



Snore No More: Modern Sleep Apnea Management in Older Adults

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Objectives

- Recognize symptoms of obstructive sleep apnea (OSA) and other forms of Sleep Disordered Breathing
- Understand process of evaluation and indications for sleep studies
- Discuss treatment modalities for Sleep Apnea
- Introduce available modes of Positive Airway Pressure therapy (PAP)
- Know what influences compliance

Disclosures

- No conflicts of interest

What is sleep?

- Complex behavioral and physiologic process accompanied by postural recumbence and closed eyes
- Reversible behavioral state of perceptual disengagement from and unresponsiveness to the environment

Basics of Sleep Physiology

- **Non-REM sleep** (makes up to 75-80% of sleep)
 - N1 (former Stage 1): very light, easy to arouse, 2-5
 - N2 (former Stage 2): most of the night's sleep, 45-55%
 - N3 (former Stage 3,4) : slow wave, deeper sleep, 13-33%
- **REM sleep** (25% of total sleep time)
 - EEG similar to stage 1 (activation)
 - Low/absent muscle tone (inhibition of spinal motor neurons by brainstem mechanisms)
 - Associated with dreaming
 - Greatest cardiac and respiratory instability

Sleep-disordered breathing

- Disordered respiration during sleep diagnosed via Home Sleep Testing (HST) or in laboratory Sleep Testing (Polysomnogram, PSG)
- In laboratory PSG is the gold standard for diagnosis

Research

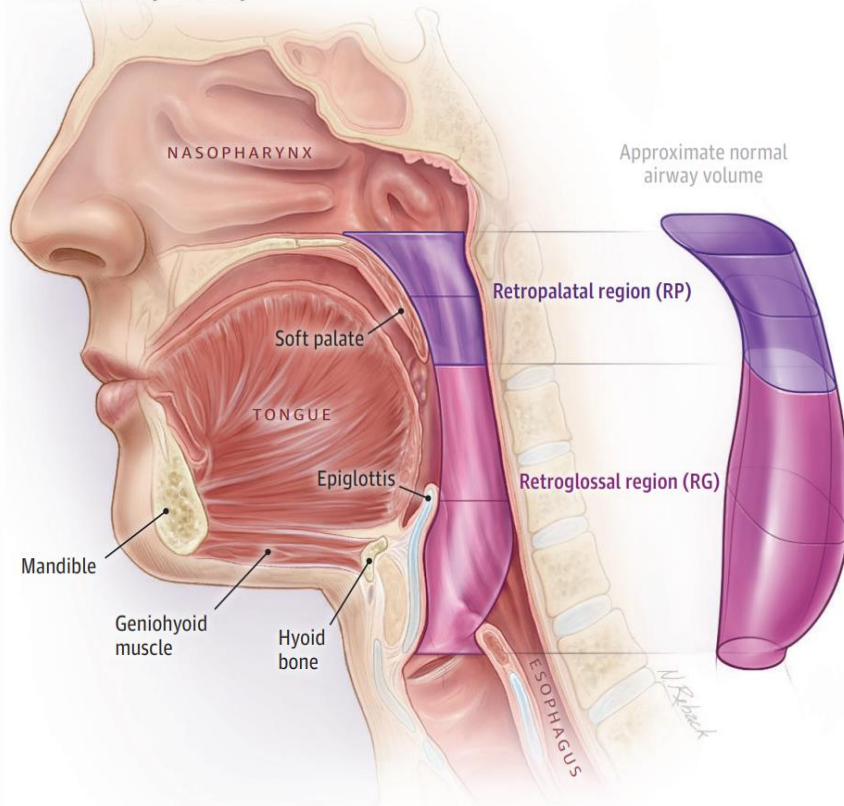
Global Prevalence of Obstructive Sleep Apnea in the Elderly and Related Factors: A Systematic Review and Meta-Analysis Study

Tina Ghavami BS ^a, Mohsen Kazeminia BS ^a, Nassim Ahmadi PhD ^b,
Fatemeh Rajati PhD ^c  

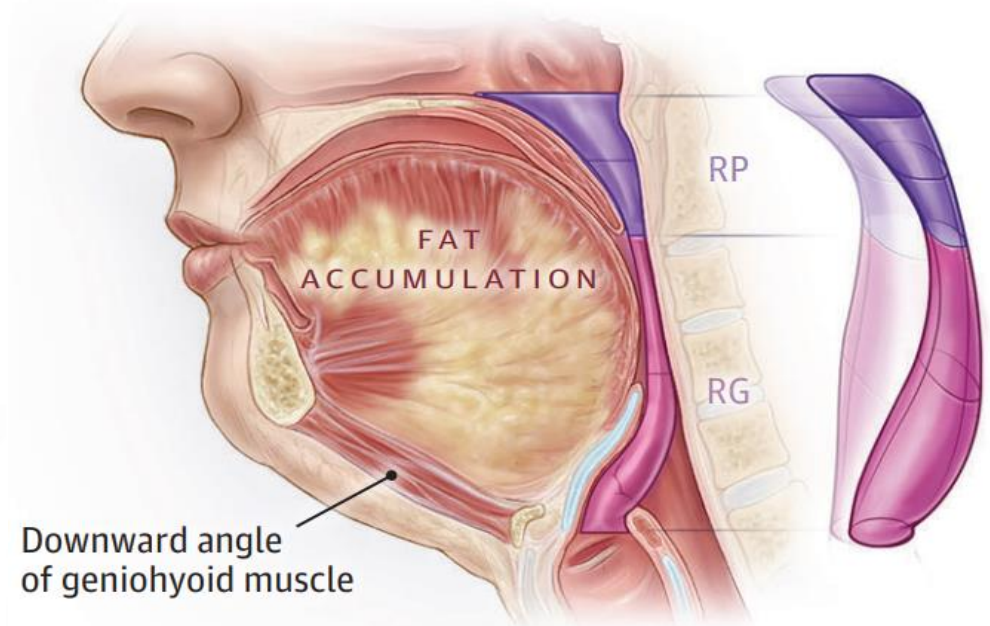
Overall estimate of the global prevalence of OSA in the older adults was 35.1%, with the highest prevalence in the Americas at 41.9%.

OSA Pathophysiology: Upper Airway Anatomy

Normal airway anatomy



Increased tongue fat and inferior hyoid position



Age related decrease in the size of the upper airway lumen, lengthening of pharyngeal airway, descent of the hyoid bone, increased pharyngeal resistance

