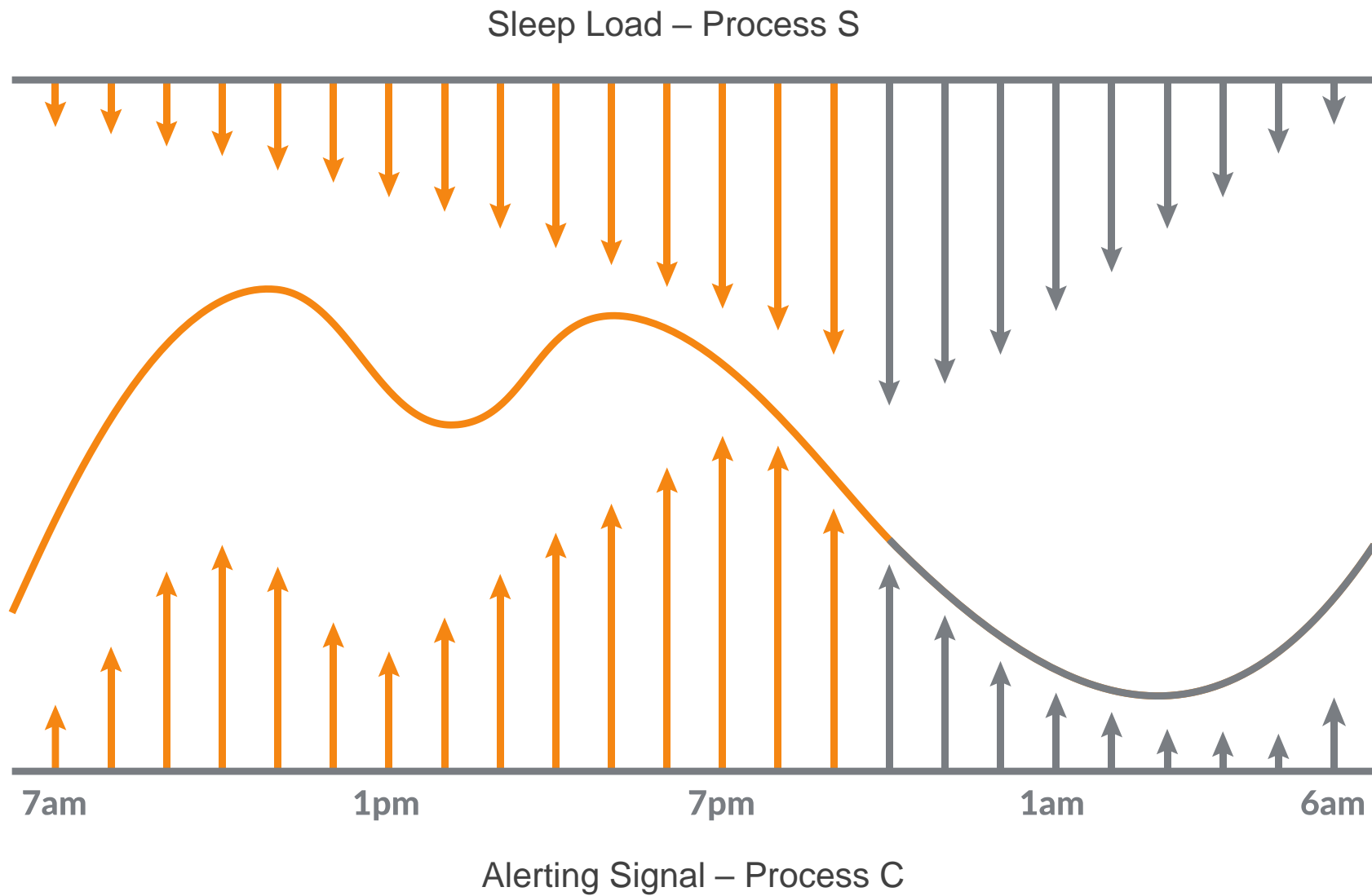


How Managing Sleep Medicine has Saved one ACO Millions



Dominic Munafo M.D., FABSM **Chief Medical Officer - BetterNight**

- Baylor College of Medicine
- Assistant Clinical Professor (voluntary) Univ of California, San Diego
- Practicing Sleep Medicine for 30+ Years



“Insufficient sleep is a
public health epidemic.”

– Centers for Disease Control and Prevention

Highly Prevalent, Severely Under-Diagnosed and Very Costly

Sleep Disorder	U.S. Population Affected	Annual Costs	Sleep Apnea Co-Morbidities
Apnea	18%	<p>\$162 Billion¹ in total costs</p> <p>\$87 Billion in lost productivity</p>	<p>46-53% Prevalence of HTN</p> <p>77% Prevalence of Obesity</p> <p>5-63% Prevalence of Depression</p> <p>25% Prevalence of CAD</p>
Insomnia	20%	<p>\$84 Billion in healthcare costs</p> <p>\$411 Billion² in lost productivity</p>	<p>83% of DR-HTN have OSA</p> <p>71% of DM II have OSA</p> <p>76% of CHF have OSA</p> <p>44-72% of CVA have OSA</p> <p>49% of AF have OSA</p>

