BlueCross BlueShield of Alabama

Name of Blue Advantage Policy:

Surgical Treatment of Snoring and Obstructive Sleep Apnea

Policy #: 621
Category: Surgical

Latest Review Date: July 2020
Policy Grade: D

BACKGROUND:

Blue Advantage *medical policy does not conflict with Local Coverage Determinations (LCDs), Local Medical Review Policies (LMRPs) or National Coverage Determinations (NCDs) or with coverage provisions in Medicare manuals, instructions or operational policy letters. In order to be covered by Blue Advantage the service shall be reasonable and necessary under Title XVIII of the Social Security Act, Section 1862(a)(1)(A). The service is considered reasonable and necessary if it is determined that the service is:*

1. *Safe and effective;*
2. *Not experimental or investigational*;*
3. *Appropriate, including duration and frequency that is considered appropriate for the service, in terms of whether it is:*
   - *Furnished in accordance with accepted standards of medical practice for the diagnosis or treatment of the patient's condition or to improve the function of a malformed body member;*
   - *Furnished in a setting appropriate to the patient's medical needs and condition;*
   - *Ordered and furnished by qualified personnel;*
   - *One that meets, but does not exceed, the patient's medical need; and*
   - *At least as beneficial as an existing and available medically appropriate alternative.*

Routine costs of qualifying clinical trial services with dates of service on or after September 19, 2000 which meet the requirements of the Clinical Trials NCD are considered reasonable and necessary by Medicare. Providers should bill* ***Original Medicare* *for covered services that are related to* ***clinical trials*** *that meet Medicare requirements (Refer to Medicare National Coverage Determinations Manual, Chapter 1, Section 310 and Medicare Claims Processing Manual Chapter 32, Sections 69.0-69.11).*

POLICY:

For dates of service on or after June 21, 2020:

For Implantable Hypoglossal Nerve Stimulator, refer to L38276, A58075.

Blue Advantage will treat **palatopharyngoplasty (e.g., uvulopalatopharyngoplasty (UPPP), uvulopharyngoplasty)** as a **covered benefit** when treatment options have been discussed with the patient including but not limited to: weight loss, Continuous Positive Airway Pressure (CPAP), Bi-Level Positive airway Pressure (BIPAP), medications and alternative surgical procedures. The following conditions and criteria must be met:

- Diagnosis of obstructive sleep apnea is made with a polysomnogram study performed at an approved sleep study center and there is documentation of an Apnea-Hypopnea Index (AHI) greater than or equal to 15.

- Physical examination that includes but is not limited to: anterior rhinoscopy; endoscopic examination of nose, pharynx, and hypopharynx; evaluation of the nasal septum and nasal turbinates; evaluation of nasal polyps or other masses; Muller's maneuver and evaluation of the tonsillar/adenoidal tissue; anatomical evaluation for cephalometric disproportion.

Blue Advantage will treat **laser-assisted uvulopalatoplasty (LAUP)** as a **covered benefit** when treatment options have been discussed with the patient including but not limited to: weight loss, Continuous Positive Airway Pressure (CPAP), Bi-Level Positive Airway Pressure (BIPAP), medications and alternative surgical procedures. The following conditions and criteria must be met:

- Diagnosis of obstructive sleep apnea is made with a polysomnogram study performed at an approved sleep study center and there is documentation of an Apnea-Hypopnea Index (AHI) greater than or equal to 15.

- Physical examination that includes but is not limited to: anterior rhinoscopy; endoscopic examination of nose, pharynx, and hypopharynx; evaluation of the nasal septum and nasal turbinates; evaluation of nasal polyps or other masses; Muller's maneuver and evaluation of the tonsillar/adenoidal tissue; anatomical evaluation for cephalometric disproportion.