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graph TD; A["A person with sleep apnea drifts off to sleep"] --> B["Breathing stops (apnea) or is severely reduced (hypopnea)"]; B --> C["The brain detects insufficient oxygen and excess carbon dioxide and triggers an arousal"]; C --> D["Arousal causes sleeper to resume breathing (remaining unaware of the episode)"]; D --> A;
```

A person with sleep apnea drifts off to sleep

Breathing stops (apnea) or is severely reduced (hypopnea)

The brain detects insufficient oxygen and excess carbon dioxide and triggers an arousal

Arousal causes sleeper to resume breathing (remaining unaware of the episode)

Sleep Apnea Cycle

Sleep disordered breathing symptoms

- Excessive daytime sleepiness
- Breathing pauses/snoring
- Sleep fragmentation with frequent arousals at night (sometimes without patient being aware)
- Sleep maintenance insomnia
- Impaired cognition/personality changes
- Anxiety/depression/irritability
- Morning headaches, dry mouth, nocturia, decreased libido

Barriers to Diagnosis & Treatment

General Public Awareness	Many individuals do not recognize symptoms and severity of the condition.
Primary Care Physician Education	Front-line caregivers do not routinely ask about duration and quality of sleep or screen patients for OSA.
Diagnosis and Treatment Costs	While usually covered by payors for qualified patients, costs average \$2,105 per year for testing, appointments, treatment devices and surgery if necessary.
Employer and Payor Investment for Chronic Care Management	Economic stakeholders are still developing cost models that financially reward managing chronic conditions in order to lessen longer-term risk for acute events

OSA screening

STOP		
Do you SNORE loudly (louder than talking or loud enough to be heard through closed doors)?	Yes	No
Do you often feel TIRED , fatigued, or sleepy during daytime?	Yes	No
Has anyone OBSERVED you stop breathing during your sleep?	Yes	No
Do you have or are you being treated for high blood PRESSURE ?	Yes	No
BANG		
BMI more than 35kg/m ² ?	Yes	No
AGE over 50 years old?	Yes	No
NECK circumference > 16 inches (40cm)?	Yes	No
GENDER : Male?	Yes	No
TOTAL SCORE		

High risk of OSA: Yes 5 - 8

Intermediate risk of OSA: Yes 3 - 4

Low risk of OSA: Yes 0 - 2

Types of Sleep Studies

Type 1 – Attended in-lab polysomnography (PSG)

- EEG, EOG, EMG, EKG, airflow, respiratory effort, O2 saturation, usually video

Type 2 – Comprehensive portable polysomnography

- Minimum of 7 channels including EEG, EOG, chin EMG, ECG/HR, airflow, respiratory effort and O2 saturation

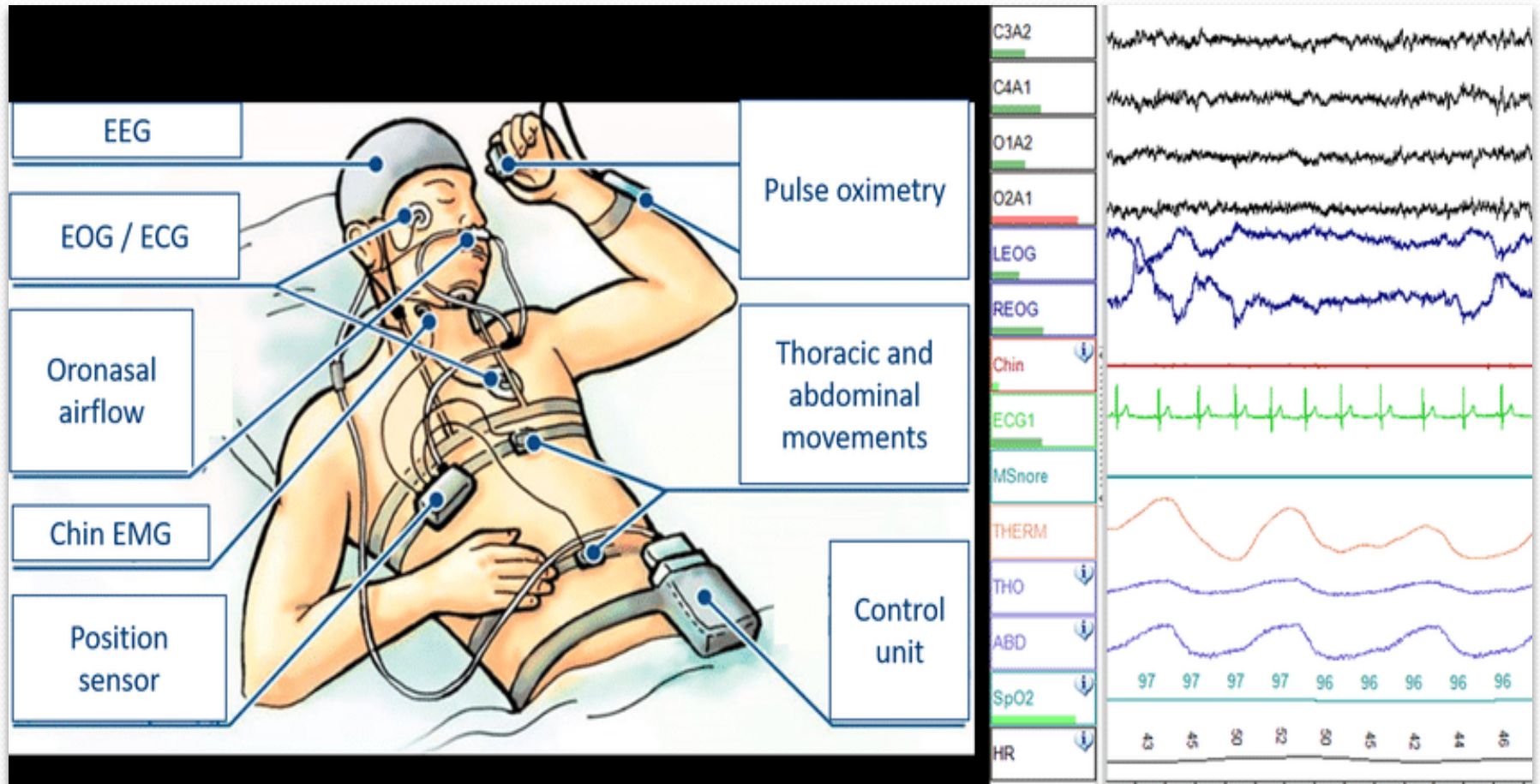
Type 3 – Modified portable sleep apnea testing

- Minimum of 4 channels including ECG/HR, O2 saturation and at least 2 channels of respiratory movement or respiratory movement and airflow

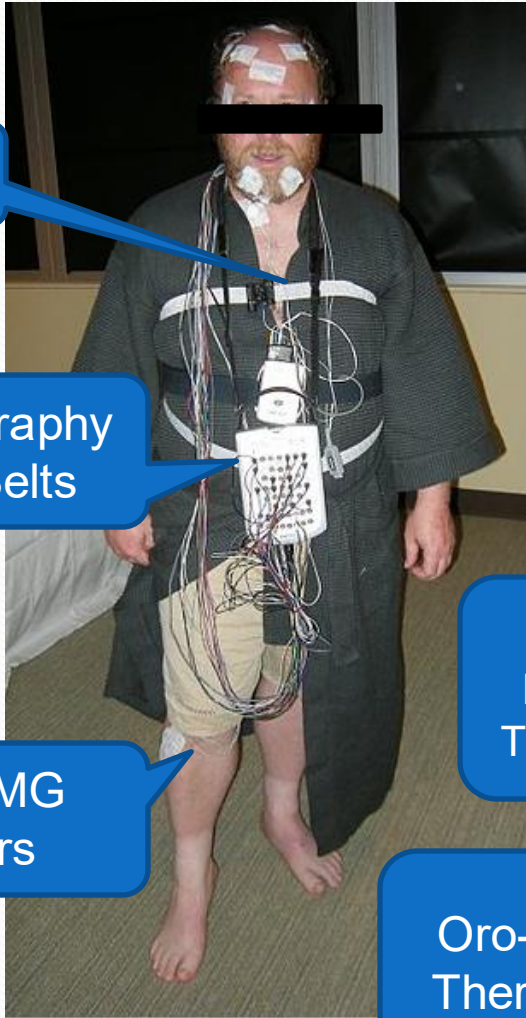
Type 4 – Continuous single or dual bio parameters

- Airflow and/or O2 saturation

Type 1



EKG



Plethysmography
("Effort") Belts

Limb EMG
sensors

Nasal
Pressure
Transducer

Oro-Nasal
Thermistor

Pulse Oximeter



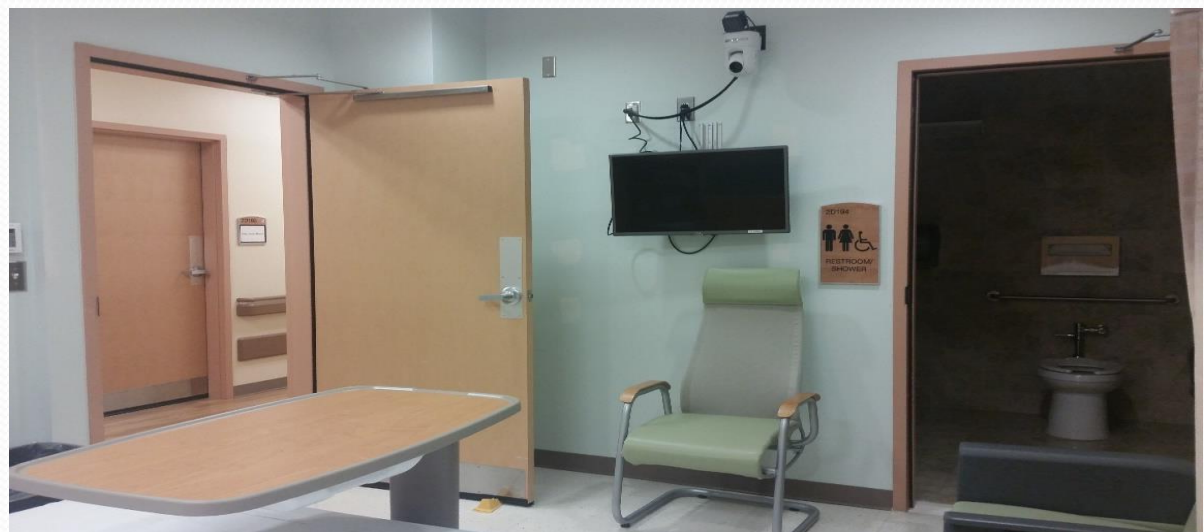
EEG

EOG

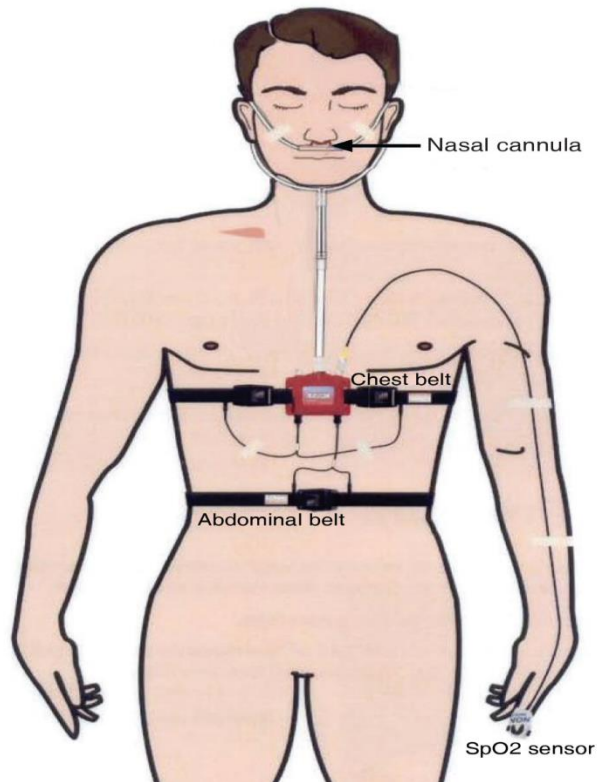
EMG



PSG ROOM



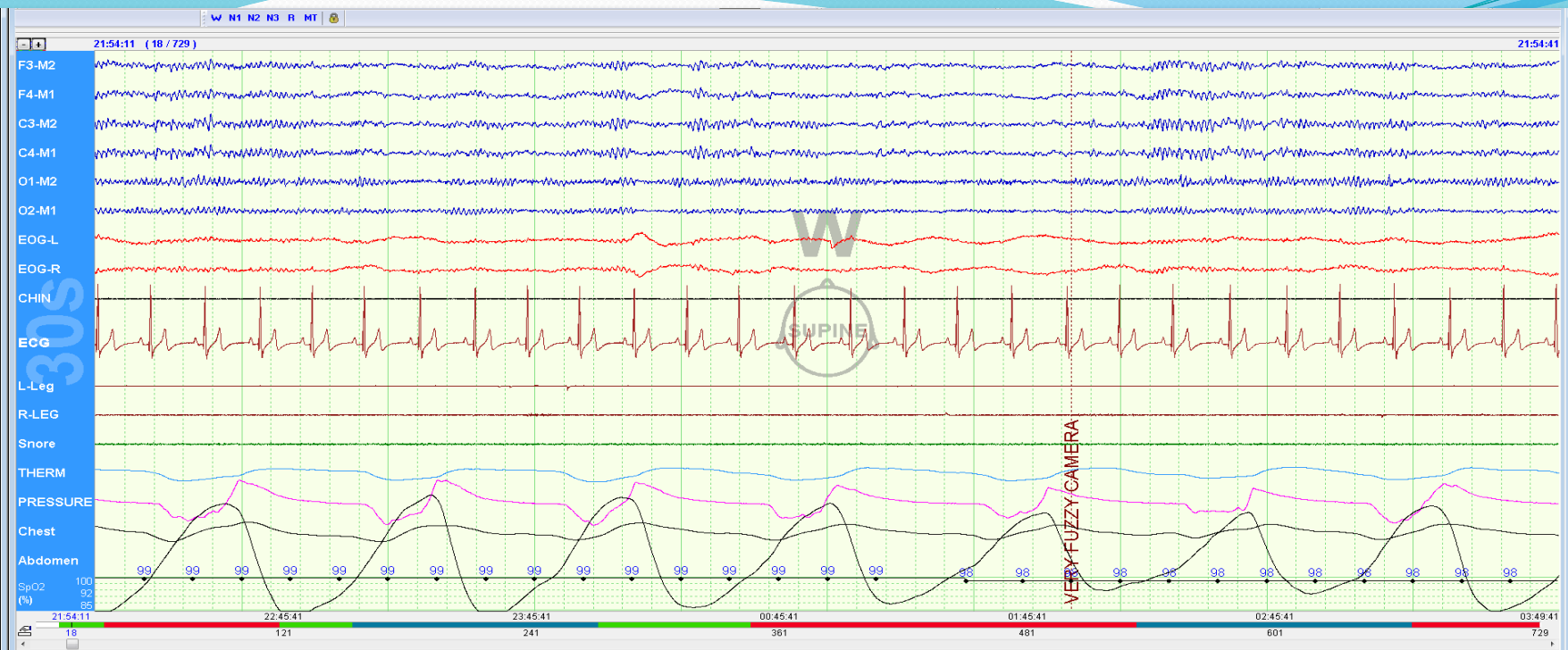
Modified portable sleep apnea testing: Type 3 (HSAT)



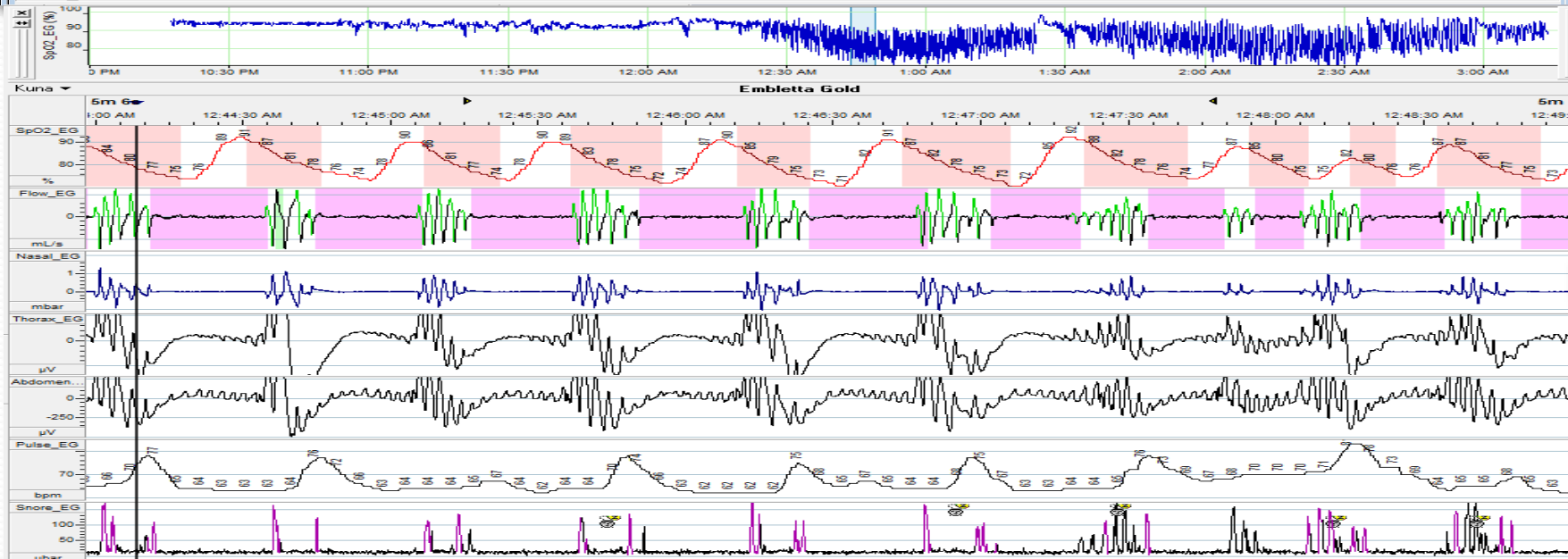
Signals Recorded

- Oral/Nasal Flow
