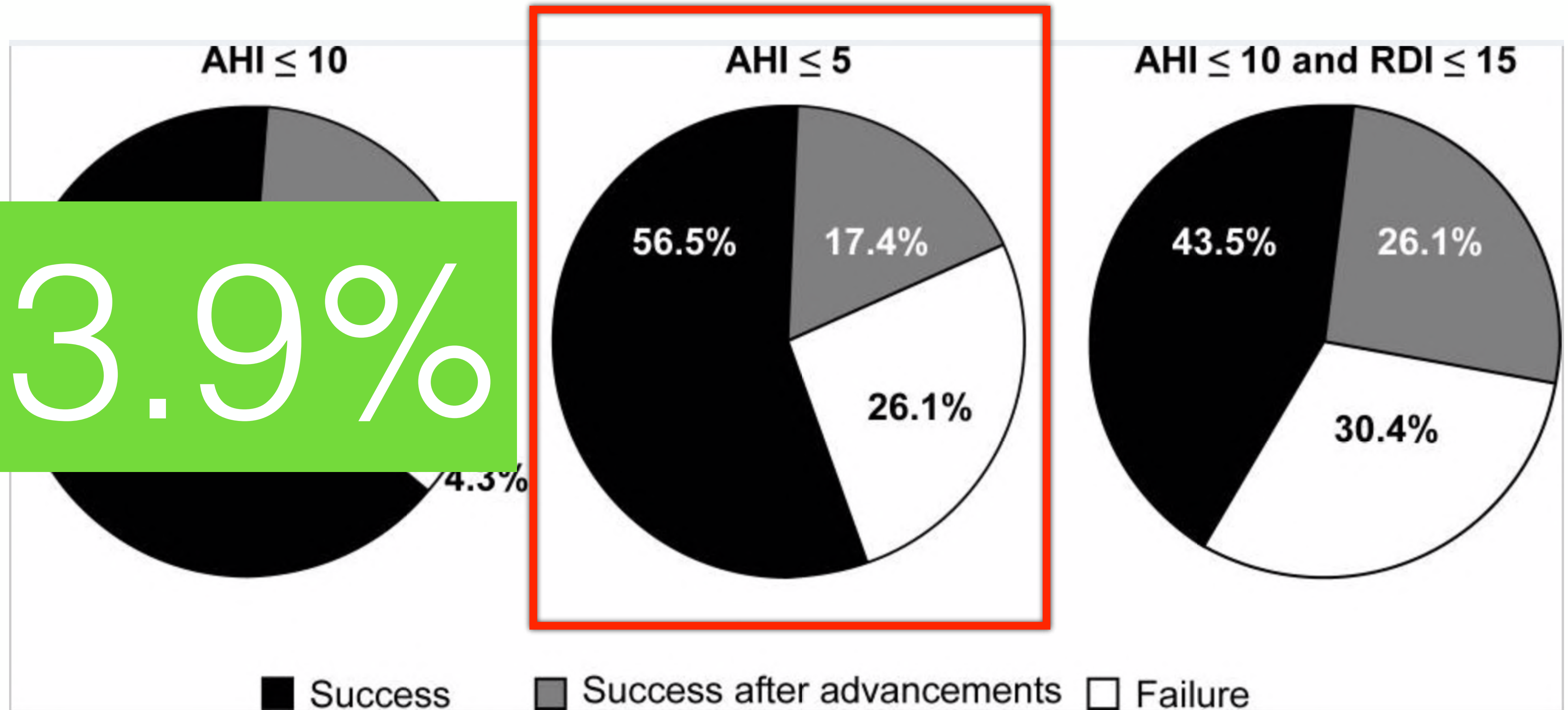
Special Instructions/Precautions: _____

****Please contact Dr. Spencer at _____ if you have further questions.