Sleep Apnea: Diagnosis and Treatment Options

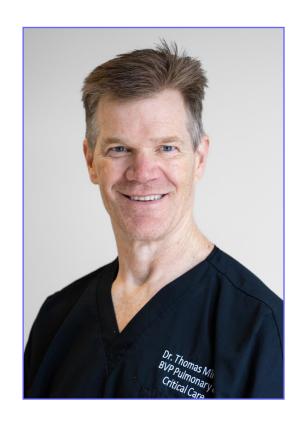
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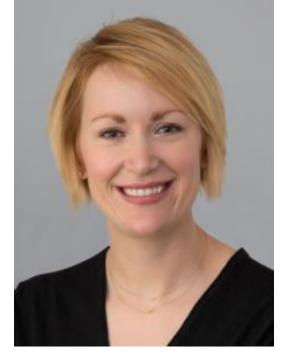
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Dr. Thomas Minor Pulmonology & Sleep Medicine Specialist

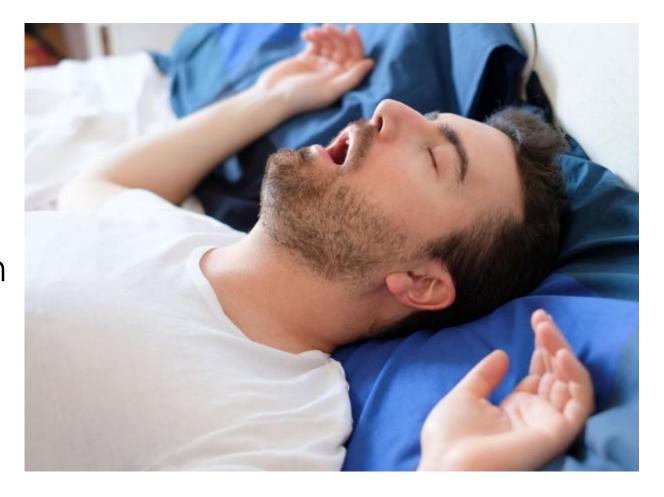


Dr. Angela Paddack Otolaryngology & Inspire Surgeon

Tonight's Agenda



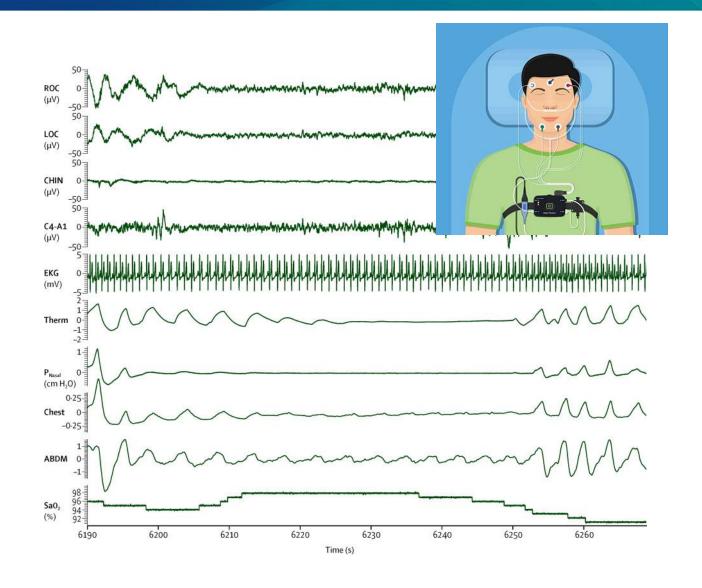
- Diagnosis of Sleep Apnea
- Types of Sleep Apnea
- Non-surgical Treatments
- Surgical Treatments-Hypoglossal Nerve Stimulation



Diagnosis of Sleep Apnea

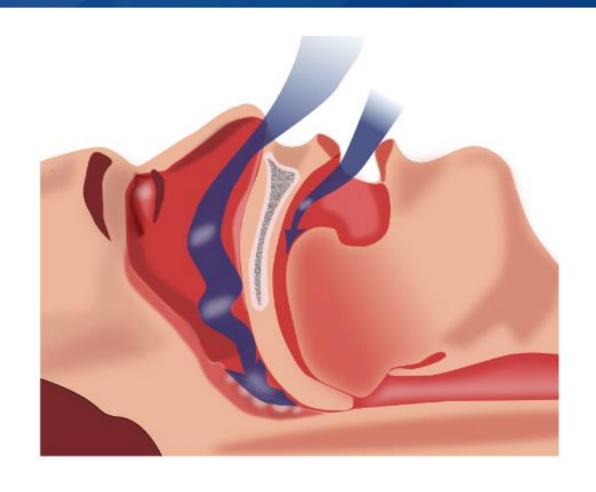


- Signs and Symptoms
- Sleep History
- Home Sleep Test (HST)
- Nocturnal Polysomnography