- Snoring
- Rib cage and abdominal movement
- Pulse ox
- Body position
- EKG





PSG



HSAT

PSG types

- Diagnostic/Baseline PSG: all parameters are monitored throughout the study without applying positive airway pressure therapy (PAP)
- Split-Night PSG: initial diagnostic part followed by treatment part if indicated (usually with PAP)
- Titration PSG: PAP pressure is changed (“titrated”) during PSG to determine the best pressure level. (“flow” measured through PAP instead of oronasal thermistor and nasal pressure transducer).

Sleep disordered breathing types

APNEA: complete cessation of respiration

- OBSTRUCTIVE (can't breathe)
- CENTRAL (won't breathe)
- MIXED (can't breathe and won't breathe)

HYPOPNEA: partial decrease in respiratory effort (>30% reduction in airflow for > 10 sec or longer accompanied by 3 or 4% oxygen desaturation or an arousal)

Respiratory Event Indices

AHI = Apnea Hypopnea Index = $\frac{\text{Apneas} + \text{Hypopneas}}{\text{hours of sleep}}$

REI = Respiratory Event Index = $\frac{\text{Apneas} + \text{Hypopneas}}{\text{hours of HSAT recording}}$

RDI = Respiratory Disturbance Index = $\frac{\text{Apneas} + \text{Hypopneas} + \text{RERAs}}{\text{hours of sleep}}$

*RERAS: respiratory effort related arousals

HSAT are most appropriate for patients who:

- Are relatively healthy without major medical problems
- Not on opioids
- Able to set up hardware themselves
- Have a high pretest probability of having OSA (and ONLY OSA!)

PSG is more appropriate for patients who:

- Have significant medical comorbidities
- Take opioids on the regular basis
- Unable to set up HST due to impaired cognition
- Have any reasonable probability of having OSA
- Have any reasonable probability of having another sleep disorder:
 - Sleep-related epilepsy
 - Nocturnal hypoventilation/hypoxia
 - Narcolepsy
 - Periodic Limb Movement Disorder
 - Parasomnia

HSAT are less appropriate for patients who:

- Have major medical problems (congestive heart failure, severe COPD, history of stroke, neuromuscular disease)
- Take chronic opiates
- Have cognitive deficits
- Have a low to moderate pretest probability of having OSA
- Need to be evaluated for a sleep disorder other than OSA

PSG is less appropriate for patients who:

- Are healthier, have a high pretest probability of OSA (only OSA), and are capable of HST.
- Need nursing or other home services that cannot be provided in a sleep laboratory.
- Are medically unstable
- Are being evaluated for insomnia, restless legs syndrome, or a circadian rhythm sleep-wake disorder
- Have psychological comorbidities (e.g. PTSD) that would be exacerbated with a PSG

OSA treatment options

- Positive Airway pressure
- Positional therapy
- Expiratory positive airway pressure therapy (nasal device)
- Surgical (UPPP, maxillomandibular advancement, hyoid advancement, pillar palatal implant)
- Hypoglossal nerve stimulator
- Excite OSA
- Medications

Expiratory Positive Airway Pressure Device

- Upon inhalation, the valves in the cones open allowing patient to breathe in normally. Upon exhalation, the valves close creating a narrower outlet for the exhaled air to pass through which in turn creates the pressure that is needed to keep patient's airway open for the next inhalation
- FDA cleared for treatment of mild to moderate OSA



eXciteOSA



- Intraoral Neuromuscular Electrical Stimulation (NMES) device