The Risks of Untreated Sleep Apnea

x2

The risk of dying from heart disease

x2

The risk for stroke

x2

More likely to develop hypertension

x2.6

More likely to suffer a non-fatal CV event

x2

More likely to develop complex arrhythmias

57%

Increased risk for recurrence of AFib after ablation

x2.4

Increase risk of heart failure

Redline et al. the Sleep Heart Health Study 2010 | Gami et al. J Am Coll Cardiol 2103 | Young et al. J Sleep, 2008 | Li et al Europace, 2014 | Sleep and Breathing 2016 Circulation, 2010 | International Journal of cardiology, 2013

Economics of Sleep Apnea

OSA patients have **higher direct medical costs** for up to **10 years** before diagnosis compared with those who are not diagnosed with OSA and the magnitude of difference in these costs is **directly related to the severity of SDB²**



Untreated OSA patients averaged **32% more hospital admissions** than treated OSA patients²



Prior to diagnosis, OSA patients utilized medical resources **23-50% more** than control group.¹

1. McKinsey-Harvard 'The Economics of Sleep,' 2010

2. Butterfield et al., SLEEP 2011

3. Cai et al. *Am J Man Care*, 2012

Highly **Prevalent**, Severely **Under-Diagnosed** and Very **Costly**

Untreated OSA patients cost **\$1950 - \$3889 per year** more than those treated.

Patients with untreated OSA had **inpatient costs 82% higher** than treated patients.

World J Otorhinolaryngol Head Neck Surg 2015 Sep; 1(1): 17–27.

Untreated sleep apnea patients cost **\$2700 - \$5200 per year** more than those treated.

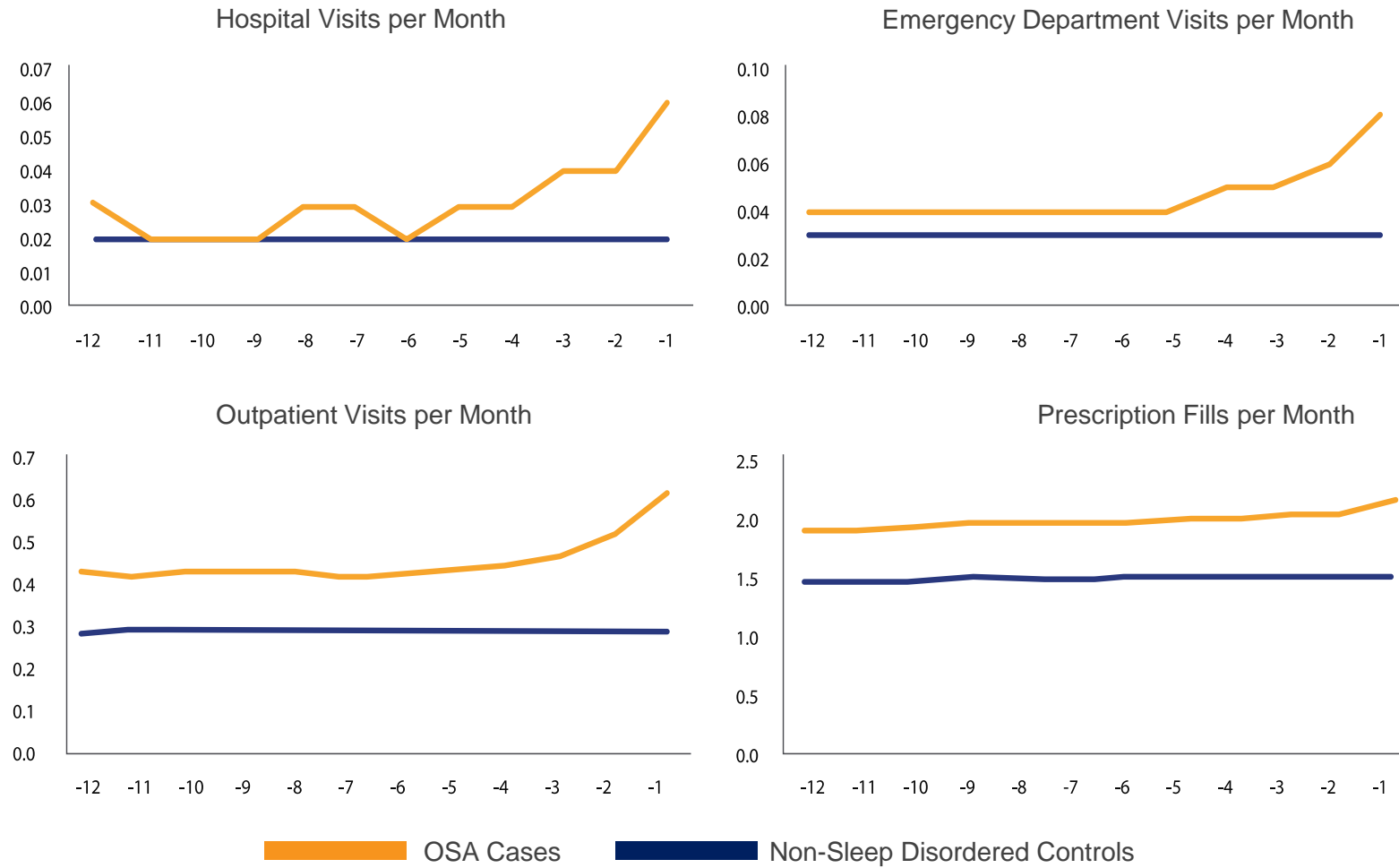
Sleep 2019 Oct 24

J Occup Environ Med. 2010 May;52(5):473-7

Berger M, et al. Schneider National, Inc., and Definity Health Corp.

