MEDICAL POLICY

Medical Policy Title	**Surgical Management of Sleep Disorders**
Policy Number	**7.01.41**
Current Effective Date	April 17, 2025
Next Review Date	April 2026

Our medical policies are based on the assessment of evidence based, peer-reviewed literature, and professional guidelines. Eligibility for reimbursement is based upon the benefits set forth in the member's subscriber contract. (Link to Product Disclaimer)

POLICY STATEMENT(S)

I. Nasal Surgery

A. Nasal surgery is considered **medically appropriate** to correct a nasal obstruction that prohibits the use of continuous positive airway pressure (CPAP) device and bilevel positive airway pressure (BiPAP).

B. Septoplasty, turbinate reduction, and polypectomy are considered **not medically necessary** for obstructive sleep apnea (OSA).

II. Surgical Bypass of the Airway Tracheostomy

A. Tracheostomy is considered **medically appropriate** for the treatment of severe, life threatening OSA.

III. Upper Airway Surgery

A. Palatopharyngoplasty (e.g., Uvulopalatopharyngoplasty (UPPP), Uvulopharyngoplasty) **AND** Hyoid Suspensions for the treatment of OSA are considered **medically appropriate** when the following criteria are met:

1. Documented OSA with an apnea-hypopnea index (AHI) or respiratory disturbance index (RDI) of 15 or greater events per hour, regardless of symptoms; **or**
2. Documented OSA with an AHI or RDI of five (5) to 14 events per hour, accompanied by symptoms of excessive daytime sleepiness, impaired cognition, mood disorders, insomnia, or documented cardiovascular diseases, including hypertension and ischemic heart disease; **and**
3. Failure of all forms of medical management of OSA, including documented intolerance to positive airway pressure (e.g., CPAP, BiPAP) or intolerance.

B. Tonsillectomy and adenoidectomy are considered **medically appropriate** for the following indications:

1. for the treatment of OSA; **or**
2. to correct an upper airway obstruction that prohibits the use of CPAP/BiPAP.

C. Radiofrequency Ablation or Somnoplasty of Palatal Tissues is considered **not medically necessary** for the treatment of OSA.

D. Laser-assisted Uvulopalatoplasty (LAUP) is considered **not medically necessary** for the treatment of OSA.

E. Expansion Sphincter Pharyngoplasty/Expansion Sphincteroplasty (ESP) is considered **investigational.**

F. Injection Snoreplasty:

1. Injection Snoreplasty is considered **not medically necessary** for the treatment of snoring alone;
2. Injection snoreplasty is considered **investigational** for the treatment of OSA.

G. Cautery-Assisted Palatal Stiffening Operation (CAPSO):

1. CAPSO is considered **not medically necessary** for snoring alone.
2. CAPSO is considered **investigational** for the treatment of OSA.

H. Palatal Implant System (e.g., Pillar Palatal Implant):

1. Palatal implant systems are considered **not medically necessary** for snoring alone.
2. Palatal implant system is considered **investigational** for the treatment of OSA.

IV. Lower Airway Surgery

A. Jaw Realignment Surgery (e.g., inferior sagittal mandibular osteotomy, genioglossal advancement, hyoid myotomy and suspension, maxillomandibular osteotomy and advancement):

1. Jaw realignment surgery is considered **medically appropriate** for the treatment of OSA in patients who meet the criteria for UPPP, as stated in Policy Statement III.A.

B. Radiofrequency Ablation or somnoplasty of the base of the tongue is **considered not medically necessary** for the treatment of OSA.

C. Tongue Suspension Suture Systems (e.g., AIRvance [formerly known as the Repose System], Encore System) are considered **investigational** for the treatment of OSA.

V. Hypoglossal Nerve/Upper Airway Stimulation

A. Hypoglossal nerve upper airway stimulation (e.g., Inspire II Upper Airway Stimulation system) is considered **medically appropriate** for the treatment of moderate-to-severe OSA, when **ALL** the following criteria are met for each listed age group.

1. Adult ($\geq$18 years):
    1. AHI described as greater than or equal to 15 and less than or equal to 100;
    2. Documentation of an inability to use or tolerate CPAP;
    3. Documentation of all previous treatment measures that have been exhausted or failed;

4. Absence of anatomical findings that would affect the performance of upper airway stimulation, such as the presence of complete concentric collapse of the soft palate; **and**
5. BMI less than or equal to 40.