- Targets upper airway dilator muscles in awake-state
- Indicated for mild OSA and snoring
- 6 weeks for 20 min/day, then once per week after that for maintenance, total 3 months per FDA label
- Contraindications: $AHI > 15$, pacemakers, mouth ulcers, dental jewelry

Positional therapy

Positional OSA is defined as a total apnea-hypopnea index (AHI) ≥ 5 with a $> 50\%$ reduction in the AHI between the supine and nonsupine postures, and an AHI that normalizes (AHI < 5) in the nonsupine posture

Zzoma pillow



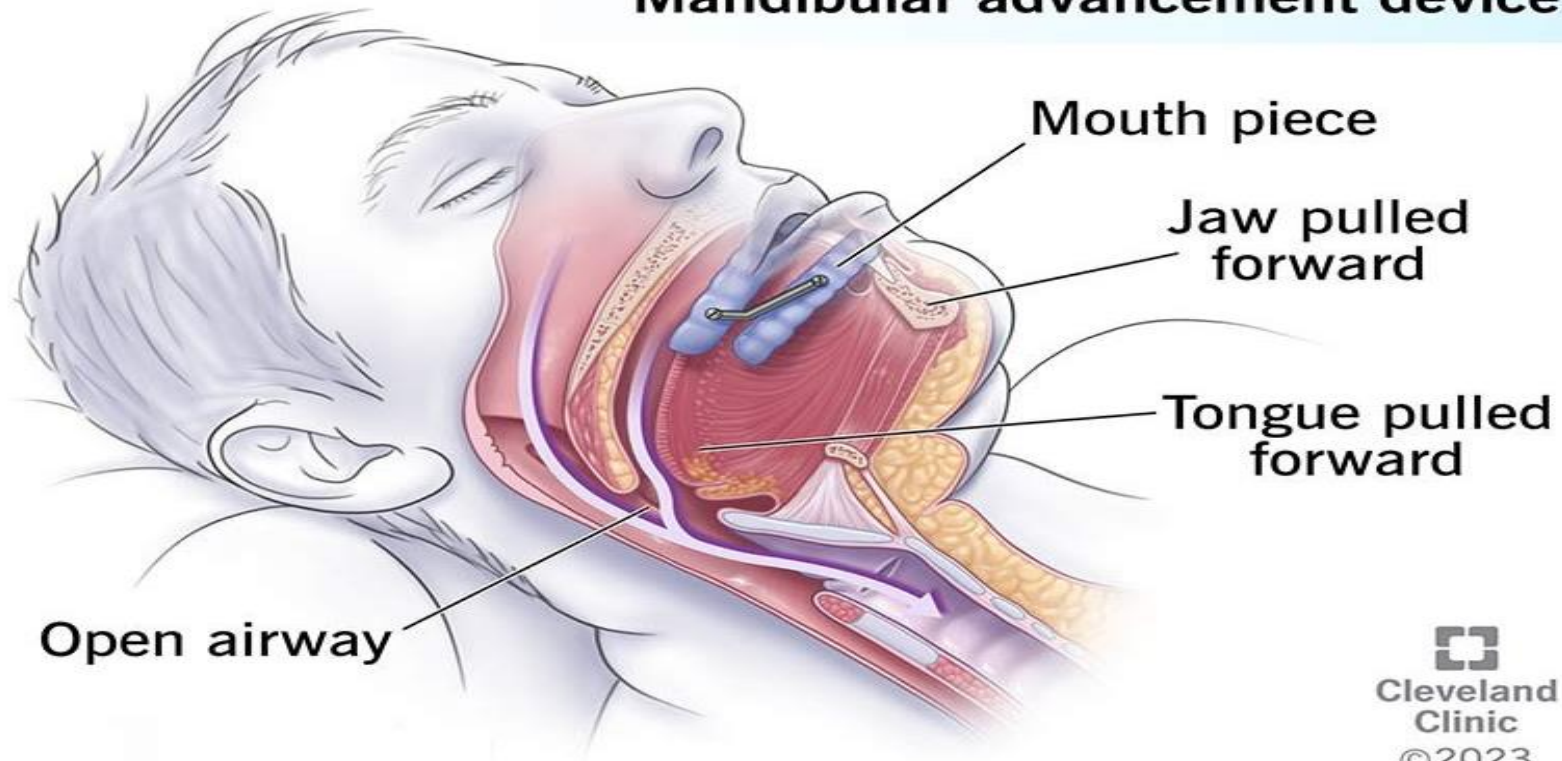
FDA cleared
Class II medical device
Requires prescription
Mild to Moderate positional OSA treatment.

Oral Appliance Therapy

- Indications: mild to moderate OSA, or severe OSA in CPAP intolerant patient
- Contraindications: severe gag reflex, severe TMD
- Side effects: dry/wet mouth, tooth movement, posterior open bite, pain on bite recovery, headaches, drooling, allergic reaction

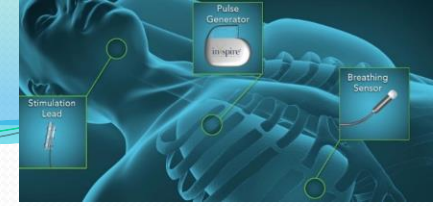
Oral appliance therapy: mandibular advancement device- MAD

Mandibular advancement device





Appliance	ProSomnus EVO	ProSomnus Herbst	Somnodent Classic	Airway Labs TAP	Panthera EMA	Panthera X3
Appliance Type	Interlocking (precision post)	Bilateral Push (compression)	Interlocking (dorsal post)	Midline Pull (traction)	Bilateral Pull (compression)	Interlocking (dorsal post)
Manufacturing Location	USA	USA	USA	USA	Canada	Canada
Material	Medical Grade 6 (MG6) used for heart valves	MG6 w/Metal	Dental Acrylic (PMMA) used for dentures w/Metal	PMMA w/Metal	Nylon	Nylon
Production Method	Milled	Milled	Hand fabricated	Hand fabricated	Printed	Printed
Mechanism of Advancement	Change to included extra arches to move forward 1mm at a time	Advance screws 4 rotations per mm with included wrench	Advance screws 10 rotations per mm with included wrench	Advance screw 2 rotations per mm with included wrench	Change to included extra straps to move forward 1mm at a time	Insert included extra pieces into the upper arch post to move forward .5mm at a time



HYPOGLOSSAL NERVE STIMULATOR(Inspire)

Inclusion criteria

- Moderate to severe OSA (AHI range from 15-65 with <25% central apneas)
- Unable to use CPAP
- Free of complete concentric collapse at the palate

Exclusion criteria

- Central + mixed apneas >25% of the total apnea-hypopnea index (AHI)
- Anatomical finding compromising the performance of upper airway stimulation, such as the presence of complete concentric collapse of the soft palate or condition/ procedure that has compromised neurological control of the upper airway
- Patients unable to operate the sleep remote
- Patients either cannot undergo MRI at all (Model 3024) or have to have special precautions (Model 3028)
- Patients with an implantable device that may be susceptible to unintended interaction with the Inspire system. Consult the device manufacturer to assess the possibility of interaction



Nyxoah receives FDA approval for Genio system

On Aug. 8, 2025, Nyxoah [announced](#) that the FDA approved the [Genio system](#) for a subset of patients with moderate to severe obstructive sleep apnea (OSA) who have an apnea-hypopnea index (AHI) between 15 and 65.

GENIO.



- A small, battery-free hypoglossal nerve stimulator is implanted under the chin in a single outpatient procedure (about 90 minutes).