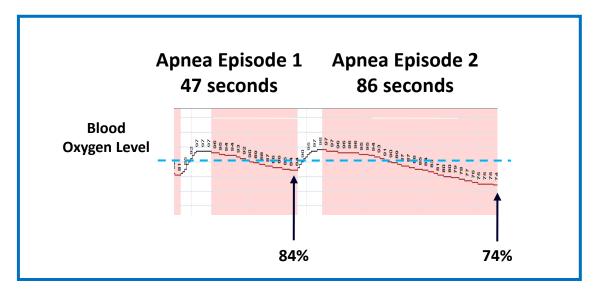


Obstructive Sleep Apnea (OSA)



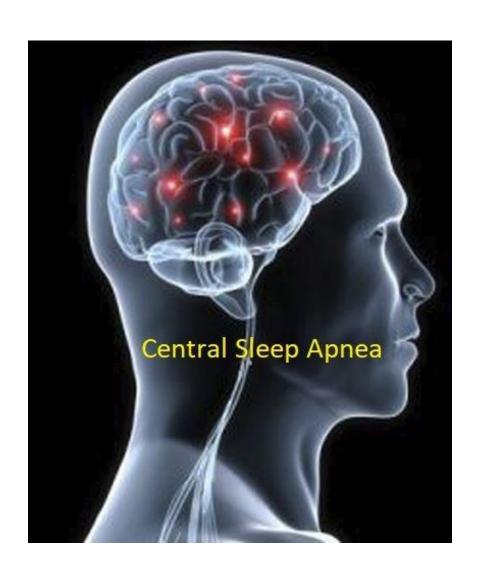


- Tongue and soft palate relax during sleep and block airflow
- Over 20 million Americans have moderate to severe (OSA)



Central Sleep Apnea (CSA)





- Brain fails to send signal to muscles to breathe
- ~1% of adults over 40
- Congestive heart failure, opioids, stroke
- More common with high altitude

Consequences of Untreated Sleep Apnea & Boulder Community Health

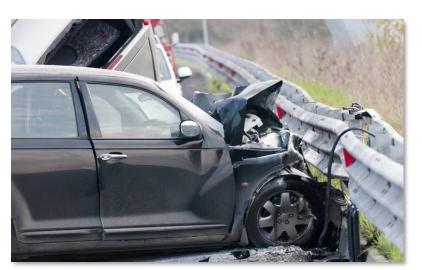
Fatigue, Diminished Productivity



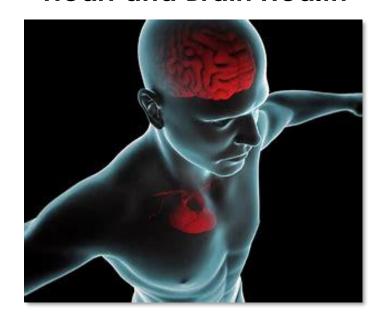
Snoring – Bed Partner



Accident Risk – Community Safety



Heart and Brain Health



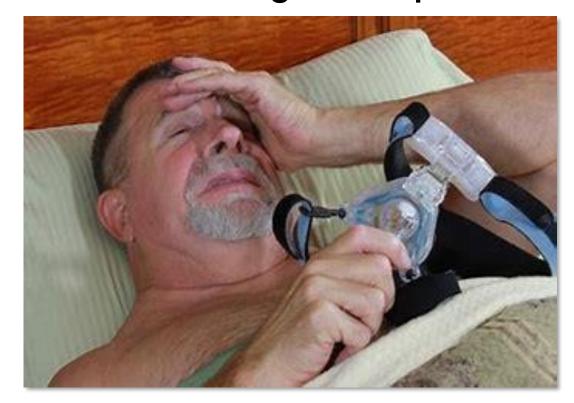
OSA and CSA: PAP Therapies (CPAP, BiLevel, ASV)



Great results when used regularly



Intolerance a significant problem



OSA: Oral Appliances

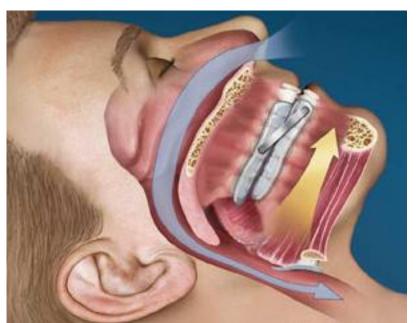


 Oral Appliances: Custom mouthpieces intended to pull the jaw forward during sleep.