2. Pediatric Patients (aged 10 to 21 years) with Down Syndrome:
    1. AHI greater than 10 and less than 50;
    2. Less than 25% central apneas after prior adenotonsillectomy;
    3. Absence of a complete concentric collapse at the soft palate level on drug induced sleep endoscopy;
    4. Body mass index ≤ 95th percentile for age;
    5. Have either a tracheotomy or have been confirmed to fail, or cannot tolerate, PAP therapy despite attempts to improve compliance; **and**
    6. Have followed standard of care in considering all other alternative/adjunct therapies.

B. Upper airway stimulation therapy is **contraindicated** when the patient:
    1. Has central and mixed apneas greater than 25% of the total AHI;
    2. Has any condition or procedure that would affect neurological control of the upper airway;
    3. Is unable or does not have the necessary assistance to operate the sleep remote;
    4. Is pregnant or plans to become pregnant;
    5. Will require magnetic resonance imaging (MRI); **or**
    6. Has an implantable device that may have unintended interactions with the upper airway stimulation system (e.g., Inspire system).

VI. Surgical treatment for snoring without polysomnographic evidence of OSA is considered **not medically necessary.**

VII. Cardiac pacing or atrial overdrive pacing is considered **investigational** for the treatment of OSA.

RELATED POLICIES

Corporate Medical Policy

1.01.06 Positive Airway Pressure Devices CPAP, BIPAP, APAP, and Noninvasive Positive Pressure Ventilators (NIV)

1.01.07 Oral Appliance for the Treatment of Obstructive Sleep Apnea

11.01.03 Experimental or Investigational Services

7.01.05 Vagus Nerve Stimulation and Vagus Nerve Blocking Therapy

POLICY GUIDELINE(S)

I. Surgery is not the first treatment of choice for OSA. It is reserved for individuals who have failed all forms of medical management of OSA, or are intolerant of CPAP, BiPAP, and/or oral appliances.

II. In severe OSA disease, surgery may not be curative, and follow-up studies may be warranted post-operatively.

III. For those individuals who have been found to have multiple levels or anatomical sites (e.g., hypopharyngeal, retropalatal, and/or retro lingual) of OSA on clinical evaluation, a simultaneous combination of surgical procedures may be appropriate for the best surgical outcome and to minimize operative risk. Nasal surgery is not considered part of a multi-level surgery to correct OSA. If a nasal obstruction precludes the use of CPAP, then nasal surgery to allow the use of CPAP should be performed first.

DESCRIPTION

Obstructive sleep apnea (OSA) is the cessation of airflow through the nose and mouth for at least 10 seconds with a respiratory effort noted and is usually associated with a reduction in blood oxygen saturation. Features of OSA include daytime somnolence, disordered sleep, and a variety of clinical symptoms. It is also common to find decreased motor and perceptual skills while awake, which correlate with the severity of hypoxia during sleep. The syndrome is most common in middle-aged, obese, male smokers.

In patients with OSA, the normal pharyngeal narrowing is accentuated by anatomic factors, such as a short neck, elongated palate and uvula, or large tonsillar pillars with redundant lateral pharyngeal wall mucosa. OSA may also be associated with a wide variety of craniofacial abnormalities, including micrognathia, retrognathia or maxillary hypoplasia.

When anatomical obstructions exist, surgical intervention are used. Obstruction can occur at several different locations along the airway, and in specific circumstances, combined surgical procedures can offer a higher overall success rate than one single procedure alone. Due to the complexity of airway narrowing or collapse during sleep, one surgical procedure may not eradicate the person sleep apnea. Procedures such as septoplasty, nasal turbinectomies or nasal polypectomies may be indicated for correction of nasal airway obstruction, their role in treating multi-level OSA is very limited.

When patients with OSA are not able achieve benefit with non-invasive positive pressure therapy (PAP) or fail the gold standard of treatment in the form of CPAP, a second-line treatment may be a surgical option.

The goal of surgery is to enlarge the airway and prevent airway collapse and oxygen desaturation, to prevent the clinical symptoms of OSA: excessive daytime sleepiness, impaired cognition, and mood disorders. Surgery is site-specific, performed to enlarge a certain portion of the airway.

Types of Nasal Surgery

- Septoplasty corrects a deviated septum, which may obstruct the nasal airway.
- Turbinate reduction reduces the size of one of the three turbinate in each nostril, which can improve the size of the nasal airway. The surgery may be performed with lasers, cautery or radiofrequency ablation.
- Polypectomy removes nasal polyps that obstruct the nasal airways.