Blue Advantage will treat **laser-assisted uvulopalatoplasty (LAUP)** as a **non-covered benefit** and as **investigational** when used for the **treatment of snoring.**

Blue Advantage will treat **hyoid suspension and myotomy and other mandibular-maxillary advancement** as a **covered benefit** for the treatment of obstructive sleep apnea when the following criteria are met:

- AHI > 20 or oxygen desaturations less than 90% as determined by a nocturnal polysomnogram has been performed in an approved facility
- Cephalometric abnormalities

- (Clinically Significant) Hypopharyngeal obstruction
- CPAP/BIPAP trial over a period of time (unless RDI less than 5 cannot be achieved) or patient has immediate intolerance (true claustrophobic reaction)
- Otolaryngologist evaluation with appropriate interventions
- If UPPP performed prior to orthognathic surgery, will need to repeat sleep study demonstrating obstructive sleep apnea

Blue Advantage may consider **adenotonsillectomy** as **medically necessary** in pediatric patients with clinically significant OSA and hypertrophic tonsils.

Blue Advantage will treat **radiofrequency ablation of palatal tissues or radiofrequency volumetric tissue reduction (Somnoplasty)** as a **non-covered benefit** and as **investigational** for simple snoring, upper airway resistance syndrome and obstructive sleep apnea syndrome.

Blue Advantage will treat **uvulectomy** as a **non-covered benefit** and as **investigational** when used for the treatment of snoring.

Blue Advantage will treat **midline glossectomy** as a **non-covered benefit** for the treatment of upper airway obstruction syndrome and obstructive sleep apnea syndrome and as **investigational**.

Blue Advantage will treat **palatal stiffening procedures**, including but not limited to, cautery assisted palatal stiffening operation, and the implantation of palatal implants, as a **non-covered benefit** in the treatment of snoring alone, and as **investigational** as a treatment for upper airway resistance syndrome or OSA.

Blue Advantage will treat **atrial pacing** as a **non-covered benefit** and as **investigational**.

Blue Advantage will treat **repose tongue suspension system** as a **non-covered benefit** and as **investigational**.

Blue Advantage will treat **implantable hypoglossal nerve stimulators** as a **non-covered benefit** and as **investigational** for all indications, including but not limited to the treatment of OSA.

Blue Advantage will treat any surgical intervention, such as LAUP, radiofrequency volumetric tissue reduction of the palate, or palatal stiffening procedures for **simple snoring in the absence of documented obstructive sleep apnea** (which is not considered a medical condition) as a **non-covered benefit**.

Diagnosis and medical management of OSA (i.e., Provent and Winx) are discussed in Blue Advantage medical policy *#065BA- Medical Management of Obstructive Sleep Apnea Syndrome.*

For dates of service November 15, 2019 to June 20, 2020:

Hypoglossal nerve stimulation may be considered medically necessary in adults with OSA under the following conditions:

- Age ≥ 22 years; AND
- AHI ≥ 15 with less than 25% central apneas; AND
- CPAP failure AND
- Body mass index ≤ 32 kg/m²; AND
- Non-concentric retropalatal obstruction on drug-induced sleep endoscopy.

Hypoglossal nerve stimulation may be considered medically necessary in adolescents or young adults with Down syndrome and OSA under the following conditions:

- Age 10 to 21 years; AND
- AHI >10 and <50 with less than 25% central apneas after prior adenotonsillectomy; AND
- Have either tracheotomy or be ineffectively treated with CPAP due to noncompliance, discomfort, un-desirable side effects, persistent symptoms despite compliance use, or refusal to use the device; AND
- Body mass index ≤ 95th percentile for age; AND
- Non-concentric retropalatal obstruction on drug-induced sleep endoscopy.