Indications

Limitations

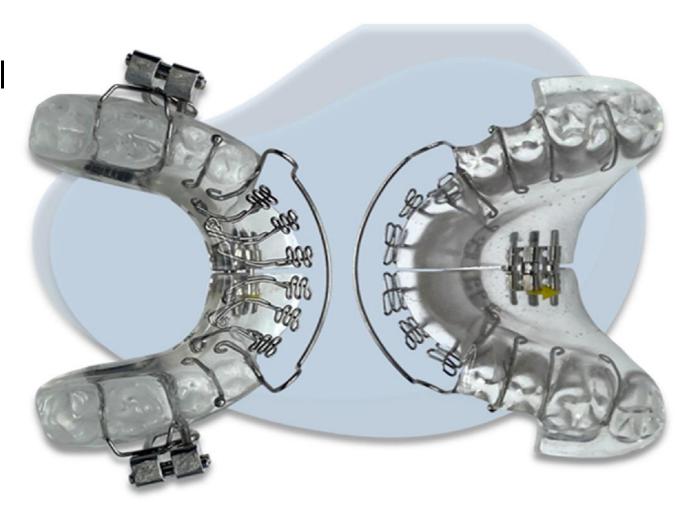




OSA: Palatal Expansion



- 9-16 months
- 49% overall reduction in AHI (17.3 → 9.6 events/hour)
- 25% had "resolution" of OSA



OSA: Positional Therapy



- Positional Therapy is designed to keep the sleeper in a position that minimizes their obstruction.
- Indications
- Limitations



OSA: Weight Loss



- Historically had been challenging to get significant sustained weight loss
- Tirzepatide (Zepbound, Mounjaro) for OSA. NEJM 2024
 - Moderate-Severe Obstructive Sleep Apnea (AHI>15 events/hour). BMI>30 kg/m²
 - Average AHI 50 events/hour, BMI 39 kg/m², weight 250#
 - At 1 year:
 - 17% reduction in weight
 - Reduction in AHI of 58%
 - 50% of patients reduced to normal or mildly elevated AHI
 - Blood pressure, inflammatory markers, symptoms all improved
 - FDA approved December 2024
 - Cost: \$350/month direct from Lilly

OSA: Coming Soon:



- Aroxybutynin 2.5 mg/atomoxetine 75mg
- Enhance upper airway muscle tone
- Mild, Moderate, and Severe OSA (AHI>5 events/hour)
- 50% reduction in AHI
- 23% achieved AHI<5 events/hour
- Well tolerated
- Applying for FDA approval early 2026

CSA (Central Sleep Apnea)



- Treat the underlying condition (CHF, opioids)
- ASV (adaptive Servoventilation): Most effective PAP treatment for combined OSA and CSA
- Oxygen
- Acetazolamide (Diamox)

Surgical Treatment Options



- Anatomy Altering Surgery is surgery to change or remove parts of the nose, jaw, tongue, or throat to improve the airway.
- Types
- Indications
- Limitations