Upper Airway Surgery

- Uvulopalatopharyngoplasty (UPPP) involves the removal of the uvula and trimming of the lower edge of the soft palate. The surgery may include several technical variations. All techniques include the basic UPPP procedure, but often additional surgery is performed, such as tonsillectomy. UPPP with inferior sagittal osteotomy with hyoid suspension is one variation proposed to improve the surgical outcome.
- Radio-frequency ablation of soft palate tissue, or somnoplasty system, uses a device consisting of an electrosurgical (RF) generator and tissue-coagulating electrodes that ablate soft tissues in the palate or uvula.
- Laser-assisted uvulopalatoplasty (LAUP) involves the progressive removal of the back edge of the palate and reduction in the size of the uvula. It is most frequently performed with a carbon dioxide laser and is typically performed over several surgical sessions in an outpatient setting.
- Expansion sphincter pharyngoplasty/expansion sphincteroplasty (ESP) is a modification of a UPPP in which the lateral pharyngeal wall is stiffened in order to prevent collapse. ESP consists of a tonsillectomy, expansion pharyngoplasty, rotation of the palatopharyngeal muscle, partial uvulectomy, and closure of the anterior and posterior tonsillar pillars.
- Tonsillectomy and adenoidectomy are, respectively, procedures to remove enlarged tonsils, which may narrow the width of the upper airway, and the adenoids, which are at the back of the nose and may obstruct the nasal airway. Removal of tonsils and adenoids is performed most often in children with sleep apnea. Adenoids usually shrink with age and only rarely require removal in adults.
- Injection snoreplasty involves the injection of a sclerosing agent (tetradecyl sulfate/Sotradecol) into the soft palate, which causes scarring and subsequent stiffening of the soft palate. This is thought to reduce the flutter of the soft palate, which is the cause of primary snoring.
- Cautery-assisted palatal stiffening operation (CAPSO) is a procedure in which electrocautery is utilized to remove a portion of the soft palate and uvula. It is carried out under local anesthesia, on an outpatient basis.
- Palatal implant system involves insertion of three narrow bands of braided polyester under the skin of the soft palate using a delivery tool. The implant has been proposed for the treatment of snoring and for the treatment of palate-related mild to moderate sleep apnea. Once in place, the implant stiffens the palate by mechanical means and induces a fibrotic response that incapsulates and secures the implants, further stiffening the palatal tissue. Palatal

implants, though designed to be permanent, are removable. Implantation is carried out under local anesthesia.

Lower Airway Surgery

- Jaw realignment surgery (e.g., inferior sagittal mandibular osteotomy, genioglossal advancement, hyoid myotomy and suspension, maxillomandibular osteotomy and advancement) is a more aggressive surgical procedure than UPPP. It has been used to relieve obstruction in OSA patients who meet the criteria for UPPP.
- A tongue suspension suture system (e.g., Airvance, Medtronic, Inc) involves preventing the tongue from falling back during sleep. The Airvance System uses a titanium screw in the chin, which is attached to a permanent stitch through the tongue to pull it forward. The Encore System is similar to the Airvance System but creates a suture loop within the tongue without having to create penetrations through the mucosal surface of the tongue.
- Radiofrequency ablation, or Somnoplasty System, uses a device consisting of an electrosurgical (RF) generator and tissue-coagulating electrodes that ablate soft tissues, creating volumetric tissue reduction of the tongue.

Surgical Bypass of the Airway

- A tracheostomy bypasses the narrow segments of the airway that cause obstruction and creates an opening in the neck that allows the patient to breathe unobstructed at night. This is done in severe, life-threatening cases of sleep apnea.

Hypoglossal Nerve/Upper Airway Stimulation

- Electrical stimulation of the hypoglossal nerve has been proposed as a method of maintaining upper airway patency by augmenting tone to the upper airway. The implant device, which consists of a pulse generator, a stimulation lead, and a sensing lead, is designed to detect the patient's respiratory effort and maintain airway patency with mild stimulation of the hypoglossal nerve. Therapy settings are stored in the pulse generator and configured by the physician using an external programmer. The individual uses a remote to start therapy before going to sleep and to stop therapy when awakened. The sleep remote also provides the ability to pause therapy and to adjust stimulation amplitude within physician-defined limits.

