

ComfortCare Closing the Diagnostic Gap in Home Sleep Apnea Testing

Background

80 million
US adults have obstructive sleep apnea (OSA)¹

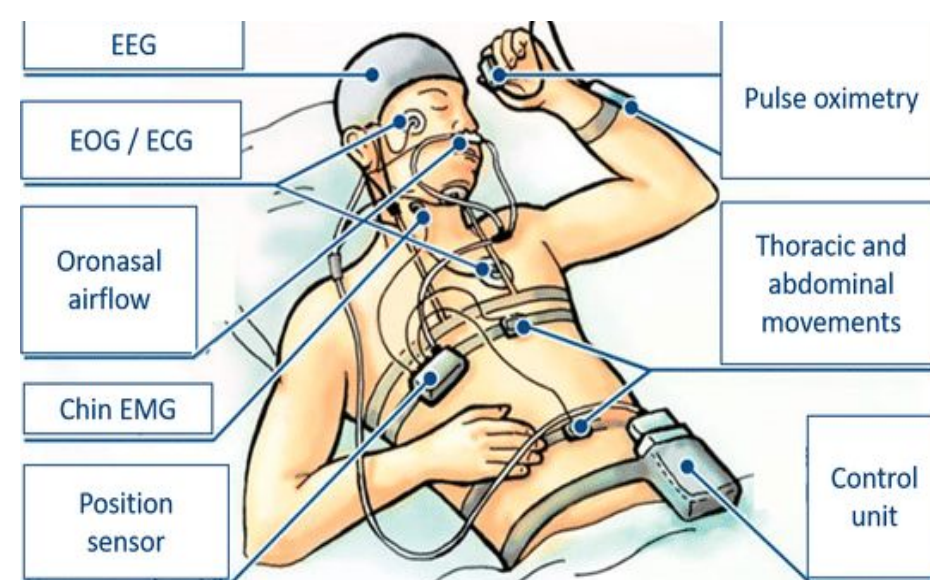


Missed diagnoses increase the risk of^{7,8,9}:

Cardiovascular Disease
Cognitive Decline
Metabolic Function



Gold Standard
Polysomnograph (PSG)



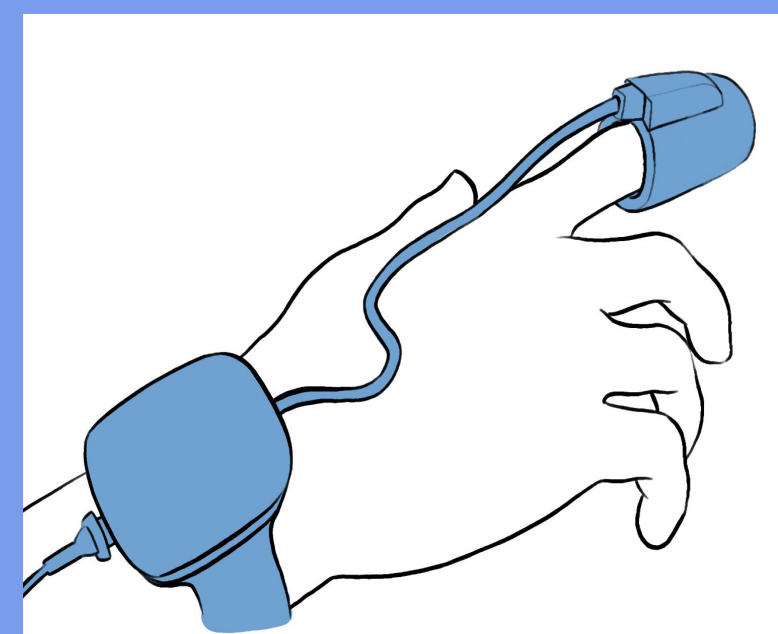
Expensive

Limited Availability

Uncomfortable

Insurance Prefers

Home Sleep Apnea Test (HSAT)



Heart Rate/
SpO₂

Wrist Motion

Arterial Tone

Limited Physiological Signals

Limitations of HSATs

17% false negative rate with HSAT³

25% misclassified severity with HSAT⁴

When an HSAT doesn't successfully diagnose a patient⁵...