- The device provides **bilateral stimulation** of the hypoglossal nerve, improving airway support—particularly helpful for patients with **Complete Concentric Collapse (CCC)**.
- It is powered **externally** through a wearable patch placed under the chin; patients can adjust settings through a smartphone app that also tracks usage.
- The system is **battery-free**, eliminating the need for future surgeries to replace batteries.
- DREAM trial showed median AHI reduction of 70.8%, and 82% achieved an AHI below 15. The results showed Genio was effective regardless of sleeping position.

FDA Approves First Medication for Obstructive Sleep Apnea



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 More Press Announcements

For Immediate Release: December 20, 2024

[Español](#)

Today, the U.S. Food and Drug Administration approved Zepbound (tirzepatide) for the treatment of moderate to severe obstructive sleep apnea (OSA) in adults with obesity, to be used in combination with a reduced-calorie diet and increased physical activity.

“Today’s approval marks the first drug treatment option for certain patients with obstructive sleep apnea,” said Sally Seymour, M.D., director of the Division of Pulmonology, Allergy, and Critical Care in the FDA’s Center for Drug Evaluation and Research. “This is a major step forward for patients with obstructive sleep apnea.”

SURMOUNT-OSA

- Two phase 3, double-blind, randomized controlled trials evaluating **tirzepatide** (10 or 15 mg weekly, subcutaneously) for **52 weeks** in adults with moderate-to-severe OSA and obesity.
- **Trial 1** enrolled patients not using positive airway pressure (PAP)
- **Trial 2** included patients on stable PAP therapy

Primary endpoint: change in apnea-hypopnea index (AHI) from baseline to week 52.

SURMOUNT-OSA: RESULTS

- **Tirzepatide led to a substantial reduction in AHI compared to placebo:**
- **Trial 1** (no PAP): mean AHI decreased by 25.3 events/hour with tirzepatide versus 5.3 with placebo;
- **Trial 2 (with PAP)**, the reduction was 29.3 versus 5.5 events/hour ($P < 0.001$ for both).
- Up to **50.2%** of tirzepatide-treated participants achieved an AHI < 15 events/hour and low sleepiness scores, a level at which PAP may not be routinely recommended.

Screening for obstructive sleep apnea (OSA)

- ▶ STOP-Bang score ≥ 5 : recommend diagnostic testing (may consider for intermediate risk in 3-5 range)
- ▶ Other validated questionnaires: refer to "Sleep Related Questionnaires" on the American Thoracic Society website

Diagnostic testing

- ▶ **Home sleep apnea testing** if high pretest probability for OSA and no significant comorbidities
- ▶ **In-laboratory polysomnogram** if complex comorbidities (eg, severe chronic obstructive pulmonary disease, hypoventilation, hypoxia, or concern for central sleep apnea) or patient-level factors limiting testing success at home

Treatment

- ▶ Sleep hygiene, healthy diet, and regular exercise should be discussed with all patients
- ▶ Consider symptoms, OSA characteristics, local resources, and patient preferences when discussing treatment options

Positive airway pressure (PAP) therapy

Applies air pressure to keep the upper airway open



Oral appliance therapy

Moves the mandible and tongue forward to open the upper airway



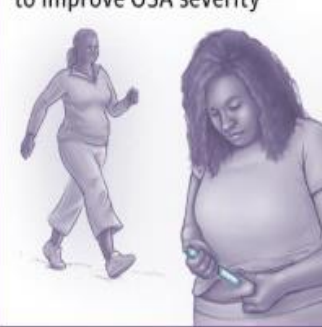
Positional therapy