Blue Advantage will treat **palatopharyngoplasty (e.g., uvulopalatopharyngoplasty (UPPP), uvulopharyngoplasty)** as a **covered benefit** when treatment options have been discussed with the patient including but not limited to: weight loss, Continuous Positive Airway Pressure (CPAP), Bi-Level Positive airway Pressure (BIPAP), medications and alternative surgical procedures. The following conditions and criteria must be met:

- Diagnosis of obstructive sleep apnea is made with a polysomnogram study performed at an approved sleep study center and there is documentation of an Apnea-Hypopnea Index (AHI) greater than or equal to 15.
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Blue Advantage will treat **laser-assisted uvulopalatoplasty (LAUP)** as a **covered benefit** when treatment options have been discussed with the patient including but not limited to: weight loss, Continuous Positive Airway Pressure (CPAP), Bi-Level Positive Airway Pressure (BIPAP), medications and alternative surgical procedures. The following conditions and criteria must be met:

- Diagnosis of obstructive sleep apnea is made with a polysomnogram study performed at an approved sleep study center and there is documentation of an Apnea-Hypopnea Index (AHI) greater than or equal to 15.
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Blue Advantage will treat **laser-assisted uvulopalatoplasty (LAUP)** as a **non-covered benefit** and as **investigational** when used for the **treatment of snoring.**

Blue Advantage will treat **hyoid suspension and myotomy and other mandibular-maxillary advancement** as a **covered benefit** for the treatment of obstructive sleep apnea when the following criteria are met:

- AHI > 20 or oxygen desaturations less than 90% as determined by a nocturnal polysomnogram has been performed in an approved facility
- Cephalometric abnormalities
- (Clinically Significant) Hypopharyngeal obstruction
- CPAP/BIPAP trial over a period of time (unless RDI less than 5 cannot be achieved) or patient has immediate intolerance (true claustrophobic reaction)
- Otolaryngologist evaluation with appropriate interventions
- If UPPP performed prior to orthognathic surgery, will need to repeat sleep study demonstrating obstructive sleep apnea

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Blue Advantage will treat **palatal stiffening procedures**, including but not limited to, cautery assisted palatal stiffening operation, and the implantation of palatal implants, as a **non-covered benefit** in the treatment of snoring alone, and as **investigational** as a treatment for upper airway resistance syndrome or OSA.

Blue Advantage will treat **atrial pacing** as a **non-covered benefit** and as **investigational**.

Blue Advantage will treat **repose tongue suspension system** as a **non-covered benefit** and as **investigational**.
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Effective for dates of service February 26, 2018 through November 14, 2019:

For Implantable Hypoglossal Nerve Stimulator, refer to LCD L34555.

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- Diagnosis of obstructive sleep apnea is made with a polysomnogram study performed at an approved sleep study center and there is documentation of an Apnea-Hypopnea Index (AHI) greater than or equal to 15.
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Blue Advantage does not approve or deny procedures, services, testing, or equipment for our members. Our decisions concern coverage only. The decision of whether or not to have a certain test, treatment or procedure is one made between the physician and his/her patient. Blue Advantage administers benefits based on the members' contract and medical policies. Physicians should always exercise their best medical judgment in providing the care they feel is most appropriate for their patients. Needed care should not be delayed or refused because of a coverage determination.

DESCRIPTION OF PROCEDURE OR SERVICE:

Obstructive sleep apnea (OSA) syndrome is characterized by repetitive episodes of upper airway obstruction due to the collapse of the upper airway during sleep. For patients who have failed conservative therapy, established surgical approaches may be indicated. This evidence review addresses minimally invasive surgical procedures for the treatment of OSA. They include laser-assisted uvuloplasty, tongue base suspension, radiofrequency volumetric reduction of palatal tissues and base of tongue, palatal stiffening procedures, and hypoglossal nerve stimulation. This evidence review does not address conventional surgical procedures such as uvulopalatopharyngoplasty, hyoid suspension, surgical modification of the tongue, maxillofacial surgery, or adenotonsillectomy.