Only 20% follow up with a PSG and get diagnosed⁶

Opportunity

\$150 Billion

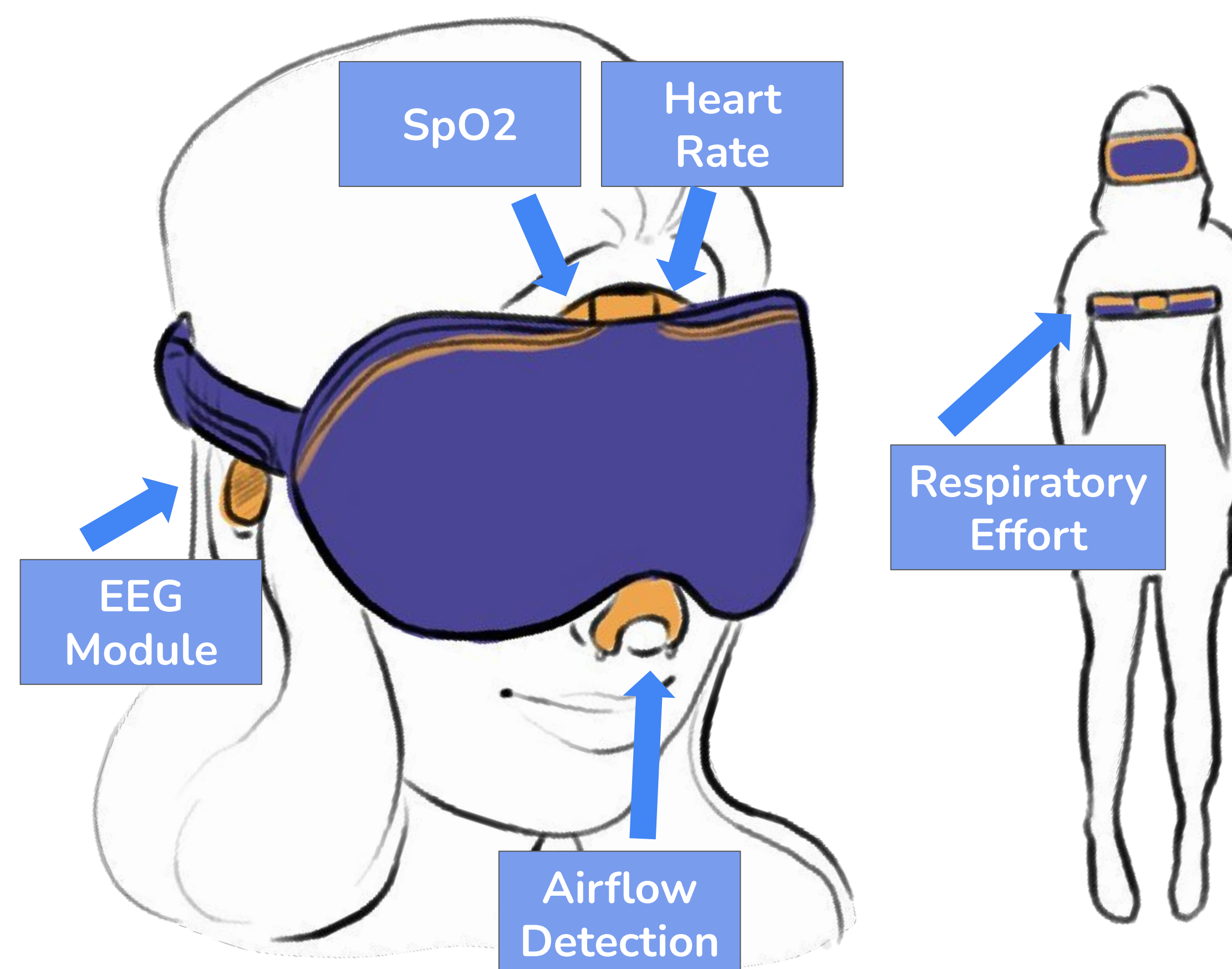
Cost of untreated obstructive sleep apnea (OSA) in the US¹⁰

\$19,500/year

Extra healthcare costs for patients with untreated OSA¹¹

Sleep clinicians need an **at-home** solution that enables **accurate sleep staging**, reducing **misclassification** and **improving detection** of REM-dependent and non-desaturating apnea.

Our Solution: ComfortCare



ComfortCare converts missed diagnoses into treated patients, reducing healthcare costs and enabling earlier, more effective intervention.

