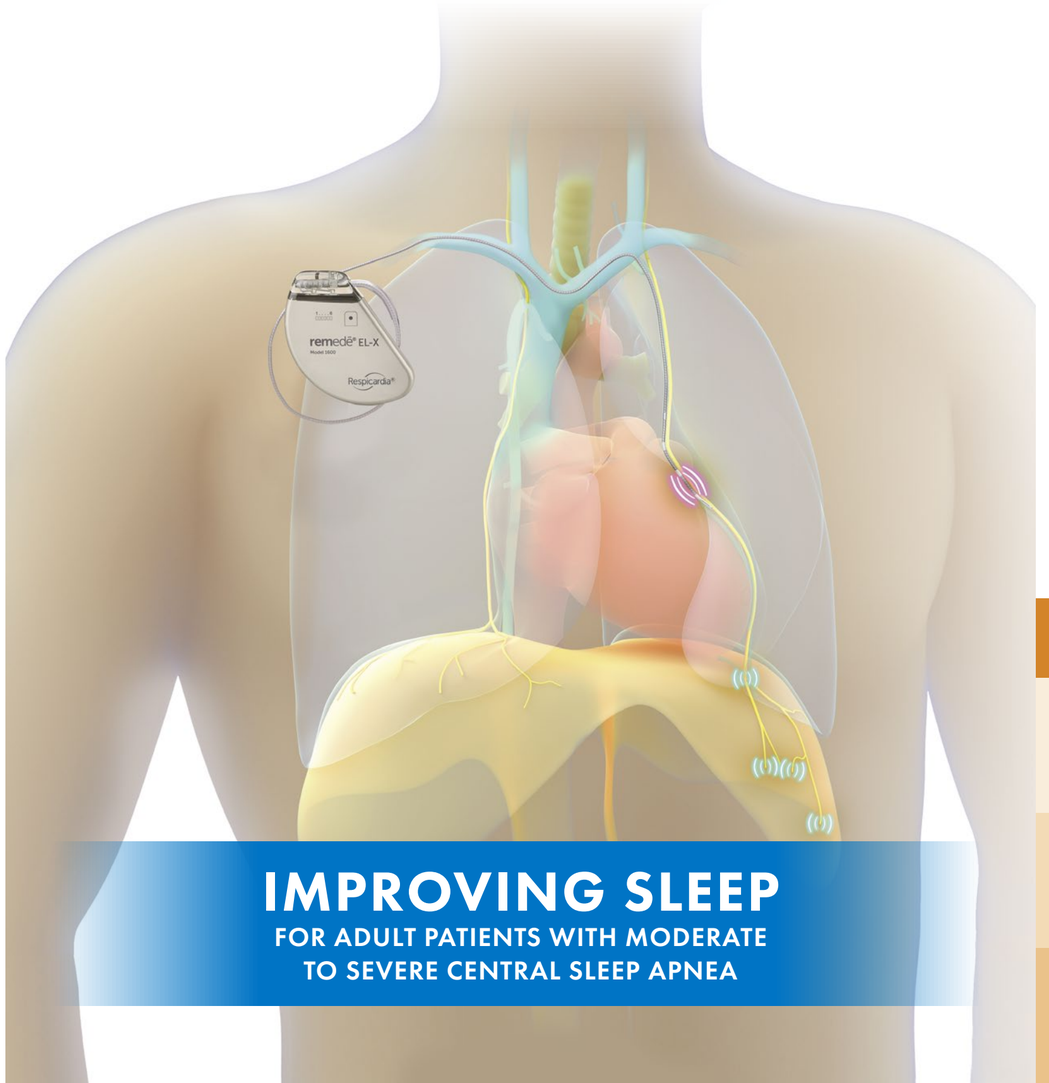
remedē® System

ZOLL®

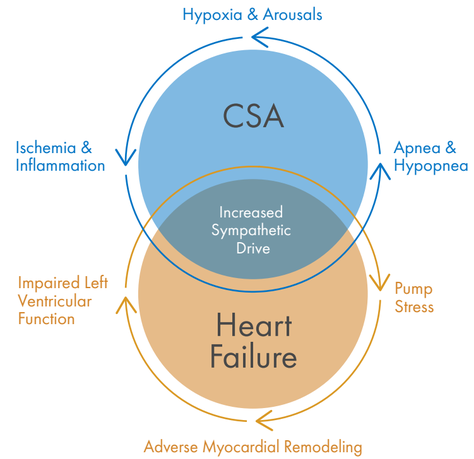


IMPROVING SLEEP

FOR ADULT PATIENTS WITH MODERATE TO SEVERE CENTRAL SLEEP APNEA

Effects of Central Sleep Apnea and Heart Failure are Intertwined[1,2]