Obstructive sleep apnea (OSA) is characterized by repetitive episodes of upper airway obstruction due to the collapse and obstruction of the upper airway during sleep. The hallmark symptom of OSA is excessive daytime sleepiness, and the typical clinical sign of OSA is snoring, which can abruptly cease and be followed by gasping associated with a brief arousal from sleep. The snoring resumes when the patient falls back to sleep, and the cycle of snoring/apnea/arousal may be repeated as frequently as every minute throughout the night. Sleep fragmentation associated with the repeated arousal during sleep can impair daytime activity. For example, adults with OSA-associated daytime somnolence are thought to be at higher risk for accidents involving motorized vehicles (i.e., cars, trucks, heavy equipment). OSA in children may result in neurocognitive impairment and behavioral problems. In addition, OSA affects the cardiovascular and pulmonary systems. For example, apnea leads to periods of hypoxia, alveolar hypoventilation, hypercapnia, and acidosis. This, in turn, can cause systemic hypertension, cardiac arrhythmias, and cor pulmonale. Systemic hypertension is common in patients with OSA. Severe OSA is associated with decreased survival, presumably related to severe hypoxemia, hypertension, or an increase in automobile accidents related to overwhelming sleepiness.

Terminology and diagnostic criteria for OSA are shown in Table 1.

Table 1. Terminology and Definitions for Obstructive Sleep Apnea

Terms	Definition
Respiratory event	
Apnea	The frequency of apneas and hypopneas is measured from channels assessing

	oxygen desaturation, respiratory airflow, and respiratory effort. In adults, apnea is defined as a drop in airflow by 90% or more of pre-event baseline for at least 10 seconds. Due to faster respiratory rates in children, pediatric scoring criteria define an apnea as 2 or more missed breaths, regardless of its duration in seconds.
Hypopnea	Hypopnea in adults is scored when the peak airflow drops by at least 30% of pre-event baseline for at least 10 seconds in association with either at least 4% arterial oxygen desaturation or an arousal. Hypopneas in children are scored by a 50% or greater drop in nasal pressure and either a 3% or more decrease in oxygen saturation or an associated arousal.
RERA	Respiratory event-related arousal is defined as an event lasting at least 10 seconds associated with flattening of the nasal pressure waveform and/or evidence of increasing respiratory effort, terminating in an arousal but not otherwise meeting criteria for apnea or hypopnea
Respiratory event reporting	
AHI	The apnea/hypopnea index is the average number of apneas or hypopneas per hour of sleep
RDI	The respiratory disturbance index is the number of apneas, hypopneas, or respiratory event-related arousals per hour of sleep time. RDI is often used synonymously with the AHI.
REI	The respiratory event index is the number of events per hour of monitoring time. Used as an alternative to AHI or RDI in home sleep studies when actual sleep time from EEG is not available.
OSA	Obstructive sleep apnea is repetitive episodes of upper airway obstruction due to the collapse and obstruction of the upper airway during sleep
Mild OSA	In adults: AHI or RDI of 5 to <15 In children: AHI ≥1.0 to <5
Moderate OSA	AHI or RDI of 15 to < 30; Children: AHI of ≥ 5 to <10
Severe OSA	Adults: AHI or RDI ≥30 Children: AHI of ≥10

UARS	Upper airway resistance syndrome is characterized by a partial collapse of the airway and results in increased resistance to airflow. The increased respiratory effort is associated with multiple sleep fragmentations, as measured by very short alpha EEG arousals.
Positive airway pressure	
APAP	Auto-adjusting positive airway pressure may be used either to provide treatment or to determine the most effective pressure for CPAP
CPAP	Positive airway pressure (PAP) may be continuous (CPAP) or auto-adjusting (APAP) or bi-level (bi-PAP). CPAP is a more familiar abbreviation and will refer to the 3 types of devices for delivery of positive airway pressure.
CPAP failure	Usually defined as an AHI >20 events per hour while using CPAP
CPAP intolerance	CPAP use for <4 hours per night for ≥5 nights per week, or refusal to use CPAP. CPAP intolerance may be observed in patients with mild, moderate, or severe OSA

Treatment

Nonsurgical Treatments

Nonsurgical treatment for OSA or UARS includes CPAP or orthodontic repositioning devices, which are addressed in Medical Policy #065 Medical Management of Obstructive Sleep Apnea.