**

☐ Patient's follow up letter will follow

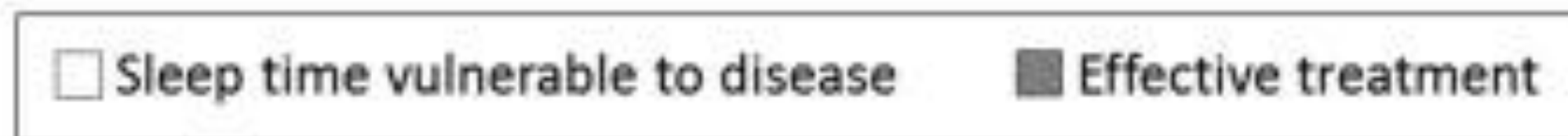
☐ Patient's letter is attached

73.9%

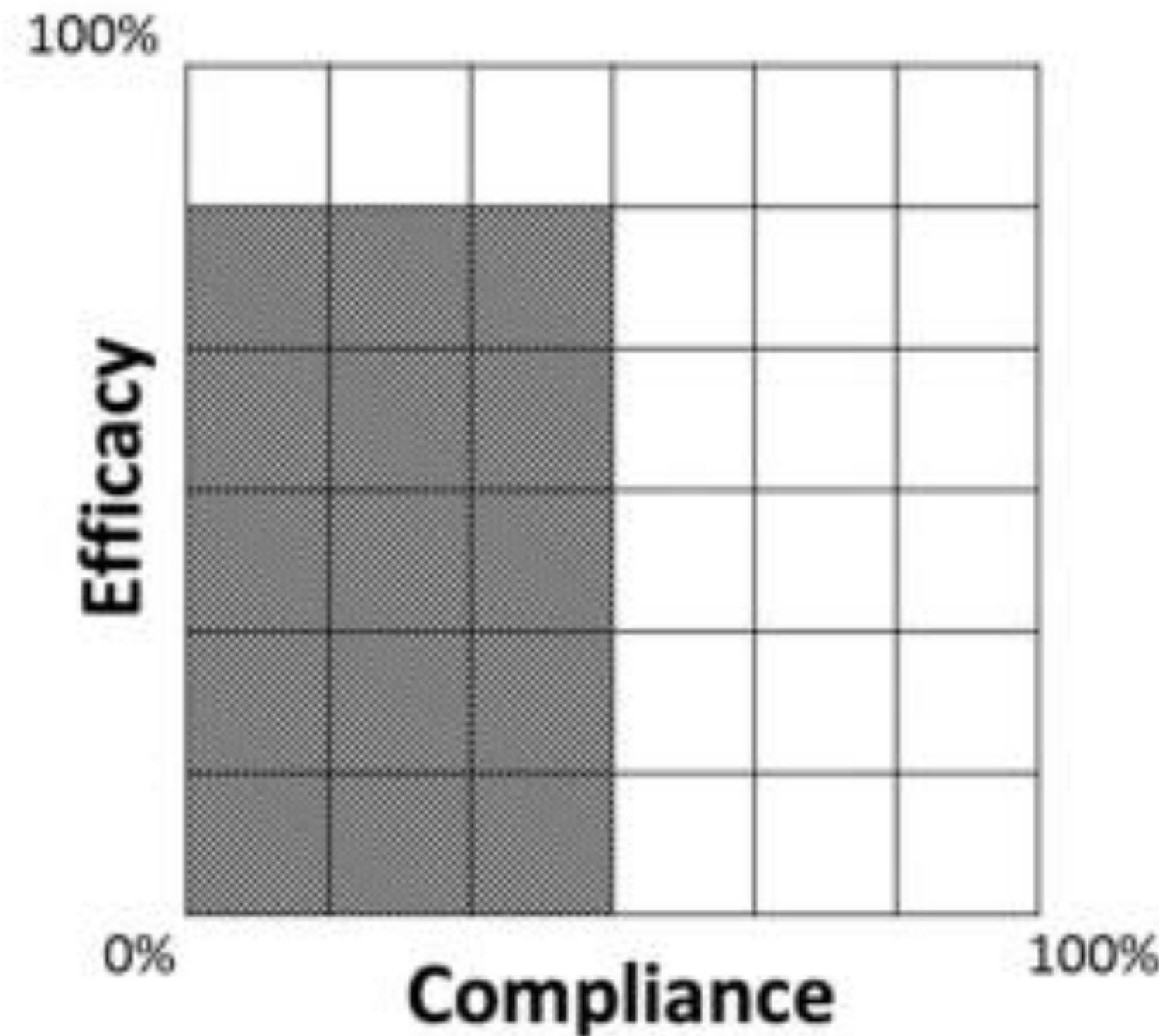