Central sleep apnea CSA is a serious breathing disorder caused by the brain's failure to send the proper signals to the muscles that control breathing. CSA disturbs the breathing pattern during sleep, negatively affects quality of life and contributes to poor cardiovascular outcomes such as worsening Heart Failure (HF). CSA affects up to 40% of patients with HF.[3]



IMPACT OF UNTREATED CSA

Diminished quality of life,
including fatigue, cognitive impairment, depression, and memory deficits[4-7]

2x the Risk
HF combined with CSA doubles the risk of death[8]

50%
50% of HF patients with CSA were readmitted to the hospital at 6 months[9]

[1] Costanzo MR, Khayat R, Ponikowski P, et al. State-of-the-art review: Mechanisms and clinical consequences of untreated central sleep apnea in heart failure. *J Am Coll Cardiol*. 2015;65:72-84.
[2] Bekfani T and Abraham WT. Current and future developments in the field of central sleep apnoea. *Europace*. 2016;18:1123-34.
[3] Bitter T, Faber L, Hering D, et al. Sleep-disordered breathing in heart failure with normal left ventricular ejection fraction. *Eur J Heart Fail*. 2009,11:602-8.
[4] Dempsey JA. *Exp Physiol* 2005; 90: 13–24.
[5] Javaheri S., Dempsey J.A. *Compr Physiol*. 2013; 3:141–163.
[6] Brenner, S., et al. *Trends Cardiovasc. Med*. 2008; 18, 240–247.
[7] Flemons WW, Tsai W. *J Allergy Clin Immunol* 1997; 99:S750-S756.
[8] Khayat R, Jarjoura D, Porter K, et al. Sleep disordered breathing and post-discharge mortality in patients with acute heart failure. *Eur Heart J*. 2015;36(23):1463-9.
[9] Khayat R, Abraham W, Patt B, et al. *J Card Fail* 2012;18:534–540.
[10] Fox, H., Oldenburg, O., Javaheri, S., et al. *SLEEP*, zsz158, https://doi.org/10.1093/sleep/zsz158.
[11] Costanzo M, et al. Transvenous neurostimulation for central sleep apnoea: a randomised controlled trial. *The Lancet*. 2016; 388: 974–82.
[12] Costanzo M, et al. Sustained Twelve Month Benefit of Phrenic Nerve Stimulation for Central Sleep Apnea. *Am J Cardiol* 2018;121:1400-8.
[13] Costanzo M, et al. Transvenous Phrenic Nerve Stimulation for Treatment of Central Sleep Apnea: Five-Year Safety and Efficacy Outcomes. *Nat Sci Sleep*. 2021 Apr 29;13:515-526. doi: 10.2147/NSS.S300713. PMID: 33953626; PMCID: PMC8092633.

Important Safety Information
The **rem**edē® System is indicated for moderate to severe Central Sleep Apnea (CSA) in adult patients. A doctor will need to evaluate the patient's condition to determine if the **rem**edē System is appropriate. Patients will not be able to have an MRI or diathermy (special heat therapies) if the **rem**edē System is implanted. The **rem**edē System may be used with another stimulation device such as a heart pacemaker or defibrillator; special testing will be needed to ensure the devices are not interacting. As with any surgically implanted device, there are risks related to the surgical procedure itself which may include, but are not limited to, pain, swelling, and infection. Once the therapy is turned on, some patients may experience discomfort from stimulation and/or from the presence of the device. The majority of these events are resolved either on their own or by adjusting the therapy settings. The **rem**edē System may not work for everyone. There are additional risks associated with removing the system. If it is decided to remove the system, another surgery will be required. Be sure to understand all of the risks and benefits associated with the implantation of the **rem**edē System. For further information please visit remede.zoll.com, call 952-540-4470 or email info@remede.zoll.com. **Indication for use:** The **rem**edē System is an implantable phrenic nerve stimulator indicated for the treatment of moderate to severe Central Sleep Apnea (CSA) in adult patients. **Contraindications:** The **rem**edē System is contraindicated for use in patients with an active infection or patients known to require magnetic resonance imaging (MRI). See the Instructions for Use for complete information regarding the procedure, indications for use, contraindications, warnings, precautions, and potential adverse events.
Rx Only.
The **rem**edē® System, **rem**edē® EL System, and **rem**edē® EL-X System have received FDA approval. The **rem**edē® System model 1001 has received CE Mark approval.