Surgical Treatments

Traditional surgeries for OSA or UARS include UPPP and a variety of maxillofacial surgeries such as MMA. UPPP involves surgical resection of the mucosa and submucosa of the soft palate, tonsillar fossa, and the lateral aspect of the uvula. The amount of tissue removed is individualized for each patient, as determined by the potential space and width of the tonsillar pillar mucosa between the 2 palatal arches. The UPPP enlarges the oropharynx but cannot correct obstructions in the hypopharynx. Thus, patients who fail UPPP may be candidates for additional procedures, depending on the site of obstruction. Additional procedures include hyoid suspensions, maxillary and mandibular osteotomies, or modification of the tongue. Fiberoptic endoscopy and/or cephalometric measurements have been used as methods to identify hypopharyngeal obstruction in these patients. The first-line treatment in children is usually adenotonsillectomy. Minimally invasive surgical approaches being evaluated for OSA in adults include the following.

Laser-Assisted Uvulopalatoplasty

LAUP is an outpatient alternative that has been proposed as a treatment of snoring with or without associated OSA. In this procedure, superficial palatal tissues are sequentially reshaped using a carbon dioxide laser. The extent of the surgery is typically different from standard UPPP,

because only part of the uvula and associated soft-palate tissues are reshaped. The procedure, as initially described, does not remove or alter tonsils or lateral pharyngeal wall tissues. The patient undergoes from 3 to 7 sessions at 3 to 4 week intervals. One purported advantage of LAUP is that the amount of tissue ablated can be titrated such that the treatment can be discontinued once snoring is eliminated. LAUP cannot be considered an equivalent procedure to the standard UPPP, with the laser simply representing a surgical tool that the physician may opt to use. LAUP is considered a unique procedure, which raises its own issues of safety and, in particular, effectiveness.

Tongue Base Suspension
In this procedure, the base of the tongue is suspended with a suture that is passed through the tongue and then fixated with a screw to the inner side of the mandible, below the tooth roots. The aim of the suspension is to make it less likely for the base of the tongue to prolapse during sleep.

Radiofrequency Ablation of Palatal Tissues and the Tongue
Radiofrequency ablation (RFA) of the soft palate is similar in concept to LAUP, although a different energy source is used. Radiofrequency is used to produce thermal lesions within the tissues rather than using a laser to ablate the tissue surface, which may be painful. For this reason, RFA appears to be growing in popularity as an alternative to LAUP. In some situations, radiofrequency of the soft palate and base of tongue are performed together as a multilevel procedure.

Palatal Stiffening
Palatal stiffening procedures include insertion of palatal implants, injection of a sclerosing agent (snoreplasty), or a cautery-assisted palatal stiffening operation (CAPSO). The CAPSO procedure uses cautery to induce a midline palatal scar designed to stiffen the soft palate to eliminate excessive snoring. The palatal implant device is a cylindrical-shaped segment of braided polyester filaments that is permanently implanted submucosally in the soft palate.

Hypoglossal Nerve Stimulation
The hypoglossal nerve (cranial nerve XII) innervates the genioglossus muscle. Stimulation of the nerve causes anterior movement and stiffening of the tongue and dilation of the pharynx. Hypoglossal nerve stimulation reduces airway collapsibility and alleviates obstruction at both the level of the soft palate and tongue base.
Hypoglossal nerve stimulation systems include an implantable neurostimulator, stimulating leads, and electrodes. Intermittent stimulation systems also include respiratory sensing leads. Stimulation systems such as the Inspire II Upper Airway Stimulation System include respiratory sensing leads that permit intermittent stimulation during inspiration. Stimulation parameters are titrated during an in-laboratory polysomnography and can be adjusted by the patient during home use. The device is turned on only during sleep periods.

Atrial Overdrive Pacing
The use of atrial overdrive pacing (AOD) is also being evaluated in the treatment of obstructive sleep apnea. This approach is being tried because of the bradycardia that generally occurs during episodes of apnea.

KEY POINTS:

This evidence review has been updated regularly with searches of the PubMed database. The most recent literature update was performed through May 11, 2020.
This review was informed by TEC Assessments on the surgical management and radiofrequency volumetric tissue reduction for obstructive sleep apnea (OSA).