Atrial Overdrive Pacing

- It has been found that bradycardia frequently occurs during episodes of apnea. Therefore, atrial overdrive pacing after implantation of a pacemaker has been proposed as a treatment to reduce the incidence of obstructive sleep apnea events.

SUPPORTIVE LITERATURE

The American Academy of Sleep Medicine (AASM 2021) guidelines note that positive airway pressure (PAP) is the most efficacious treatment for OSA, but effectiveness can be compromised when individuals are unable to adhere to therapy or obtain an adequate benefit, which is when surgical management may be indicated. The AASM guideline recommendations are based on a systematic

review and meta-analysis of 274 studies of surgical interventions, including procedures such as Uvulopalatopharyngoplasty (UPPP), modified UPPP, MMA, tongue base suspension, and hypoglossal nerve stimulation (Kent et al., 2021). The systematic review deemed most included data of low quality, consisting of mostly observational data.

LAUP studies have shown that a large proportion of patients post-operatively developed significant worsening of objective sleep parameters. Camacho et al. (2017) conducted a systematic review and meta-analysis on the effectiveness and the outcomes of LAUP as a treatment for OSA. The review evaluated pre and post operative outcomes such as AHI, oxygen saturation levels, and quality of life measurements. Twenty-three adult studies (717 patients) reported outcomes. LAUP reduced AHI by 32% among all participants. Individual participant data analyses demonstrated a 23% success rate (≥50% reduction in AHI and <20 events/hour) and an 8% cure rate. A total of 44% of patients had worsening of their AHI after LAUP. Lowest oxygen saturation (LSAT) improved minimally. Recommendations suggest that LAUP should be performed with caution or not perform at all given the unfavorable results of study.

Snoreplasty and CAPSO are intended treatment therapies for snoring, and not for the treatment of OSA (Lee et al., 2014). Most published studies on this treatment have been non-randomized, observational studies with highly selected enrolled participants. These studies also fail to report long-term outcomes or recurrence rates.

The Pillar Palatal Implant received FDA approval for the treatment of snoring in 2003 and as a treatment for OSA in September 2004. There is insufficient peer-reviewed evidence to support the use of the Pillar implant as a treatment for OSA. The literature consists of small case series investigating its use for snoring. Studies with OSA patients had very small sample sizes and limited follow-up, and were vendor sponsored (Nordgard et al. (2006); Friedman et al. (2006).

Many patients with OSA also suffer from nocturnal bradycardia or tachyarrhythmias. It has been observed that, in some patients, the use of a pacemaker to increase the heart rate and cardiac function during sleep could also reduce the incidence of apneic episodes. Although a clinical study by Garrigue et al. (2002) found that atrial overdrive pacing significantly reduced the number of episodes of central and obstructive sleep apnea, but these positive findings have not been validated in any of the newer, well-designed studies. Atrial overdrive pacing has not been found to reduce the number of apnea and/or hypopnea events in patients with OSA (Krahn et al. (2006); Unterberg et al. (2005); Luthje et al. (2005); Simantirakis et al. (2005); Pepin et al. (2005)).

Upper airway stimulation (UAS) leads to significant reductions in the AHI, the ODI, and the ESS in older patients, despite higher age with multiple co-morbidities. Advanced age was not a limiting factor for surgical procedure or treatment outcomes. The main result of this study is a significant reduction of the AHI in younger and older subjects: 84% decrease in younger subjects and 80.8% decrease in older subjects where the AHI declined below a level of 15 events per hour (the generally accepted values that define mild sleep apnea). Furthermore, the level of daytime sleepiness also declined in 69.6% of younger and in 72% of older subjects where the value of ESS was below 10 points. (Zhu et al., 2018).

The largest cohort study done to date, which focused exclusively on UAS therapy outcomes,

consisted of a study of 47 patients, 30 of whom had undergone a previous surgery and 16 of whom had not suffered from moderate-to-severe OSA, but were surgical candidates for HNS therapy. The study examined AHI and nadir oxyhemoglobin saturation (NOS) as measured by polysomnography; secondary measures included ESS. The study revealed an overall reduction in AHI by 90%, which translated to a success rate of 96% and cure rate of 81%. (Mahmoud et al., 2018).