Promotes sleeping in a nonsupine position to reduce upper airway collapsibility in those who have positional OSA



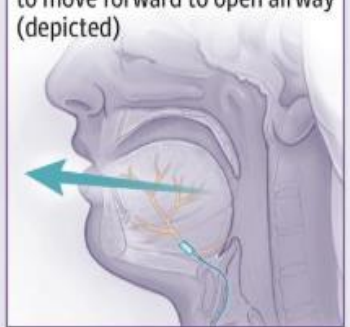
Weight loss interventions

Healthy diet, regular exercise, bariatric surgery, and/or incretin-based medications to improve OSA severity



Multilevel airway surgery or hypoglossal nerve stimulation

Enlarge and stabilize the upper airway or stimulate the tongue to move forward to open airway (depicted)



Treatment monitoring and adjustments

- ▶ Optimal treatment adherence predicts better outcomes
- ▶ Yearly monitoring to assess symptom resolution and therapy effectiveness

PAP (positive airway pressure)

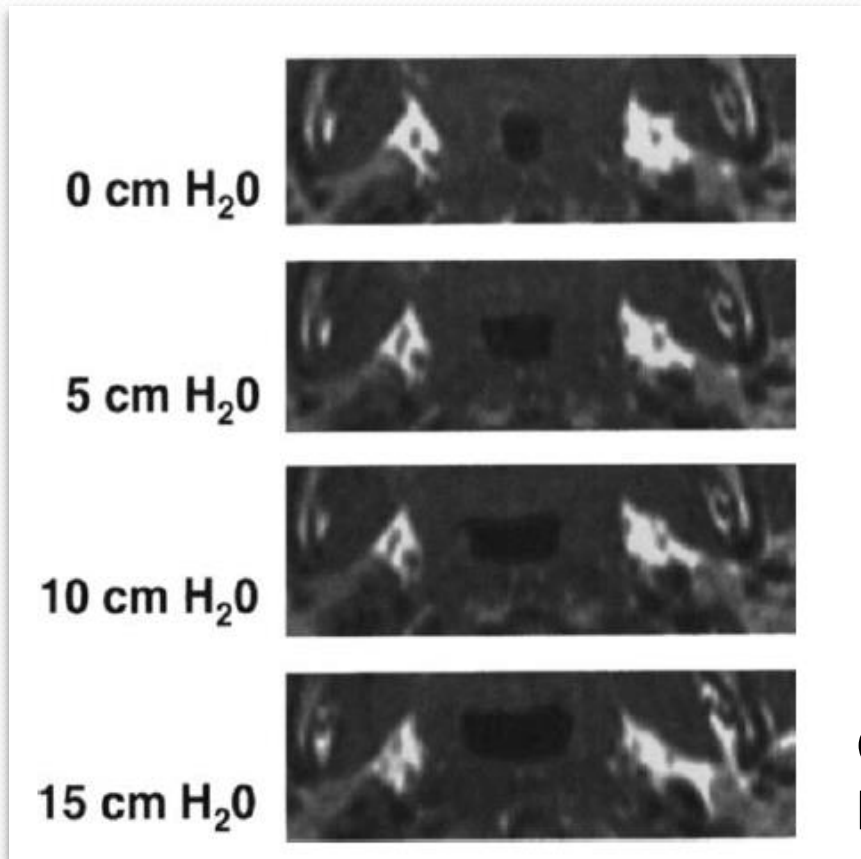
- First published description of CPAP was in 1981
- Prior to that various groups experimented with the concept

Positive Airway Pressure

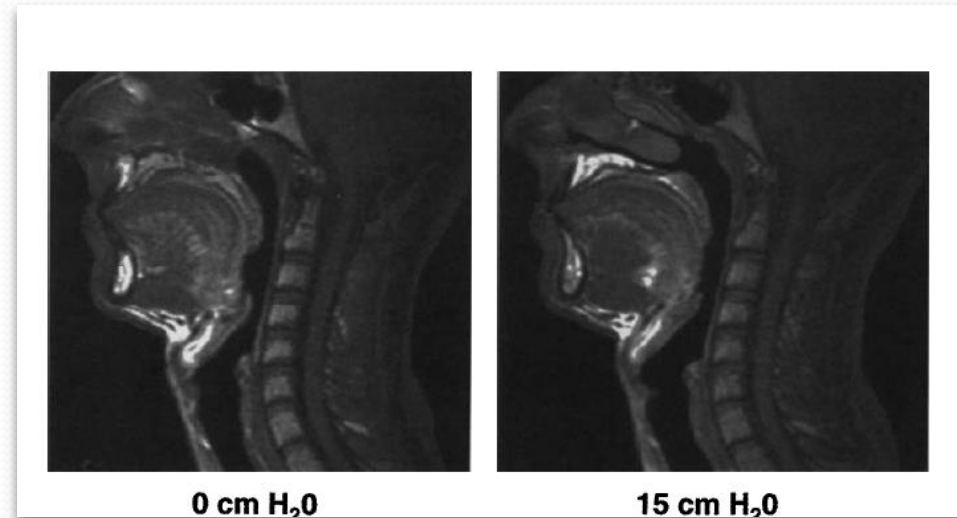


- Noninvasive application of airway pressure
- Acts as a pneumatic splint
- Improve/supports ventilation
- Stabilizes ventilatory system
- Several modes exist

Mechanism of action: pneumatic splint



Axial MR images at the retropalatal level



Midsagittal MR images in same individual

CPAP enlarges the airway more so in the Lateral dimension than in the AP dimension

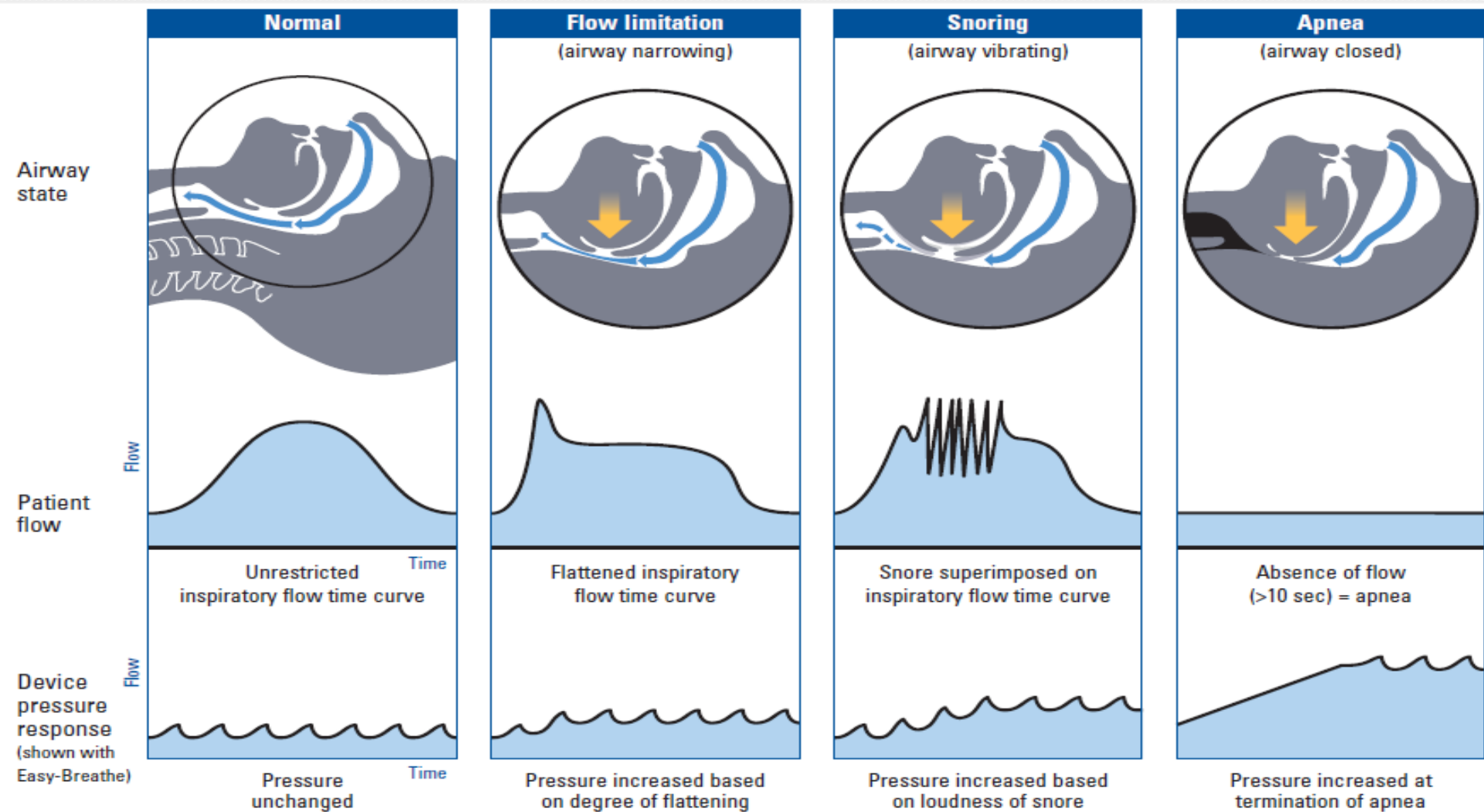
Modes of PAP therapy

- Auto CPAP
- Continuous Positive Airway Pressure (CPAP)
- Bilevel Positive Airway Pressure (BPAP)
- BPAP ST mode
- Auto BPAP
- Adaptive Servo-Ventilation (ASV)
- Average/Intelligent Volume Assured Pressure Support (AVAPS/iVAPS)

APAP (auto titrating CPAP)

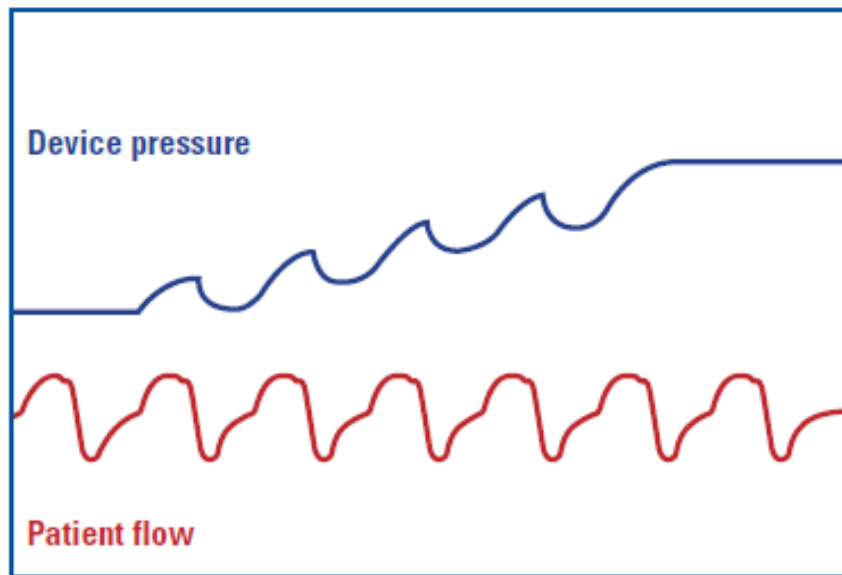
- Device starts at minimum set pressure and titrates pressure up during the night in response to events
- Settings:
 - Min pressure
 - Max pressure
- Comfort settings:
 - Ramp
 - EPR (Expiratory Pressure Relief)
 - Humidification

APAP algorithms



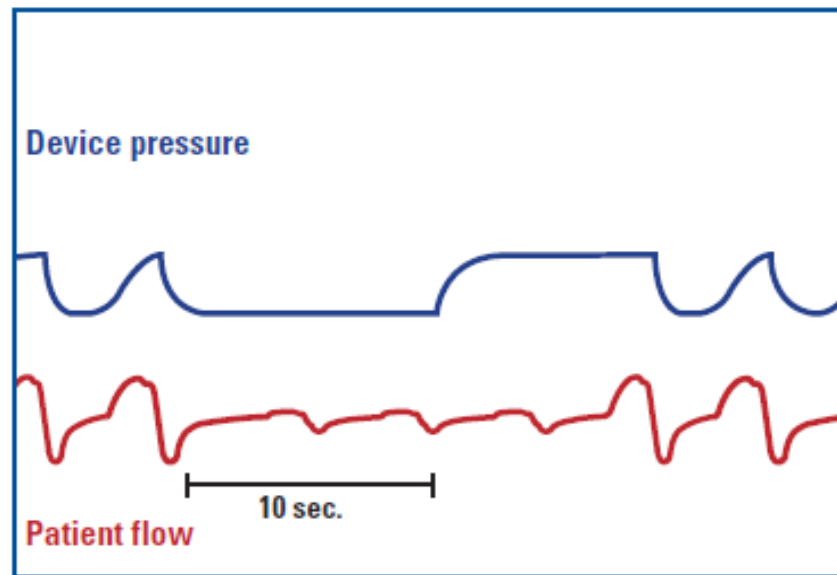
EPR

UNIQUE FEATURES OF EPR



EPR during RAMP ONLY

ResMed's EPR RAMP ONLY is a unique feature that specifies the use of EPR during the ramp period only. This option enables EPR as patients are falling asleep, when they are generally more aware of the pressure. When the ramp period expires, pressure reverts comfortably to the prescribed CPAP level.



EPR and event detection

To ensure comfort without compromising therapy, EPR has an automatic 'time out' feature. After determining the baseline breathing average for each patient, the device suspends EPR if the patient's breathing drops 75% below the baseline for ten seconds or more. EPR re-starts when the event is over and breathing is again within range.

Auto-Titrating CPAP Devices



- Pressure range: 4-20 cm H2O
- Pressure adjustable via clinician menu (harder for patient to find)
- Humidity adjustable via general menu (easier for patient to find)
- \$600 – \$1,000
- About 5-year warranty

Travel CPAPs (mini, micro)



APAP: When to use it?

PRACTICE PARAMETER FOR AUTO-CPAP

Practice Parameters for the Use of Autotitrating Continuous Positive Airway Pressure Devices for Titrating Pressures and Treating Adult Patients with Obstructive Sleep Apnea Syndrome: An Update for 2007

An American Academy of Sleep Medicine Report

Timothy I. Morgenthaler, MD¹; R. Nisha Aurora, MD²; Terry Brown, DO³; Rochelle Zak, MD²; Cathy Alessi, MD⁴; Brian Boehlecke, MD⁵; Andrew L. Chesson Jr, MD⁶; Leah Friedman, MA, PhD⁷; Vishesh Kapur, MD, MPH⁸; Rama Maganti, MD⁹; Judith Owens, MD¹⁰; Jeffrey Pancer, DDS¹¹; Todd J. Swick, MD¹²; Standards of Practice Committee of the AASM