Summary of Evidence:

For individuals who have OSA who receive laser-assisted uvulopalatoplasty, the evidence includes a single randomized controlled trial (RCT). Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. The trial indicates reductions in snoring, but limited efficacy on the Apnea/Hypopnea Index (AHI) or symptoms in patients with mild-to-moderate OSA. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have OSA who receive a radiofrequency volumetric reduction of palatal tissues and base of tongue, the evidence includes 2 sham-controlled randomized trials. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. Single-stage radiofrequency to palatal tissues did not improve outcomes compared with sham. Multiple sessions of radiofrequency to the palate and base of tongue did not significantly (statistically or clinically) improve AHI, and the improvement in functional outcomes was not clinically significant. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have OSA who receive palatal stiffening procedures, the evidence includes two sham-controlled randomized trials. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. The 2 RCTs differed in their inclusion criteria, with the study that excluded patients with Friedman tongue position of IV and palate of 3.5 cm or longer reporting greater improvement in AHI (45% success) and snoring (change of -4.7 on a 10-point visual analog scale) than the second trial. Additional study is needed to corroborate the results of the more successful trial and, if successful, define the appropriate selection criteria. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have OSA who receive tongue base suspension, the evidence includes a feasibility RCT with 17 patients. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. The single RCT compared tongue suspension plus uvulopalatopharyngoplasty with tongue advancement plus uvulopalatopharyngoplasty and showed success rates of 50% to 57% for both procedures. RCTs with a larger number of subjects are needed to determine whether tongue suspension alone or added to uvulopalatopharyngoplasty improves the net health outcome. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have OSA who receive hypoglossal nerve stimulation, the evidence includes two nonrandomized studies with historical controls and prospective single-arm studies. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. Hypoglossal nerve stimulation has shown success rates for about two-thirds of a subset of patients who met selection criteria that included AHI, body mass index, and favorable pattern of

palatal collapse. These results were maintained out to five years in the pivotal single-arm study. Prospective comparative trials are needed. For children and adolescents with OSA and Down Syndrome who are unable to tolerate CPAP, the evidence includes a safety study with 20 patients who were treated at tertiary care centers. The success rate was 70% with 2 adverse events of the leads, which were resolved with further surgery. Study in a larger number of patients with Down Syndrome is ongoing.

Practice Guidelines And Position Statements

American Academy of Sleep Medicine

AASM published practice parameters for surgical modifications of the upper airway for OSA in 2010. AASM practice parameters were based on a systematic review of the evidence that found that the published literature was comprised primarily of case series, with few controlled trials and varying approaches to preoperative evaluation and postoperative follow-up. Using the change in AHI as the primary measure of efficacy, substantial and consistent reductions were observed following mandibularmaxillary advancement (MMA), and adverse events were uncommonly reported. Outcomes following pharyngeal surgeries were less consistent, and adverse events were more commonly reported. The review found that outcomes of studies with newer pharyngeal techniques and multilevel procedures, performed in small numbers of patients, appear promising. The practice parameters noted the lack of rigorous data evaluating surgical modifications of the upper airway, resulting in a recommendation of "option" (uncertain clinical use) for MMA, UPPP as a sole procedure, or multilevel or stepwise surgery if patients failed UPPP as a sole treatment. Use of radiofrequency ablation received a recommendation of "option" for patients with mild to moderate OSA who cannot tolerate or who are unwilling to adhere to CPAP, or in whom oral appliances have been found ineffective or undesirable. Palatal implants received a recommendation of "option" for patients with mild OSA who failed medical therapy. LAUP is not recommended as a routine treatment for OSA (standard). The practice parameters committee gave a recommendation of "standard" for the determination of the presence and severity of OSA before initiating surgical therapy, discussion of success rates, complications, and alternative treatments with the patient, and a postoperative follow-up evaluation, which includes a clinical evaluation and an objective measure of the presence and severity of sleep-disordered breathing and oxygen saturation. However, little guidance was available in the medical literature to recommend any particular monitoring strategy. The optimal interval and duration of this follow-up are also not clear from the available literature.