Untreated Sleep Apnea Costs

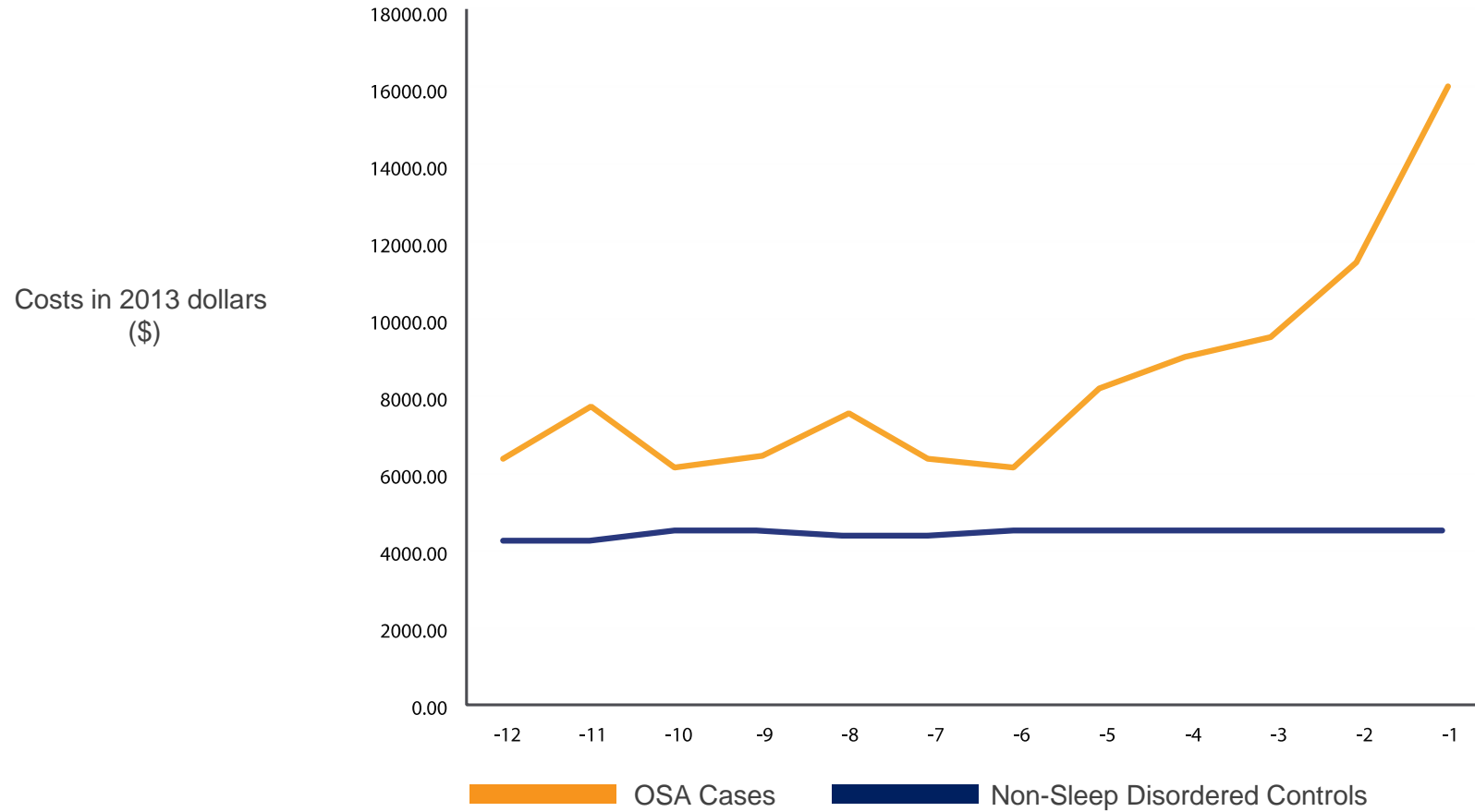
Health care utilization during the year prior to OSA diagnosis



