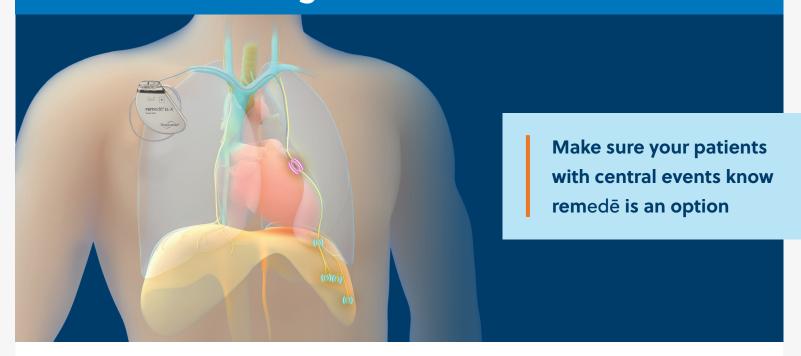
# **Transvenous Phrenic Nerve Stimulation (TPNS)** recommended as a treatment option in the 2025 AASM CSA guidelines<sup>1</sup>



### Summary of AASM's 2025 guidelines for Adults with Central Sleep Apnea<sup>2</sup>

NEW			Critical Outcomes Meeting Clinical Significance Threshold <sup>3</sup>		
to the guidelines	Intervention	Strength of recommendation	Excessive sleepiness	Disease severity	Cardiovascular Disease
	TPNS⁴	Conditional for	$\checkmark$	<b>✓</b>	$\checkmark$
CPAP <sup>5</sup>		Conditional for		<b>✓</b>	
BPAP w/ backup rate <sup>6</sup>		Conditional for	<b>✓</b>	<b>√</b>	<b>√</b>
BPAP w	/o backup rate⁵	Conditional <u>against</u>		<b>√</b>	<b>√</b>
ASV <sup>5</sup>		Conditional for		<b>√</b>	
Low-flow oxygen <sup>7</sup>		Conditional for		<b>√</b>	
Acetazolamide <sup>5</sup>		Conditional for	✓	<b>✓</b>	

<sup>1</sup> Badr MS et al. Treatment of central sleep apnea in adults: an American Academy of Sleep Medicine clinical practice guideline. J Clin Sleep Med 2025 in press

2 Does not include central sleep apnea due to high altitude
3 Excluded hospitalizations, sleep quality, and mortality, for which no intervention met the Clinical Significance Threshold or could not be assessed
4 Primary CSA and CSA due to heart failure
5 Primary CSA, CSA due to HF, CSA due to medication or substance use, treatment-emergent CSA, and CSA due to a medical condition or disorder
6 Primary CSA, CSA due to medication or substance use, treatment-emergent CSA, and CSA due to a medical condition or disorder
7 CSA due to heart failure



## It's time to **ACT** on the CSA guidelines: help your patients learn about TPNS

### TPNS was added into the new guidelines

"The AASM suggests using transvenous phrenic nerve stimulation (TPNS) over no TPNS in adults with CSA due to the following etiologies: primary CSA and CSA due to heart failure therapies."

### The conditional recommendation means most eligible patients should be offered TPNS

"Most patients should be offered the suggested course of action" (Table 1—Implications of strong and conditional recommendations)

#### Try alternatives when central events or symptoms persist

"Persistence of central respiratory events should prompt re-evaluation of the underlying risk factors and consideration of alternative treatment options."

"Clinicians must prioritize optimizing therapy for the conditions contributing to central apneas and improving patient-reported outcomes rather than soley focusing on eliminating disordered breathing events."

#### Contact us at remede.zoll.com or call us at 952-592-1343

The remedê\* 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 remedē System is appropriate. The remedē\* System should not be implanted during an active infection and patients will not be able to have diathermy (special heat therapies). The device is MR Conditional. The conditions and precautions can be found in the remede System MRI guidelines manual. The remede 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 remede 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 the risks and benefits associated with the implantation of the remedē System. For further information please visit remede.zoll.com, call 952-540-4470 or email info@remede.zoll.com. Contraindications: The remedē System is contraindicated for use in patients with an active infection. See the Instructions for Use for complete information regarding the procedure, indications for use, contraindications, warnings, precautions, and potential adverse events Rx Only. The remedē® System, remedē® EL System, and remedē® EL-X System have received FDA approval. The remedē® System model 1001 has received CE Mark approval.

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