Patients with moderate-to-severe OSA and an inability to adhere to positive pressure therapy, who underwent HGNS, were compared to a historical cohort of patients who were intolerant of CPAP who underwent UPPP. Data included BMI, as well as pre- and post-implant AHI. UAS resulted in an approximately 90% reduction in AHI, while traditional airway surgery resulted in an approximately 30% reduction in AHI. In addition, 65% of the patients in the UAS cohort demonstrated a reduction in AHI from the moderate-to-severe range into the normal range (AHI <5), compared to only 20% of the patients in the UPPP group. (Shah et al., 2018).

Liu et al. (2022) published a systematic review investigating HNS in adolescents with Down Syndrome and OSA. A total of nine studies were included with a follow up period ranging from two to 58 months; six studies had sample sizes fewer than ten patients. The largest of the included studies was a prospective cohort study published by Yu et al. (2022), which is summarized below. In an analysis that included 104 patients, AHI scores were significantly reduced in patients after HNS (mean AHI reduction, 17.43 events/h; 95% CI, 13.98 to 20.88events/h; p<.001). Similarly, in an analysis that included 88 patients, OSA-18 survey scores were significantly reduced after HNS (mean OSA-18 reduction, 1.67; 95% CI, 1.27 to 2.08; p<.001).

Yu et al. (2022) reported on the safety and effectiveness of HNS in 42 adolescents with Down Syndrome and severe OSA (AHI of 10 events/h or greater). This was a single-group, multicenter, cohort study with a 1-year follow-up that included non-obese (BMI <95%) children and adolescents aged 10 to 21 years who were refractory to adenotonsillectomy and unable to tolerate CPAP. Patients who were included had an AHI between10 and 50 on baseline PSG; the mean baseline AHI was 23.5 (SD, 9.7). All patients included tolerated HNS without any intraoperative complications. The most common complication was tongue or oral discomfort or pain, which occurred in 5 (11.9%) patients and was temporary, lasting weeks or rarely, months. Four patients(9.5%) had device extrusion resulting in readmissions to replace the extruded device. At 12 months, there was a mean decrease in AHI of 12.9 (SD, 13.2) events per hour (95% CI, -17.0 to -8.7 events/h). At the 12-month PSG, 30 of 41 patients (73.2%) had an AHI of less than 10 events/h, 14/41 patients (34.1%) had an AHI of less than 5 events/h, and 3/41 patients (7.3%) had an AHI of less than 2 events/h. There was also a significant improvement in quality-of-life outcomes. The mean improvement in the OSA-18 total score was 34.8 (SD, 20.3;95% CI, -42.1 to -27.5) and the ESS improved by 5.1 (SD, 6.9; 95% CI, -7.4 to -2.8).

PROFESSIONAL GUIDELINE(S)

The AASM (2021) proposes the use of specific guidelines, such as CPAP adherence for at least four hours of sleep for at least 70% of the days, or an improvement in clinical symptoms. The United States Food and Drug Administration (FDA) defines failed compliance as using the CPAP for fewer than four (4) hours per night for fewer than five (5) nights per week.

Candidates for surgical options requires appropriate selection. Factors to consider are the polysomnographic report, age, BMI, and objective upper airway evaluation measures.

The AASM (2021) strongly recommends that clinicians discuss referral to a sleep surgeon with adults with OSA and body mass index (BMI) <40 kg/m2 who are intolerant or unaccepting of PAP.

The AASM makes a conditional recommendation that clinicians discuss referral to a sleep surgeon with adults with OSA, BMI <40 kg/m2, and persistent inadequate PAP adherence due to pressure-related side effects. The available data (very low-quality), suggests that upper airway surgery has a moderate effect in reducing minimum therapeutic PAP level and increasing PAP adherence.

In adults with OSA and obesity (class II/III, BMI >35) who are intolerant or unaccepting of PAP, the AASM strongly recommends discussion of referral to a bariatric surgeon, along with other weight-loss strategies.

The American Academy of Otolaryngology - Head and Neck Surgery (AAO-HNS; 2021) position statement supports surgical management of OSA when part of a comprehensive approach in the medical and surgical management of adults with OSA. Approved treatments include:

- tracheostomy,
- nasal and pharyngeal airway surgery,
- tonsillectomy and adenoidectomy,
- palatal advancement,
- UPPP,
- genioglossal advancement,
- hyoid myotomy,
- midline glossectomy,
- tongue suspension,
- maxillary and mandibular advancement
- hypoglossal nerve stimulation as an effective second-line treatment of moderate-to-severe OSA.

