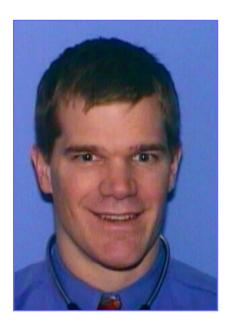
# Advances in Treating Sleep Apnea

Thomas Minor, MD
Boulder Valley Pulmonology
303-872-4640

Mark Hunter, MD Boulder Medical Center 303-814-0753





Dr. Thomas Minor — Pulmonology & Sleep Medicine Specialist



Dr. Mark Hunter — ENT & Inspire Surgeon

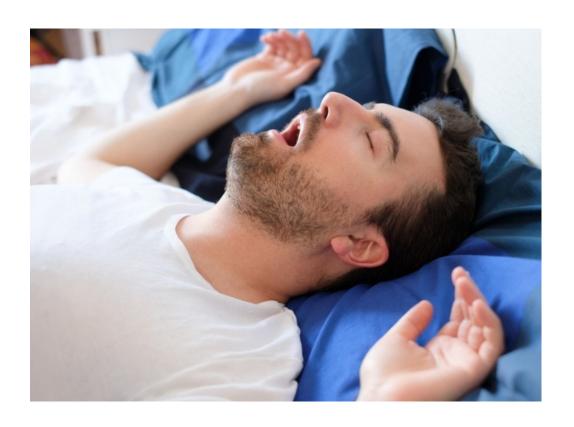






## Tonight's Agenda

- Diagnosis of Sleep Apnea
- Types of Sleep Apnea
- Typical Treatments
- Beyond the Typical -Hypoglossal Nerve Stimulation

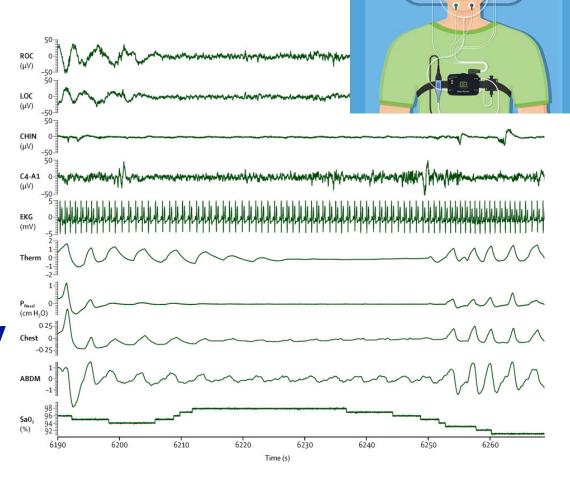






# Diagnosis of Sleep Apnea

- Signs and Symptoms
- Sleep History
- Home Sleep Test
- Nocturnal Polysomnography

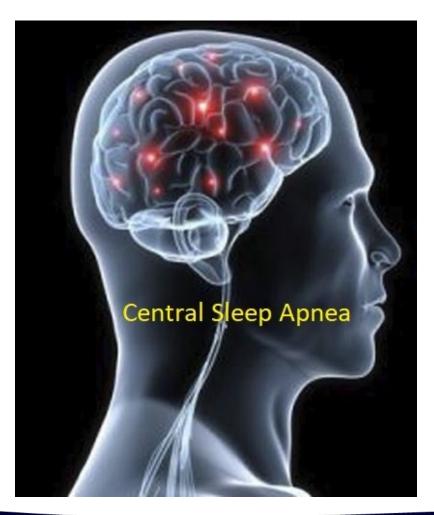








## Central Sleep Apnea (CSA)



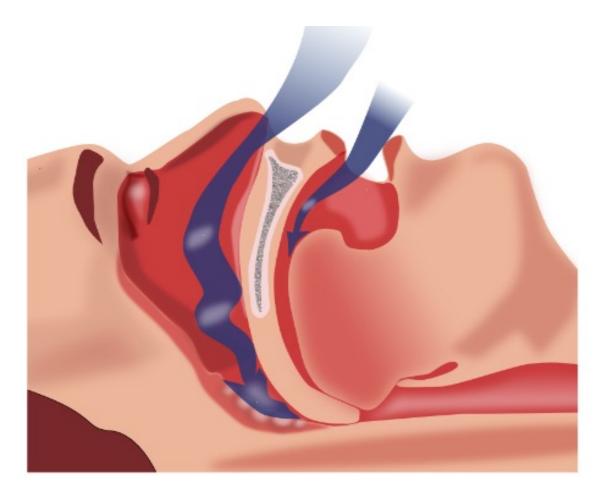
- Brain fails to send signal to muscles to breathe
- ~1% of adults over 40