More like when NOT to use it!

APAP(Auto titrating PAP)

NOT recommended to use:

- To obtain diagnosis of OSA
- In patients with comorbid conditions: CHF, significant lung disease, Obesity Hypoventilation Syndrome, Central Sleep Apnea
- Patients who do not snore
- During split night titration polysomnography

CPAP

- Continuous Positive Airway Pressure
- One continuous pressure during respiratory cycle
- Settings:
 - Pressure (usually derived from polysomnography titration)
- Comfort Settings:
 - Ramp
 - EPR (expiratory pressure relief)
 - Smart start
 - Humidification

Indications for CPAP

- Obstructive Sleep Apnea (improves symptoms, quality of life, CV morbidity and mortality)
- CSA
- Cheyne-Stokes
- OHS (obesity hypoventilation syndrome): CPAP will work in 75% of OHS with OSA

APAP vs CPAP

- Meta-analysis of 24 studies of CPAP vs APAP for OSA
- >1,000 patients with OSA and no major comorbidities
- **Results:**
 - CPAP and APAP equally improved AHI/ Quality Of Life
 - APAP improved Epworth Sleepiness Scale by 0.5 pts more than CPAP
 - APAP improved compliance by 11 min more per night
 - CPAP improved nadir O2 by 1% more
- Clinical significance questionable

BPAP (Bilevel Positive Airway Pressure)

- One pressure upon inspiration (IPAP), lower pressure upon expiration (EPAP)
- Pressure support (PS)= IPAP-EPAP
- Modes: BPAP-S and BPAP-ST
- Settings: IPAP, EPAP, back-up rate if ST mode
- Comfort settings similar to CPAP

BPAP: Indications

- Patients with OSA who failed CPAP therapy
- Hypoventilation syndromes
- Central Sleep Apnea
- Neuromuscular diseases
- Restrictive lung disease with hypoventilation

Auto BPAP: Indications

- No official parameters on using auto-BPAP
- VA study looked at patients' characteristics predicting BPAP prescription and found higher adherence in these groups:
 - Older age
 - Higher BMI
 - COPD, CHF
 - Higher AHI
 - Lower SpO₂/Higher CO₂
 - Greater sleepiness (higher Epworth Sleepiness Scale)

Auto BPAP VS CPAP

- No benefit of auto BPAP vs CPAP in patients with poor initial experience with lab-based CPAP titration (intolerance) (1)
- Auto BPAP improves compliance and sleepiness scores in patients intolerant of CPAP 9 (esp. >10cm of water (2))

1- *J Clin Sleep Med* 2012;8(1):43-47.

2- *Sleep Breath* (2011) 15:21–27

3- *Expert Rev. Med. Devices* 11(3), (2014)

Auto-Titrating BPAP Device



- Bilevel Positive Airway Pressure: EPAP min = 4 cm H₂O, IPAP max = 25 cm H₂O, PS min = 4 cm H₂O.
- \$1,200 – \$2,000
- Indications:
 - Obesity related hypoventilation (although CPAP works up to 70% of time)
 - Comorbid COPD
 - Patient comfort
 - OSA requiring higher pressures than CPAP can provide

Advanced PAP Devices



- BPAP S/T: BPAP with a back-up rate (central sleep apnea)
- Adaptive Servo-Ventilation (ASV): Variable Pressure Support to match patient's breaths (central sleep apnea, complex sleep apnea, Cheyne-Stokes breathing)
- Volume-Assured Pressure Support (VAPS): Significant hypoventilation related to obesity, COPD, chest wall deformity, neuromuscular disease.
- Costs: \$2,000 - \$5,000

PAP adherence

- Defined in the literature as ≥ 4 hours $\geq 70\%$ of nights
- Prevalence of noncompliance: 46-83%
- Some use is better than no use