REGULATORY STATUS

On April 30, 2014, the FDA granted pre-market approval for the Inspire Upper Airway Stimulation (UAS) system (Inspire Medical Systems) for use in treating a subset of individuals, aged 22 years and older, with moderate-to-severe obstructive sleep apnea (AHI of 20 to 65) who have failed or could not tolerate CPAP treatments, who do not have complete concentric collapse at the level of the soft palate and a body mass index (BMI) less than 32.

In June 2023, the FDA expanded indications for Inspire UAS system. The update increased the upper limit of the AHI to 100 events per hour from 65 and raised the BMI warning from 32 to 40. The FDA lowered the age to 18 years old for individuals with moderate to severe OSA. The FDA added

indications for pediatric individuals aged 13-18 years old with Down Syndrome and who have an AHI greater than 10 and less than 50. Inspire Medical Systems, Inc. [Internet] [access 2025 Mar 11] Available from: https://www.accessdata.fda.gov/cdrh_docs/pdf13/P130008S090A.pdf

CODE(S)

- Codes may not be covered under all circumstances.
- Code list may not be all inclusive (AMA and CMS code updates may occur more frequently than policy updates).
- (E/I)=Experimental/Investigational
- (NMN)=Not medically necessary/appropriate

CPT Codes

Code	Description
21141-21155, 21193-21206, 21244	Jaw realignment surgery (code ranges)
31600	Tracheostomy, planned (separate procedure)
41512 (E/I)	Tongue base suspension, permanent suture technique
41530 (NMN)	Submucosal ablation of the tongue base, radiofrequency, one or more sites, per session
42145	Palatopharyngoplasty (e.g., uvulopalatopharyngoplasty, uvulopharyngoplasty)
42820	Tonsillectomy and adenoidectomy; younger than age 12
42821	Tonsillectomy and adenoidectomy; age 12 or over
64568	Open implantation cranial nerve (e.g., vagus nerve) neurostimulator electrode array and pulse generator
64582	Open implantation of hypoglossal nerve neurostimulator array, pulse generator, and distal respiratory sensor electrode or electrode array
64583	Revision or replacement of hypoglossal nerve neurostimulator array and distal respiratory sensor electrode or electrode array, including connection to existing pulse generator
64584	Removal of hypoglossal nerve neurostimulator array, pulse generator, and distal respiratory sensor electrode or electrode array
95970	Electronic analysis of implanted neurostimulator pulse generator/transmitter (e.g., contact group[s], interleaving, amplitude, pulse width, frequency [Hz], on/off cycling, burst, magnet mode, dose lockout, patient selectable parameters,

Code	Description
	responsive neurostimulation, detection algorithms, closed loop parameters, and passive parameters) by physician or other qualified health care professional; with brain, cranial nerve, spinal cord, peripheral nerve, or sacral nerve, neurostimulator pulse generator/transmitter, without programming
95976	Electronic analysis of implanted neurostimulator pulse generator/transmitter (e.g., contact group[s], interleaving, amplitude, pulse width, frequency [Hz], on/off cycling, burst, magnet mode, dose lockout, patient selectable parameters, responsive neurostimulation, detection algorithms, closed loop parameters, and passive parameters) by physician or other qualified health care professional; with simple cranial nerve neurostimulator pulse generator/transmitter programming by physician or other qualified health care professional
95977	Electronic analysis of implanted neurostimulator pulse generator/transmitter (e.g., contact group[s], interleaving, amplitude, pulse width, frequency [Hz], on/off cycling, burst, magnet mode, dose lockout, patient selectable parameters, responsive neurostimulation, detection algorithms, closed loop parameters, and passive parameters) by physician or other qualified health care professional; with complex cranial nerve neurostimulator pulse generator/transmitter programming by physician or other qualified health care professional

HCPCS Codes

Code	Description
C1823	Generator, neurostimulator (implantable), non-rechargeable, with transvenous sensing and stimulation leads
C9727 (E/I)	Insertion of implants into the soft palate; minimum of three implants
S2080 (NMN)	Laser-assisted uvulopalatoplasty (LAUP)

ICD10 Codes

Code	Description
C1823	Generator, neurostimulator (implantable), non-rechargeable, with transvenous sensing and stimulation leads
C9727 (E/I)	Insertion of implants into the soft palate; minimum of three implants
S2080 (NMN)	Laser-assisted uvulopalatoplasty (LAUP)

REFERENCES

Algethami MR, et al. Perception of surgical treatments for obstructive sleep apnea among sleep

medicine physicians: A cross-sectional study. J Family Med Prim Care. 2020 Aug 25;9(8):4401-4405.