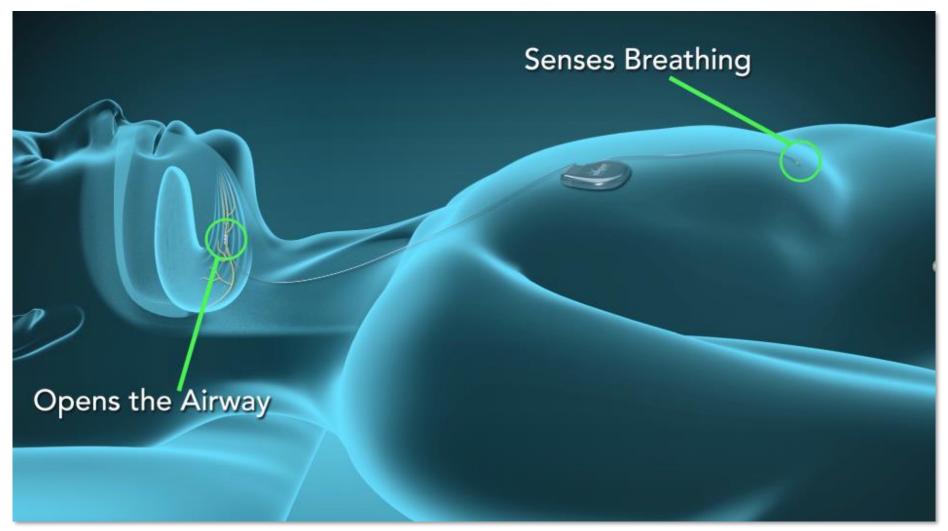






Hypoglossal Nerve Stimulation - Inspire Boulder Community Health









Inspire Indications



- Moderate to severe obstructive sleep apnea
 - AHI < 100
- Unable to get consistent benefit from CPAP
- Not significantly overweight
 - BMI < 40
- Pass an airway anatomy exam
- Drug Induced Sleep Endoscopy (DISE)
- Age 18+



If you have not had a recent sleep study, you may need a new one.



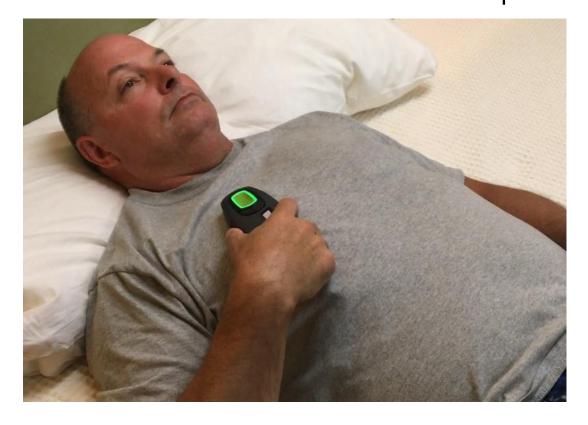
Inspire – How It Works



Outpatient procedure



Press a button – Go to sleep







Inspire – A Safe Outpatient Procedure Boulder Community Health



- Inserted through 2 incisions
- Fast recovery
 - > Typically, OTC meds for postop pain
 - Return to non-strenuous activities within a few days
- ~11 year battery
- NEW: Inspire now approved for full-body MRI





Office Visit After the Procedure





- Turn on Inspire therapy for the first time
- Establish initial settings
 - Comfortable
 - Effective
- Learn how to use the Inspire sleep remote



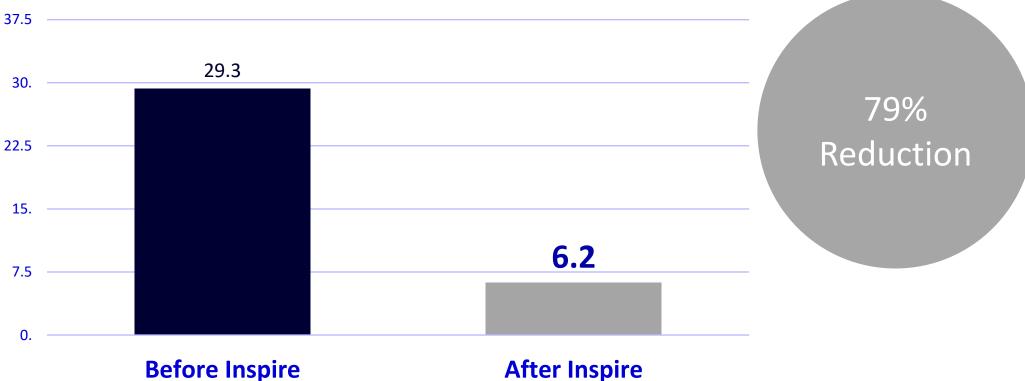


Clinically Proven



• Significant and sustained reduction in sleep apnea events

Average Sleep Apnea Events per Hour (Apnea-Hypopnea Index)