More common with high altitude

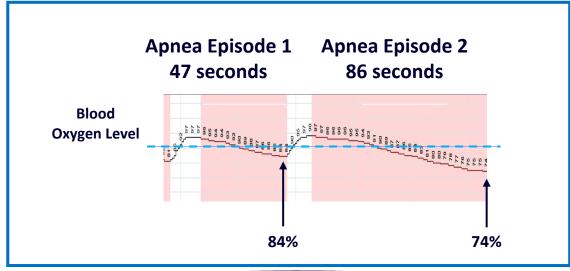




# Obstructive Sleep Apnea (OSA)



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









# Consequences Untreated Sleep Apnea

**Fatigue, Diminished Productivity** 



**Snoring – Bed Partner** 



**Accident Risk – Community Safety** 



**Heart and Brain Health** 









## **PAP Therapies**

Great results when used regularly



Intolerance a significant problem









# Oral Appliances

 Oral Appliances are custom mouthpieces intended to pull the jaw forward during sleep.

Indications

Limitations







# **Positional Therapy**

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

Indications

Limitations







# 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

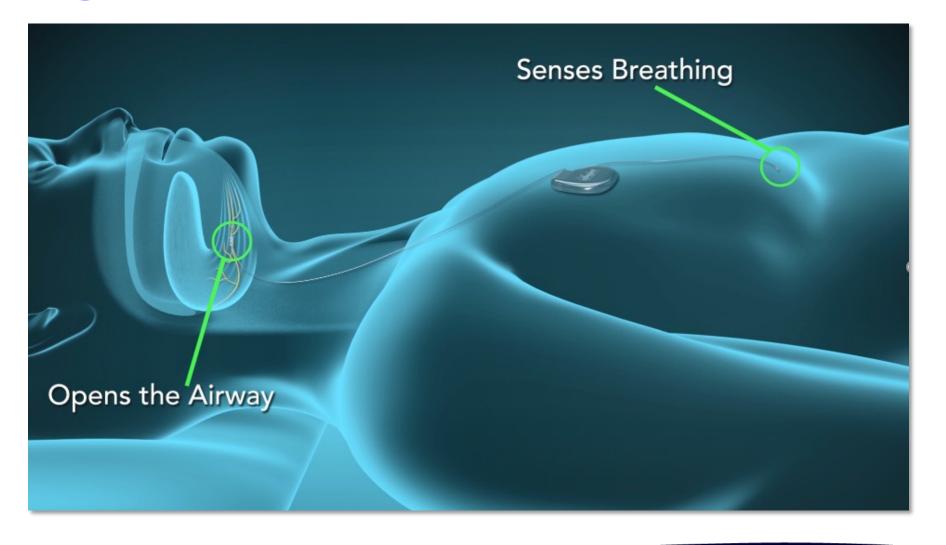








## Hypoglossal Nerve Stimulation - Inspire



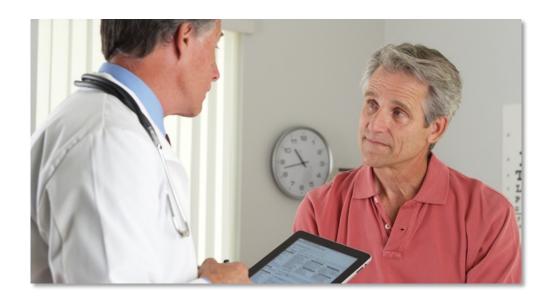






## Inspire Indications

- Moderate to severe obstructive sleep apnea
- Unable to get consistent benefit from CPAP
- Not significantly overweight
- Pass an airway anatomy exam
- 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



- Inserted through 3 small incisions 2 small incisions
- Fast recovery
  - ➤ Typically, OTC meds for post-op pain
  - Return to non-strenuous activities within a few days
- ~11 year battery
- MRIs can be safely performed on head, neck and extremities