American Academy of Otolaryngology-Head and Neck Surgery [Internet]. Nasal surgery and OSAS. Position statement. [Updated 2021 Apr 22; accessed 2025 Mar 11]. Available from: https://www.entnet.org/resource/position-statement-nasal-surgery-and-osas/

American Academy of Otolaryngology-Head and Neck Surgery. [Internet] Surgical management of obstructive sleep apnea. Position statement. [Updated 2021 Apr 22; accessed 2025 Mar 11]. Available from: https://www.entnet.org/resource/position-statement-surgical-management-of-obstructive-sleep-apnea/

American Academy of Otolaryngology-Head and Neck Surgery [Internet]. Uvulopalatopharyngoplasty. Position statement. [Updated 2021 Apr 22; accessed 2025 Mar 11]. Available from: http://www.entnet.org/node/896

American Academy of Otolaryngology – Head and Neck Surgery. Tongue suspension. [Internet] Position statement. [Updated 2021 Apr 22; accessed 2025 Mar 11]. Available from: https://www.entnet.org/resource/position-statement-tongue-suspension/

American Academy of Otolaryngology-Head and Neck Surgery. [Internet] Position Statement: Hypoglossal Nerve Stimulation for Treatment of Obstructive Sleep Apnea (OSA). [Updated 2021 Apr 22; accessed 2025 Mar 11]. Available from: https://www.entnet.org/resource/position-statement-hypoglossal-nerve-stimulation-for-treatment-of-obstructive-sleep-apnea-osa/

American Academy of Sleep Medicine. Practice parameters for the use of laser-assisted uvulopalatoplasty. [Internet] An update for 2000. [access 2025 Mar 11] Available from: https://aasm.org/resources/practiceparameters/pp_uvulopalatoplasty.pdf

Bestourous D, et al. Adverse events associated with the Inspire implantable hypoglossal nerve stimulator: A MAUDE database review. Am J Otolaryngol. 2020 Nov-Dec;41(6):102616.

Braun M, et al. Patient-reported outcomes with hypoglossal nerve stimulation for treatment of obstructive sleep apnea: a systematic review and meta-analysis. Eur Arch Otorhinolaryngol. 2023 Oct;280(10):4627-4639.

Camacho M, et al. Laser-Assisted Uvulopalatoplasty for Obstructive Sleep Apnea: A Systematic Review and Meta-Analysis. Sleep. 2017 Mar 1;40(3).

Friedman M, et al. Patient selection and efficacy of pillar implant technique for treatment of snoring and obstructive sleep apnea/hypopnea syndrome. Otolaryngol Head Neck Surg. 2006 Feb;134(2):187-96.

Kang KT, et al. Effect of sleep surgery on blood pressure in adults with obstructive sleep apnea: A systematic review and meta-analysis. Sleep Med Rev. 2022 Apr:62:101590.

Kent D, et al. Referral of adults with obstructive sleep apnea for surgical consultation: an American Academy of Sleep Medicine systematic review, meta-analysis, and GRADE assessment. J Clin Sleep Med. 2021 Dec 1;17(12):2507-2531.

Krahn AD, et al. Physiologic pacing in patients with obstructive sleep apnea: a prospective,

randomized crossover trial. J Am Coll Cardiol 2006 Jan 17;47(2):379-83.

Lee LA, et al. Comparative effects of snoring sound between two minimally invasive surgeries in the treatment of snoring: a randomized controlled trial. PLoS One. 2014 May 9;9(5): e97186.

Luthje L, et al. Atrial overdrive pacing in patients with sleep apnea with implanted pacemaker. Am J Respir Crit Care Med 2005 Jul 1;172(1):118-22.

Liu P, et al. Hypoglossal nerve stimulation in adolescents with down syndrome and obstructive sleep apnea: a systematic review and meta-analysis. Front Neurol. 2022 Oct;13:1037926.

Mahmoud AF, et al. Outcomes of Hypoglossal Nerve Upper Airway Stimulation among Patients with Isolated Retropalatal Collapse. Otolaryngology– Head and Neck Surgery. 2019;160(6):1124–1129.