- The more use, the greater the benefits

PAP adherence

Age Group	CMS Adherence (Men)	CMS Adherence (Women)	Median Nightly Use
18–30 years	~60%	51.3%	~6.3 h
31–50 years	~68–72%	~60–65%	~6.3–6.5 h
51–70 years	~75–78%	~70–74%	~6.5–6.8 h
71–80 years	80.6%	~76%	7.0 h
>80 years	Declining	Declining	~6.5 h (declining)

PAP adherence in Cognitive Impairment

- **45% of MCI patients and 56% of AD patients** met the ≥ 4 h/night adherence threshold comparable to the general elderly population.
- Attrition rates in neurodegenerative disease populations range from 12% to 75%.
- Cognitive impairment alone should not be considered a barrier to prescribing CPAP.

Predictors of Non-Adherence in Older Adults

- Adverse attitudes toward CPAP
- Female sex
- Lower socioeconomic status and comorbidities
- Racial disparities

PAP adherence

- **Daytime sleepiness (ESS reduction ~2.9 points)**
- **Anxiety**
- **Depression**
- **Cognitive function** (digit span and digit symbol tests)
- **Reduced mortality** (effect size 0.64). [3
- Benefits were most evident in patients using CPAP >4 hours/night.

PAP adherence

- **Severe OSA** - improved all quality-of-life domains, anxiety, depression, and some neurocognitive tests.
- **Moderate OSA**- improved sleepiness and nocturnal symptoms but did not affect blood pressure or neurocognitive measures.

Compliance Report

Compliance

Payor

Standard

Usage

01/13/2020 - 02/11/2020

Usage days

29/30 days (97%)

>= 4 hours

23 days (77%)

< 4 hours

6 days (20%)

Usage hours

141 hours 28 minutes

Average usage (total days)

4 hours 43 minutes

Average usage (days used)

4 hours 53 minutes

Median usage (days used)

4 hours 52 minutes

Total used hours (value since last reset - 02/11/2020)

1,674 hours

AirSense 10 AutoSet

Serial number

23182916410

Mode

AutoSet

Min Pressure

7 cmH2O

Max Pressure

18 cmH2O

EPR

Fulltime

EPR level

2

Response

Standard

Therapy

Pressure - cmH2O

Median: **12.2**

95th percentile: **15.6**

Maximum: **16.8**

Leaks - L/min

Median: **2.4**

95th percentile: **16.5**

Maximum: **31.5**

Events per hour

AI: **0.5**

HI: **0.2**

AHI: **0.7**

Apnea Index

Central: **0.2**

Obstructive: **0.3**

Unknown: **0.0**

RERA Index

0.3

Cheyne-Stokes respiration (average duration per night)

0 minutes (0%)

Predictors of adherence

- No difference between nasal mask/pillows and FFM
- Mask fit matters: leaks*
- Pt demographics
- Disease severity: no association
- Symptomatology: ESS>10 predicts better compliance
- Nasal resistance

How to improve adherence

- Behavioral approaches (education, CBT-I, videos)
- Follow-up/troubleshoot within first weeks of therapy
- Heated humidification use
- Optimization of mask fit
- If CPAP > 10 cm is prescribed, possible transition to auto BPAP may improve compliance

Approach in Long Term Care settings

- **Screen** residents with witnessed apneas, nocturnal agitation, refractory hypertension, or unexplained cognitive decline
- **Diagnose** (HSAT when feasible, PSG for complex cases)
- **Trial CPAP** with staff education, mask fitting support, and realistic adherence targets (≥ 2 hours/night)
- **Offer alternatives** (positional therapy, oral appliances if dentition allows, or pharmacotherapy) when CPAP is not tolerated
- **Individualize goals** (focus may shift to symptom management and quality of life rather than AHI normalization)



Thank you!