J Clin Sleep Med. 2020;16(1):81–89

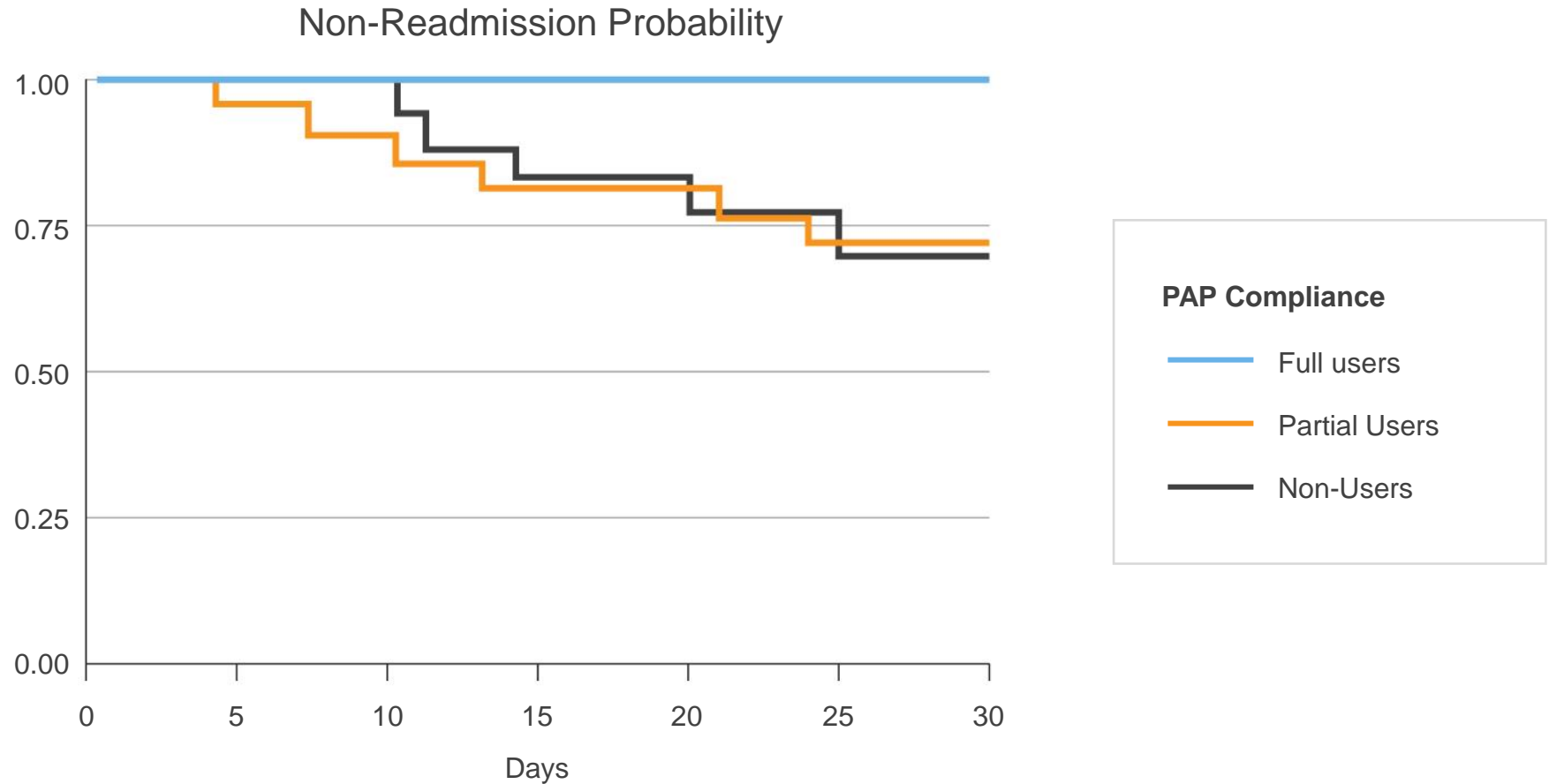
Untreated Sleep Apnea Costs

Total mean monthly costs during year prior to OSA diagnosis



J Clin Sleep Med. 2020;16(1):81–89

Treatment of OSA Reduces Cardiovascular Disease Readmission



Upenn Schwab, et al Journal of Clinical Sleep Medicine, Oct.2014

CPAP Treatment **Positively** Impacts Diabetes

CPAP **reduces** blood glucose levels

Two nights of **CPAP use improves insulin sensitivity**, sustained at the 3-month interval

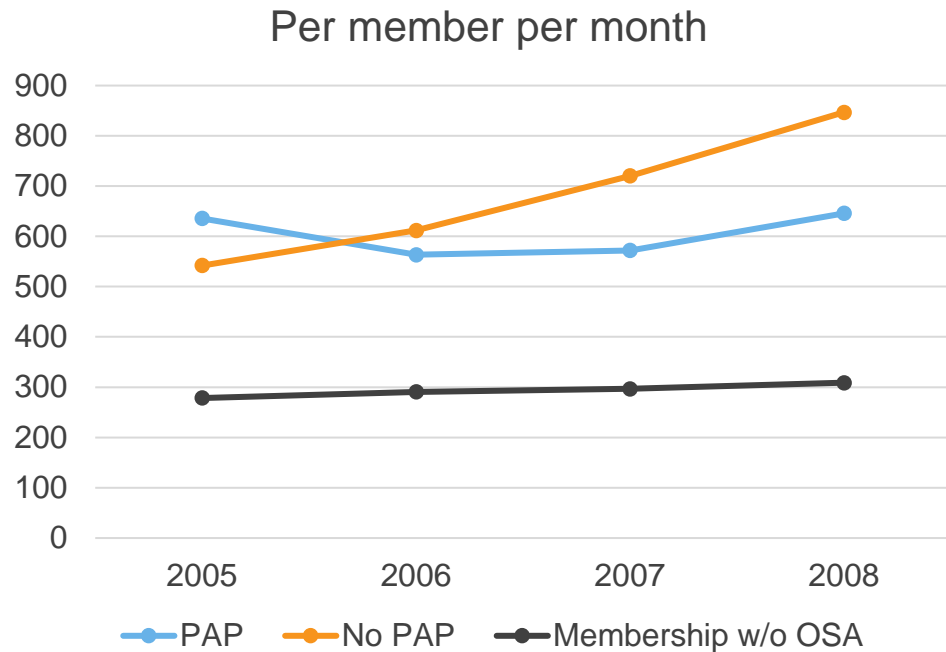


CPAP **improves** glucose metabolism

Improvement in patients with HbA1c >7 after use of CPAP therapy **by 6.5%**

PAP Reduces Total Medical Expense for OSA Patients

- Union Pacific sleep campaign (2007-2008)
- No PAP participants had **total medical costs 29% more** than PAP participants.
- In 2008 that difference was **31%**.