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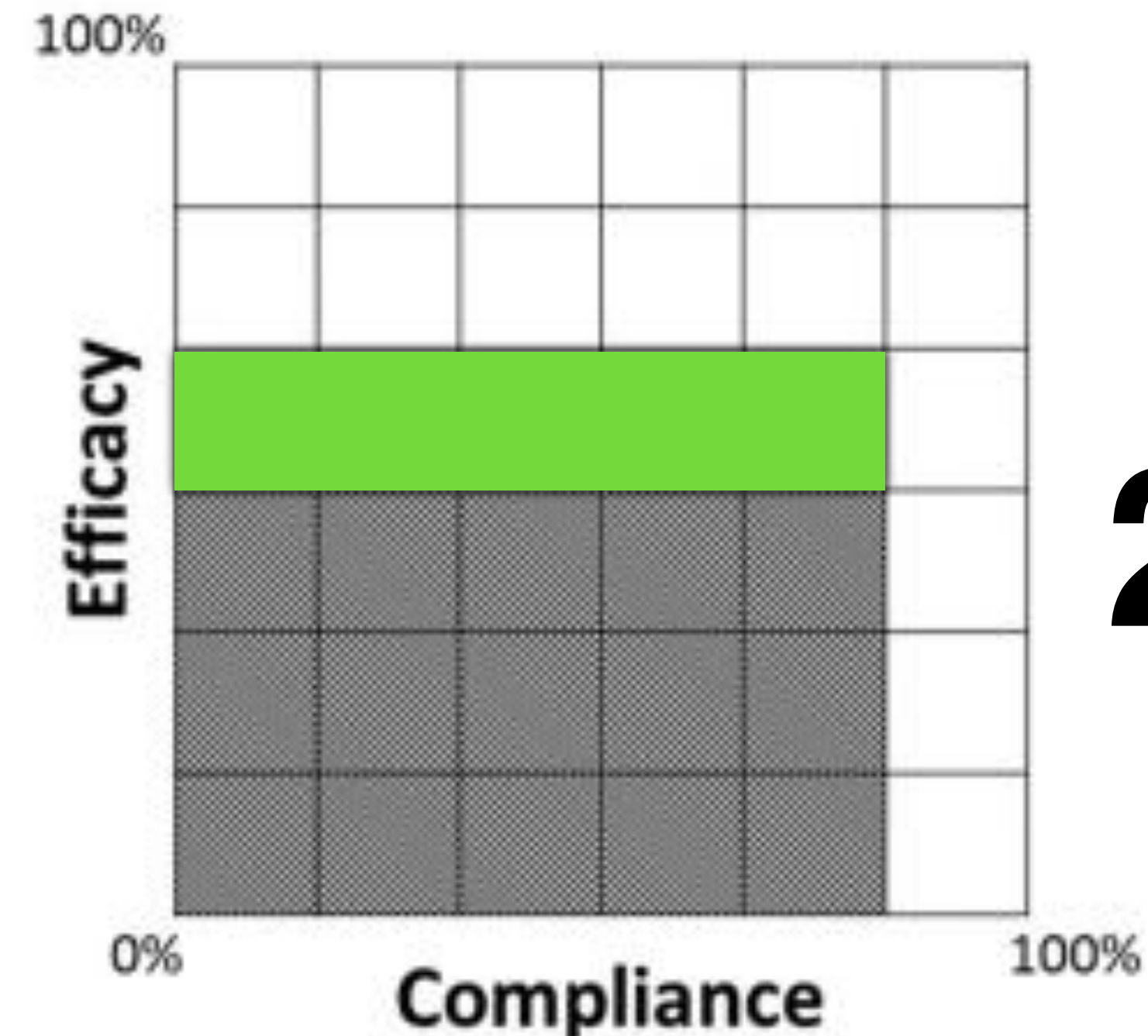


CPAP



15

Oral Appliance



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