ZOLL MEDICAL CORPORATION
12400 Whitewater Dr., Suite 150 | Minnetonka, MN 55343 | 952-540-4470 | info@remede.zoll.com | remede.zoll.com

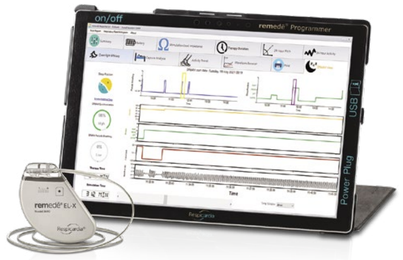
Printed in the U.S.A.
MKT 0023, Rev E

For subsidiary addresses and fax numbers, as well as other global locations, please go to www.zoll.com/contacts.

ZOLL®

The **rem**edē® System is a proven, implantable sleep therapy specifically designed for treating Central Sleep Apnea (CSA) in a way that closely resembles the body's natural physiology. It has demonstrated consistent and sustained long-term safety and effectiveness benefits that have shown to reduce the severity of CSA, improve sleep, breathing and quality of life.[10]

- **RESTORES** a normal breathing pattern by using the body's own breathing system
- **TAILORS** therapy to each patient through customized programming that mimics natural breathing while asleep
- **RELIEVES** patient compliance concerns by automatically delivering therapy each night
- **ELIMINATES** external equipment using a mask-free, implantable device that is placed under the skin in the upper chest area during a minimally invasive, outpatient procedure

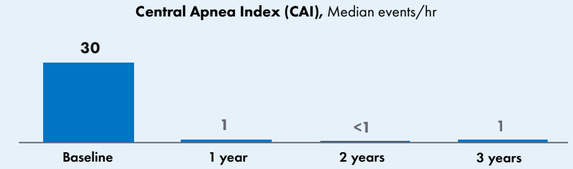


CLINICALLY PROVEN

The **rem**edē System Pivotal Trial was a prospective, multi-center, randomized trial to evaluate therapy safety and effectiveness. Six months of data was collected on the treatment group (therapy active) and the control group (therapy withheld). At six months, the former control group began receiving therapy and results versus baseline have been reported for both groups out to five years.[10,11,13]

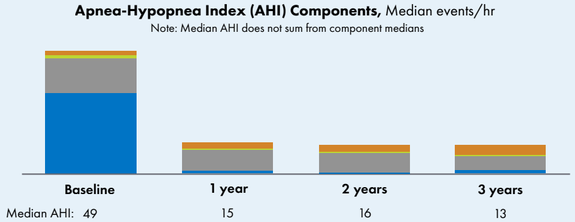
Significant Reduction in Sleep Disturbances

99% reduction in Central Apnea Index at 2 years[10]



All p values <0.001 for paired change from baseline.

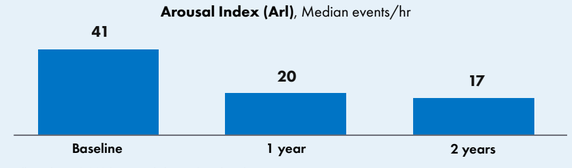
67% reduction in Apnea-Hypopnea Index at 2 years[10]



Data through 2 years measured by PSG; 3 year data by PG.
All p values <0.001 for paired change from baseline.

Improvement in Sleep Quality

57% fewer arousals at 2 years[10]



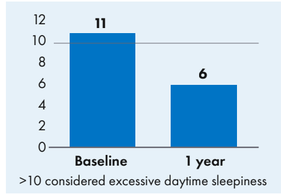
All p values <0.001 for paired change from baseline.

The results of the study demonstrated that the **rem**edē System is:

- **Safe and effective** with all primary and secondary endpoints achieved[11]
- The first therapy to show improvements **in arousals, % REM sleep, and quality of life** in an RCT

QUALITY OF LIFE

82%
of patients reported quality of life improvement using the Patient Global Assessment[12]



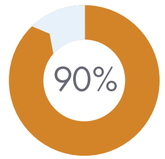
>10 considered excessive daytime sleepiness

5.0 point improvement in daytime sleepiness as measured on the Epworth Sleepiness Scale[12]

94%
of patients reported they would "elect to have the medical procedure again"[12]

SAFETY

97% implant success rate[10]



90% of patients experienced freedom from serious adverse events associated with implant procedure, the **rem**edē System, or delivered therapy at 24 months[10]

Serious adverse events: 6% implant related, 3% therapy related, no deaths related to the procedure, system or therapy.

The **rem**edē System safely and effectively treats the harmful effects of moderate to severe central sleep apnea in adult patients and has been proven to improve sleep, enhance well-being, and reduce daytime sleepiness, enabling better overall health.