Year	No SDB	PAP	No PAP
2006	\$3,487	\$6,761	\$7,339
2007	\$3,561	\$6,865	\$8,643
2008	\$3,706	\$7,748	\$10,159

Source: Union Pacific Employees Health Plan; Sleep June 2011

Sleep Care Management is **Broken**

Silos of Costly & Fragmented Care Delivered over Multiple Months



85%

Remain Undiagnosed

50%

Never receive treatment

33% Or less

Adherence at one year

Average time to complete: **4 months** | Average cost: **\$3,500 - \$8,700**

BetterNight **Fixes** Sleep Care Management

Fully integrated virtual care with no infection risk

Sleep Health
Assessment



Sleep Health
Report/Education



Telehealth
Consult



Home
Sleep Test



Test Results/
Recommendation



CPAP Shipped/
Coaching Support



50%

Improvement in Conversion from
Diagnosis to Therapy

99%

Patient Satisfaction

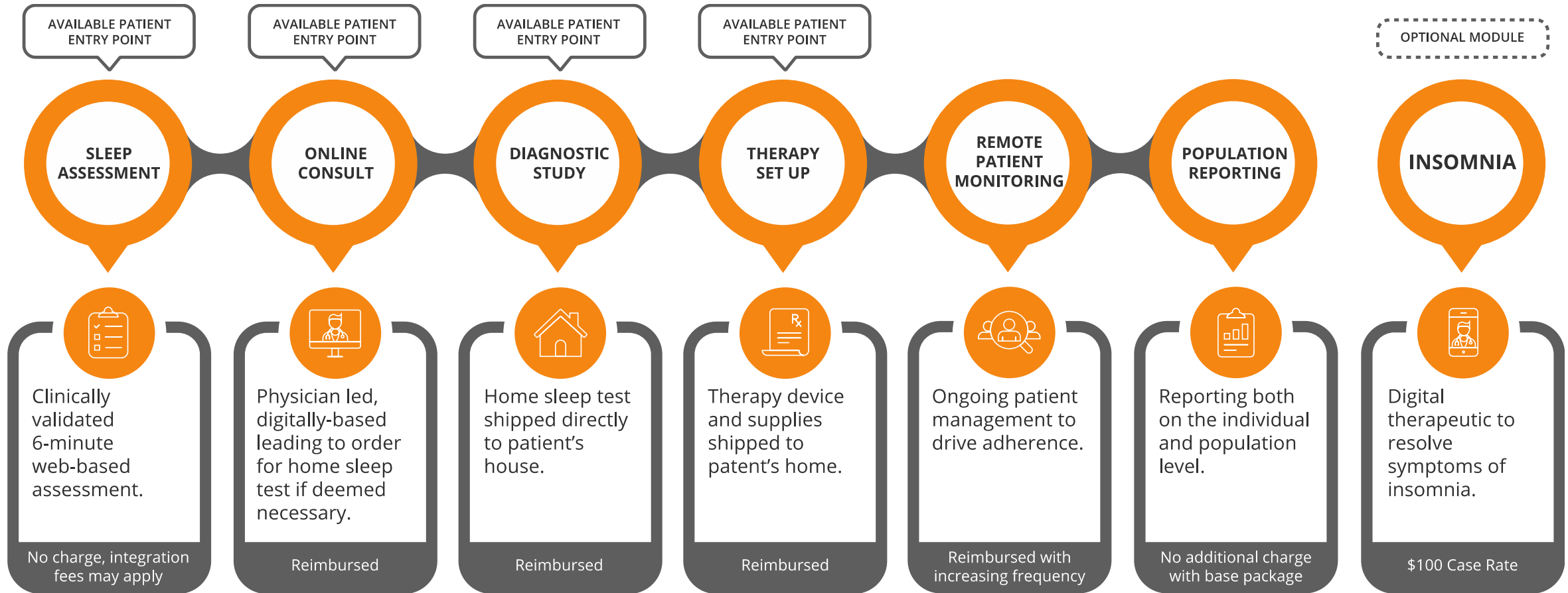
67%

Adherence @ one year

Average time to complete: **2 Weeks** | Average cost: **\$1,300**

The BetterNight Platform

A modular & adaptable platform allowing customers and patients to choose the services appropriate to their specific needs.