Neruntarat C, et al. Barb reposition pharyngoplasty versus expansion sphincter pharyngoplasty: a meta-analysis. Laryngoscope. 2021 Jun;131(6):1420-1428.

Nordgard S, et al. One-year results: palatal implants for the treatment of obstructive sleep apnea. Otolaryngol Head Neck Surg. 2007 May;136(5):818-22.

Pepin JL, et al. Overdrive atrial pacing does not improve obstructive sleep apnea syndrome. Eur Resp J .2005 Feb;25(2):343-7.

Povolotskiy R, et al. Complications of Palatal Pillar Implants: An analysis of the MAUDE database and literature review. Am J Otolaryngol. Jan-Feb;41(1):102303.

Rodriguez-Lara F, et al. Advances in the Use of Hypoglossal Nerve Stimulator in Adolescents With Down Syndrome and Persistent Obstructive Sleep Apnea-A Systematic Review. Ann Otol Rhinol Laryngol. 2024 Mar;133(3):317-324.

Shiffman HS, et al. Invasive Combined Nd:YAG and Er:YAG Laser-Assisted Uvulopalatoplasty for Treatment of Obstructive Sleep Apnea. Photobiomodul Photomed Laser Surg. 2021 Aug;39(8):550-557.

Simantirakis EN, et al. Atrial overdrive pacing for obstructive sleep apnea-hypopnea syndrome. NEJM. 2005 Dec 15;353(24):2568-77.

Unterberg C, et al. Atrial overdrive pacing compared to CPAP in patients with obstructive sleep apnoea syndrome. Eur Heart J. 2005 Dec;26(23):2568-75.

U.S. Food & Drug Administration Inspire Upper Airway Stimulation – P130008/S090. [Internet] [Updated 2023 Jul 13; accessed 2025 Mar 11]. Available from: https://www.fda.gov/medical-devices/recently-approved-devices/inspire-upper-airway-stimulation-p130008s090

Wischusen J, et al. Laser-assisted uvulopalatoplasty (LAUP) complications and side effects: a systematic review. Nature and Science of Sleep. 2019;11:59–67.

Withrow K. et al. Upper Airway Stimulation Response in Older Adults with Moderate to Severe Obstructive Sleep Apnea. Otolaryngology-Head and Neck Surgery. 2019;161(4):714–719.

Yu PK, et al. Evaluation of upper airway stimulation for adolescents with down syndrome and obstructive sleep apnea. JAMA Otolaryngol Head Neck Surg. 2022 Jun;148(6): 522-528.

SEARCH TERMS

Airvance, Atrial overdrive pacing, Aura6000 System, CAPSO, Encore, HGNS, Hypoglossal Nerve Stimulation, Inspire II Upper Airway Stimulation System, LAUP, Pillar, Repose, Snoreplasty, Somnoplasty, UPPP

CENTERS FOR MEDICARE AND MEDICAID SERVICES (CMS)

Based on our review, surgical management of obstructive sleep apnea is not addressed in National or Regional Medicare coverage determinations or policies.

PRODUCT DISCLAIMER

- Services are contract dependent; if a product does not cover a service, medical policy criteria do not apply.
- If a commercial product (including an Essential Plan or Child Health Plus product) covers a specific service, medical policy criteria apply to the benefit.
- If a Medicaid product covers a specific service, and there are no New York State Medicaid guidelines (eMedNY) criteria, medical policy criteria apply to the benefit.
- If a Medicare product (including Medicare HMO-Dual Special Needs Program (DSNP) product) covers a specific service, and there is no national or local Medicare coverage decision for the service, medical policy criteria apply to the benefit.
- If a Medicare HMO-Dual Special Needs Program (DSNP) product DOES NOT cover a specific service, please refer to the Medicaid Product coverage line.

POLICY HISTORY/REVISION

Committee Approval Dates

03/21/02, 02/20/03, 12/18/03, 01/20/05, 10/20/05, 09/21/06, 07/19/07, 05/14/08, 03/19/09, 03/18/10, 04/21/11, 03/15/12, 03/21/13, 03/20/14, 05/28/15, 03/17/16, 04/20/17, 04/19/18, 03/21/19, 03/19/20, 03/18/21, 03/24/22, 03/23/23, 03/21/24, 04/17/25

Date	Summary of Changes
04/17/25	• Annual review, policy intent unchanged.
01/01/25	• Summary of changes tracking implemented.
10/18/01	• Original effective date