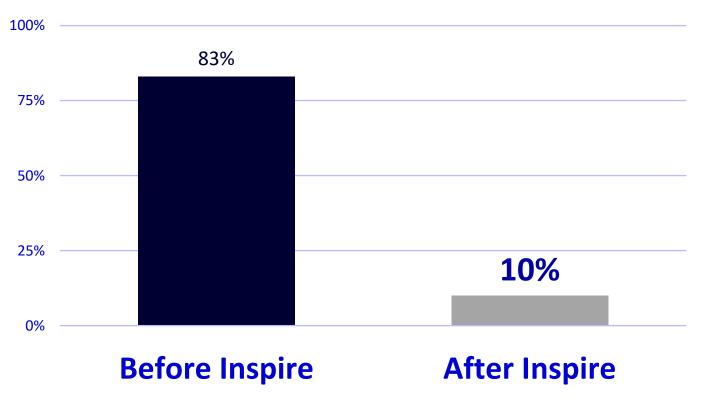


Clinically Proven



Significantly decreased bed-partner reported snoring

Bed Partner Reported Snoring







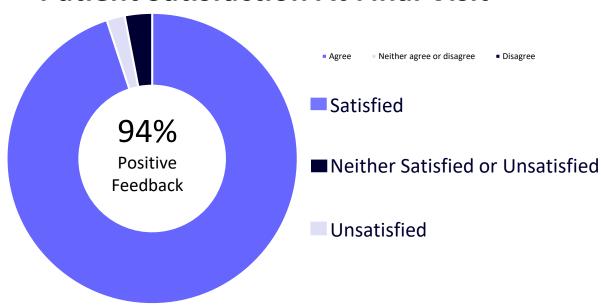


Clinically Proven



Patients Like It

Patient Satisfaction At Final Visit



Patients Use It

Patient Adherence At Final Visit







Growing Adoption



Sustained Clinical Results

The NEW ENGLAND JOURNAL of MEDICINE

Upper-Airway Stimulation for Obstructive Sleep Apnea

Patrick J. Strollo, Jr., M.D., Ryan J. Soose, M.D., Joachim T. Maurer, M.D. Nico de Vries, M.D., Jason Cornelius, M.D., Oleg Froymovich, M.D., Ronald D. Hanson, M.D., Tapan A. Padhya, M.D., David L. Steward, M.D. M. Boyd Gillespie, M.D., B. Tucker Woodson, M.D., Paul H. Van de Heyning, M.D., Ph.D., Mark G. Goetting, M.D., Oliver M. Vanderveken, M.D., Ph.D., Neil Feldman, M.D. Lennart Knaack, M.D., and Kingman P. Strohl, M.D., for the STAR Trial Group

Obstructive sleep apnea is associated with considerable health risks. Although con- The authors' affiliations are listed in the tinuous positive airway pressure (CPAP) can mitigate these risks, effectiveness can

Appendix Address reprint requests to Dr.

Strollo at University of Pittsburgh Medical be reduced by inadequate adherence to treatment. We evaluated the clinical safety

Center Montefore, Suite S639.11, 3459 and effectiveness of upper-airway stimulation at 12 months for the treatment of Fifth Ave. Pittsburgh, Ph. 15213-2582, or

Using a multicenter, prospective, single-group, cohort design, we surgically implanted an upper-airway stimulation device in patients with obstructive sleep apnea who had difficulty either accepting or adhering to CPAP therapy. The primary outcome measures were the appea-hypopnea index (AHI: the number of appea or hypopnea events per hour, with a score of ≥15 indicating moderate-to-severe apnea) and the oxygen desaturation index (ODI; the number of times per hour of sleep that Copyright to 2014 the blood oxygen level drops by ≥4 percentage points from baseline). Secondary outcome measures were the Epworth Sleepiness Scale, the Functional Outcomes of Sleep Questionnaire (FOSQ), and the percentage of sleep time with the oxygen saturation less than 90%. Consecutive participants with a response were included

Most US Insurance Covers Inspire



- Over 100 Peer-Reviewed Publications
- 5-Year Follow-Up Data; STAR Trial
- Enrollment goal of 5,000 pts in ADHERE Registry
- Broad private insurance coverage
- Medicare coverage across the US
- Many VA and military hospitals





For More Information & To Schedule a Consult... Boulder Community Health

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- For detailed insurance questions, call 844-515-6182.
- For VA questions, call 1-800-739-6805.







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We believe providing the community with the highest value in health care requires an innovative, patient-centered environment.

We believe it's imperative to invest in the professional growth and physical and mental health of BCH's greatest asset—the staff and physicians providing care to the community.

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