Lynne Milgram, MD, MBA
Chief Medical Officer – Sharp Community
Medical Group

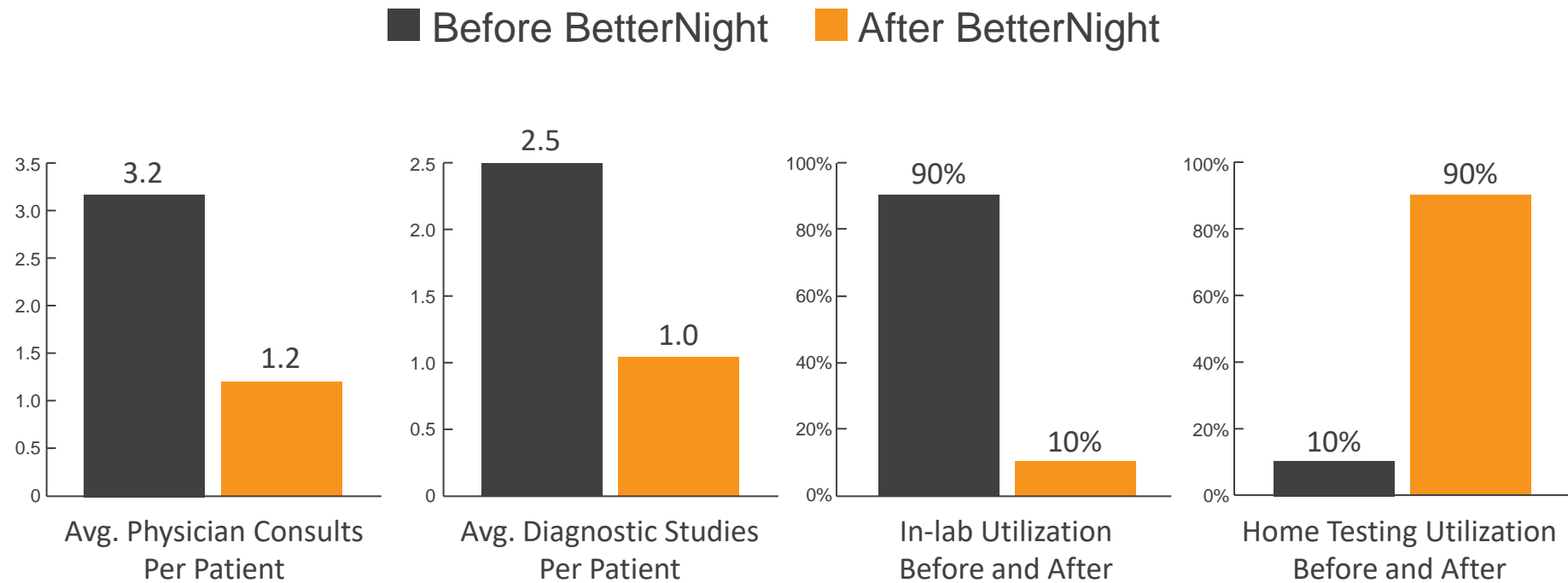
How the **Broken System** Impacted a Medical Group

- National DME provider – **logistics** only
- No **follow-up** for patients
- Poor **compliance** with CPAP
- No opportunity for **ROI** or patient benefit
- **Overuse** of limited and expensive resources
- Poor **integration** of PCPs into apnea care

How **BetterNight** Impacted a Medical Group

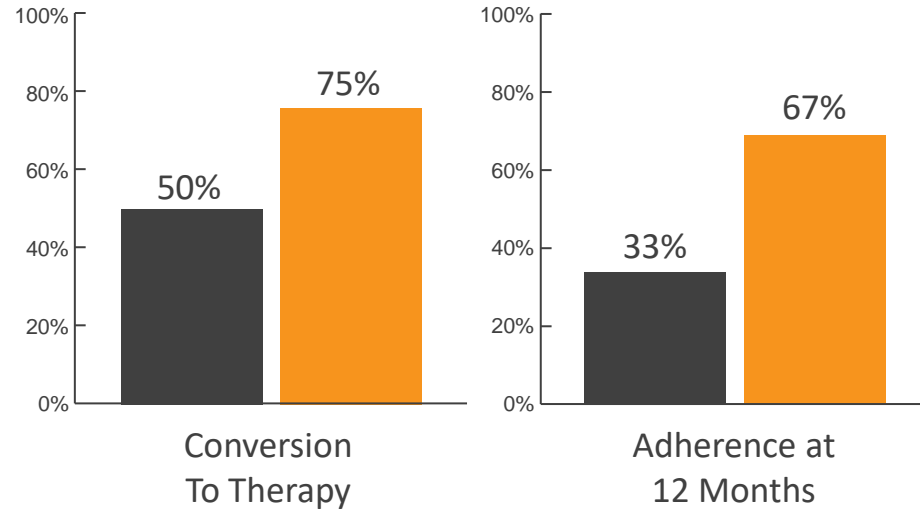
- **Sleep only** DME provider
- Robust **follow-up** for patients
- Excellent **compliance** with CPAP
- Positive **ROI** and patient benefit
- **Curtail use** of limited and expensive resources
- Full **integration** of PCPs into apnea care

Case Study - Southern CA based Health Plan



Case Study - Southern CA based Health Plan

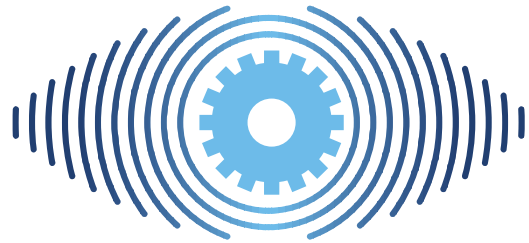
■ Before BetterNight ■ After BetterNight