Device Features

EEG-enabled sleep staging
Enables true TST-based AHI calculation

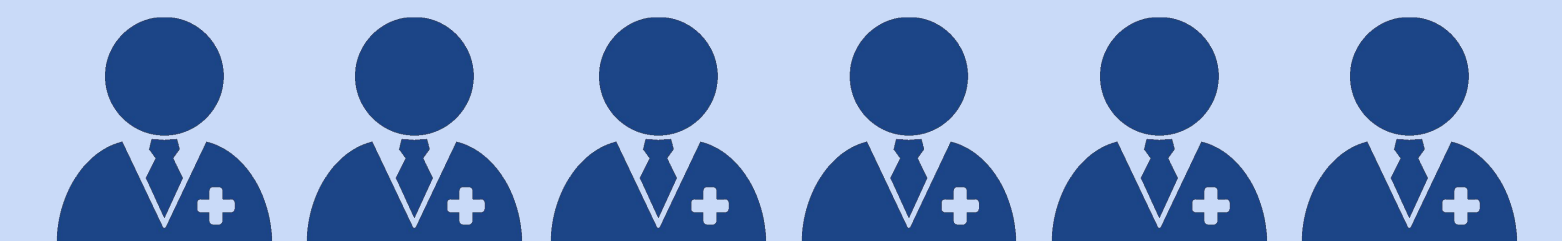
Multimodal sensing via:
Airflow (nasal cannula)
SpO₂ + pulse (oximetry)
Respiratory effort (chest movement)

Comfort-first architecture
Designed for natural sleep behavior

Clinically relevant outputs
Sleep-stage correlated respiratory events
Improved detection of mild + REM apnea

Progress

Interviewed with 6 JH Sleep Clinicians



HSAT inconclusive in 5 - 10% of patients

Validation on necessity of sensor stack

Creation of Alpha Prototype

Sleep Staging Validation

Diagnostic Validation

Clinical Studies/Pilots

References

- [1] Sönmez, I., et al. (2025). Unmasking obstructive sleep apnea: Estimated prevalence and impact in the United States. *Sleep*. <https://pubmed.ncbi.nlm.nih.gov/40957495/>
- [2] ResMed Sleep Institute. (2025). OSA underdiagnosis: Closing the care gap. <https://www.resmedsleepinstitute.com/sleep-apnea/osa-underdiagnosis-closing-the-care-gap>
- [3] Cushman, P., et al. (2026). Modified scoring criteria to improve the accuracy of home sleep apnea testing. *Journal of Clinical Sleep Medicine*. <https://pmc.ncbi.nlm.nih.gov/articles/PMC12907277/>
- [4] Setty, A. R., et al. (2017). Underestimation of sleep apnea with home sleep apnea testing compared to polysomnography. *Journal of Clinical Sleep Medicine*, 13(4), 551-555. <https://pmc.ncbi.nlm.nih.gov/articles/PMC5359328/>
- [5] Kapur, V. K., et al. (2017). Clinical practice guideline for diagnostic testing for adult obstructive sleep apnea. *Journal of Clinical Sleep Medicine*, 13(3), 479-504. <https://aasm.org/resources/clinicalguidelines/diagnostic-testing-osa.pdf>
- [6] EnsoData. (2022). Polysomnography following an indeterminate HSAT: Low compliance with AASM guidelines. <https://www.ensodata.com/research/polysomnography-following-an-indeterminate-hsat-low-compliance-with-aasm-guidelines/>
- [7] Drager, L. F., et al. (2017). Obstructive sleep apnea: A cardiometabolic risk in obesity and beyond. *Circulation*, 136(19), 1840-1850.
- [8] Osorio, R. S., et al. (2015). Sleep-disordered breathing advances cognitive decline. *Neurology*, 84(19), 1964-1971.
- [9] Javaheri, S., et al. (2017). Sleep apnea and cardiovascular disease. *Journal of the American College of Cardiology*, 69(7), 841-858.
- [10] American Academy of Sleep Medicine. (2017). Economic burden of undiagnosed sleep apnea in U.S. is nearly \$150 billion per year. <https://aasm.org/economic-burden-of-undiagnosed-sleep-apnea-in-u-s-is-nearly-150b-per-year/>
- [11] Frost & Sullivan. (2016). Hidden health crisis costing America billions: The economic burden of sleep apnea.