## 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

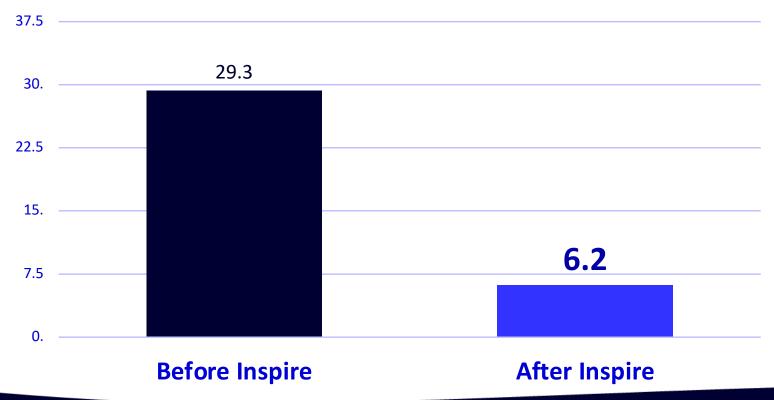




## Clinically Proven

Significant and sustained reduction in sleep apnea events

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







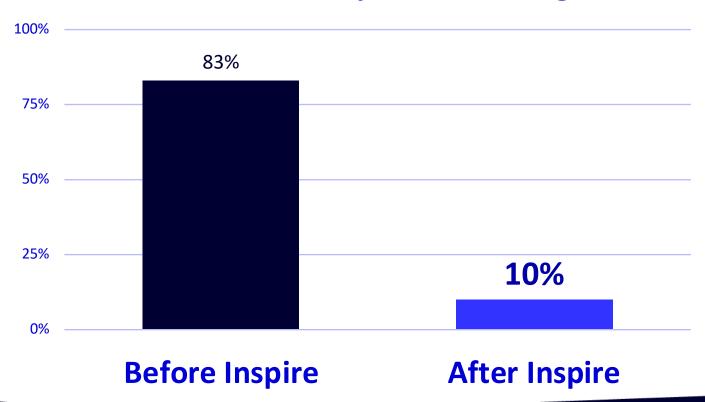




# Clinically Proven

Significantly decreased bed-partner reported snoring

## **Bed Partner Reported Snoring**





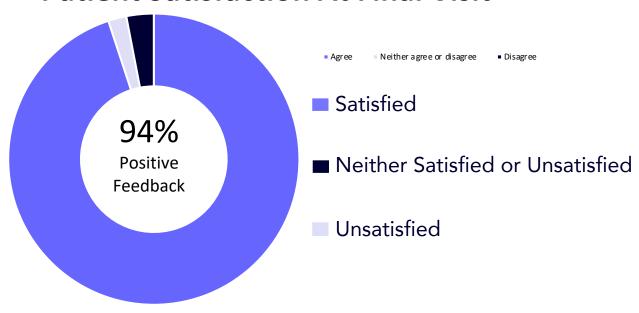




## Clinically Proven

## **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 Groups

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 Montefiore, Suite S639.11, 3459 and effectiveness of upper-airway stimulation at 12 months for the treatment of Fifth Ave. Pittsburgh, Ph. 15213-2542, moderate-to-severe obstructive sleep appea.

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 apnea-hypopnea index (AHI; the number of apnea or hypopnea events per hour, with a score of ≥15 indicating moderate-to-severe apnea) and the oxygen desaturation in dex (ODI; the number of times per hour of sleep that Cappe the 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

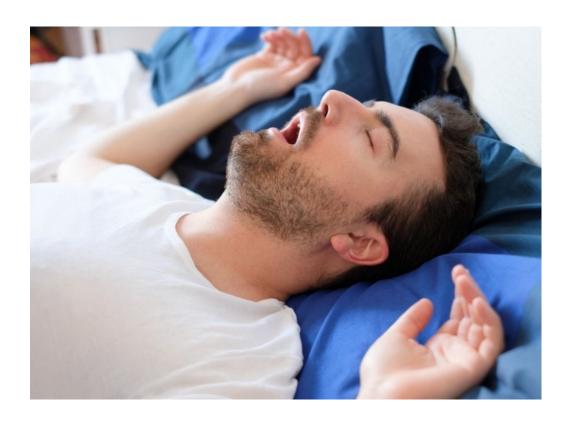






## Tonight's Agenda

- Diagnosis of Sleep Apnea
- Types of Sleep Apnea
- Typical Treatments
- Beyond the Typical -Hypoglossal Nerve Stimulation







## For More Information & To Schedule a Consult...

Dr. Mark Hunter

Call: 303-814-0753

## **Office Locations**

- Boulder:
  - 2750 Broadway Street
  - Boulder, CO 80304
- Louisville:
  - 80 Health Park Drive, Suite 100
  - Louisville, CO 80027

- **Dr. Thomas Minor**
- Call: 303-872-4640

## **Office Location**

- Boulder:
  - 4820 Riverbend Drive
  - Suite 100
  - Boulder, CO 80301

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













# Advances in Treating Sleep Apnea

Thomas Minor, MD
Boulder Valley Pulmonology
303-872-4640

Mark Hunter, MD Boulder Medical Center 303-814-0753