3x

Increase in # of adherent patients at 1 year

BetterNight Care Management



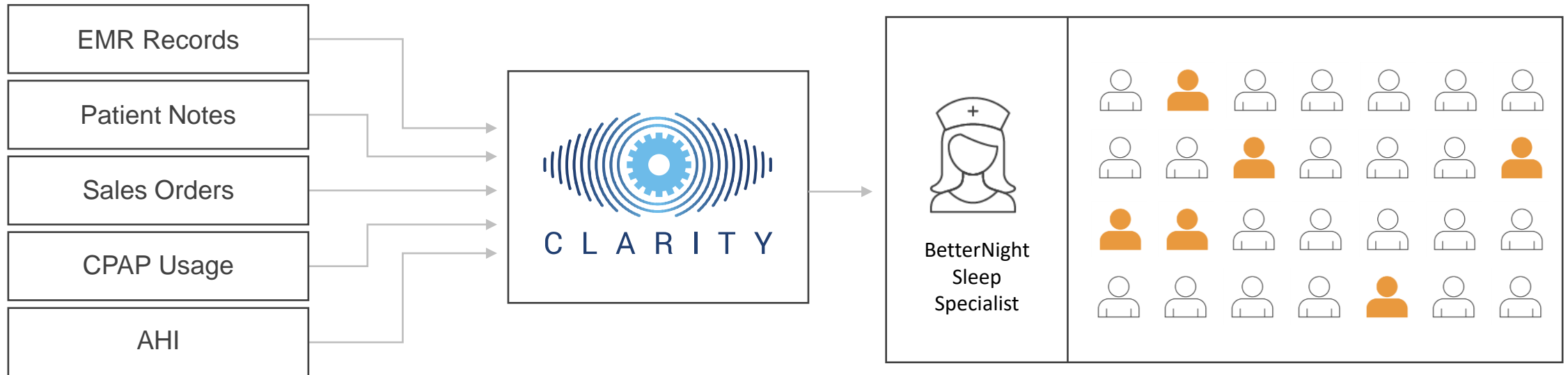
C L A R I T Y

BetterNight's Proprietary Data
Analytic Software

Unprecedented Outcomes & Accountability

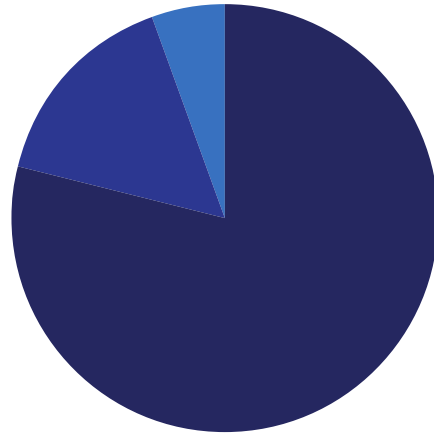
- **Objective** reporting on adherence and therapy efficacy in real-time
- **Exception-based** coaching using proprietary algorithms to drive high compliance and adherence in a cost-effective manner
- **Ongoing** therapy supplies

Clarity: Human Care-Coordinated Calls



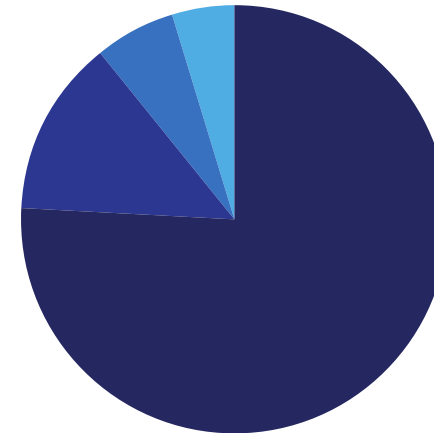
Clarity Population Management Report

Diagnostic - Status (685)



■ Complete (541) ■ In process (37)
■ Unable to complete (107)

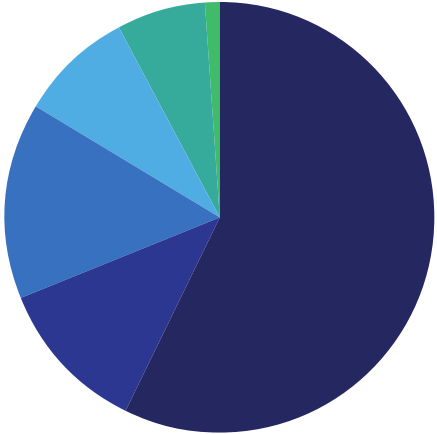
Diagnostic - Test Results (541)



■ Internal positive (411) ■ External positive (25)
■ No diagnostic (72) ■ Internal negative (33)

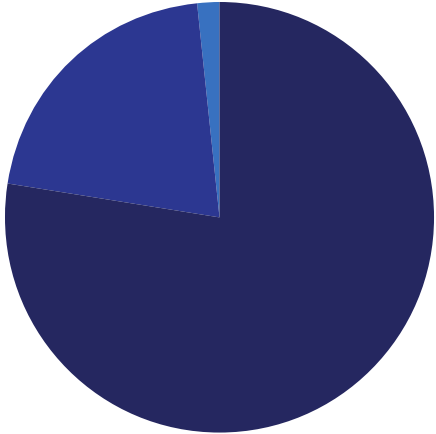
Clarity Population Management Report

Therapy - PAP Status (508)



- Intake complete (291)
- TX not prescribed (59)
- Refused (75)
- In process (44)
- Supplies Only (34)
- Unable To Complete (5)

Therapy - Has Recent Data (325)



- Internal modem (252)
- No data - active (68)
- External modem (5)

Clarity Population Management Report

Apnea Severities

Mild (5-15): **21% (109)**
Moderate (15-30): **23% (121)**
Severe (30+): **40% (206)**
Unknown: **14% (72)**

Active Modems (260)

Average Nights Used (%): **75.36% (23 nights)**
Median Nights Used (%): **90.00% (27 nights)**
Average Hours Used: **4.94 hours**
Median Hours Used: **5.35 hours**
Average Treated AHI: **2.61 events/hour**

Supplies Only: External (8)

Average Nights Used (%): **96.00% (29 nights)**
Median Nights Used (%): **100% (30 nights)**
Average Hours Used: **6.28 hours**
Median Hours Used: **6.93 hours**
Average Treated AHI: **5.37 events/hour**

PAP Set Up Complete (291)
Medicare Compliance:
77%

Aggregated Patient Satisfaction

(total responses: 1567)

Was your appointment on time: **94.70%**
The equipment I received was clean and undamaged: **99.55%**
The instructions for my sleep therapy were easy to understand: **99.87%**
My technician was competent and showed concern for me: **99.87%**

BetterNight Overview



25 Years

Unparalleled experience in sleep management with top sleep experts trained at or affiliated with Baylor, Vanderbilt, Duke, Stanford and Harvard



30,000

Patients treated annually



67%

Long-term adherence vs 33% from standard sleep apnea pathway



Licensed
Nationwide



99%

Average patient satisfaction score over the past 5 years



19

Peer reviewed articles authored and published



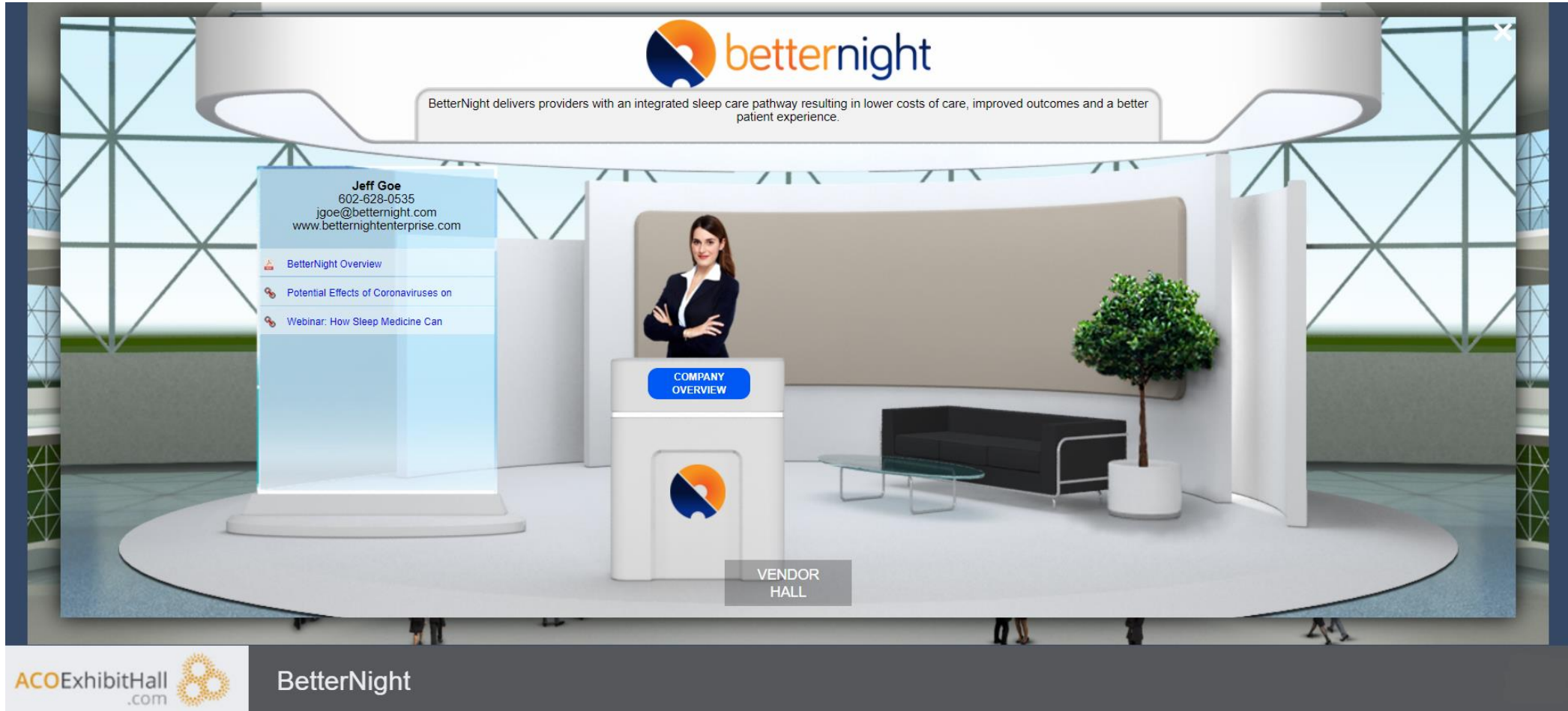


betternight

Questions & Discussion

Stop by our ACO Exhibit Hall Virtual Booth

<https://www.acoexhibithall.com/vendor-booth/betternight/population-health-i-patient-ervices-ancillary-care/136/>





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