American Academy of Pediatrics

The American Academy of Pediatrics (AAP) published a 2012 clinical practice guideline on the diagnosis and management of childhood OSA. AAP recommends that if a child has OSA, a clinical examination consistent with adenotonsillar hypertrophy, and does not have a contraindication to surgery, the clinician should recommend adenotonsillectomy as the first line of treatment. AAP recommends that patients should be referred for CPAP management if symptoms/signs or objective evidence of OAS persists after adenotonsillectomy or if adenotonsillectomy is not performed. Weight loss should be recommended in addition to other therapy if a child/adolescent with OSA is overweight or obese.

American Academy of Otolaryngology–Head and Neck Surgery
The American Academy of Otolaryngology - Head and Neck Surgery (AAO-HNS; 2014) has a revised position statement on surgical management of OSA. Procedures AAO-HNS supported as effective and not considered investigational when part of a comprehensive approach in the medical and surgical management of adults with OSA include:

- tracheotomy,
- nasal and pharyngeal airway surgery,
- tonsillectomy and adenoidectomy,
- palatal advancement,
- uvulopalatopharyngoplasty,
- uvulopalatoplasty (including laser-assisted and other techniques),
- genioglossal advancement,
- hyoid myotomy,
- midline glossectomy,
- tongue suspension,
- maxillary and mandibular advancement.

In a 2019 position statement, AAO-HNS supported hypoglossal nerve stimulation as an effective second-line treatment of moderate-to-severe OSA.

American Society for Metabolic and Bariatric Surgery
In 2012, the American Society for Metabolic and Bariatric Surgery published guidelines on the perioperative management of OSA. The guideline states that OSA is strongly associated with obesity with the incidence of OSA in the morbidly obese population being reported to be between 38% and 88%. They recommend bariatric surgery be the initial treatment of choice for OSA in this population, as opposed to surgical procedures directed at the mandible or tissues of the palate.

U.S. Preventive Services Task Force Recommendations
Not applicable

KEY WORDS:

Uvulopalatopharyngoplasty, UPPP, UP-3, laser-assisted palatoplasty, LAUP, somnoplasty, radiofrequency ablation, uvulectomy, genioglossal advancement, hyoid suspension and myotomy, maxillomandibular advancement, palatal implants, Pillar™, snoring, cautery-assisted palatal stiffening, atrial pacing, PROVENT EPAP, ApniCure, Inspire II Upper Airway Stimulation System, hypoglossal nerve stimulation, Adenotonsillectomy, Genio, aura6000

APPROVED BY GOVERNING BODIES:

The regulatory status of minimally invasive surgical interventions is shown in Table 2.

Table 2. Minimally Invasive Surgical Interventions for Obstructive Sleep Apnea

Interventions	Devices (predicate or prior name)	Manufacturer (previously owner)	Indication	PMA/ 510(k)	Year	FDA Product Code
LAUP	Various					
Radiofrequency ablation	Somnoplasty®		Simple snoring and for the base of the tongue for OSA	K982717	1998	GEI
Palatal Implant	Pillar® Palatal Implant	Pillar Palatal (Restore Medical/ Medtronic)	Stiffening the soft palate which may reduce the severity of snoring and incidence of airway obstructions in patients with mild-to-moderate OSA	K040417	2004	LRK
Tongue base suspension	AIRvance® (Repose)	Medtronic	OSA and/or snoring. The AlRvance TM Bone Screw System is also suitable for the performance of a hyoid suspension	K122391	1999	LRK
	Encore™ (PRELUDE III)	Siesta Medical	Treatment of mild or moderate OSA and/or snoring	K111179	2011	ORY
Hypoglossal nerve stimulation	Inspire II Upper Airway Stimulation	Inspire Medical Systems	Patients ≥ 18 years with AHI ≥15 and ≤65 who have failed (AHI >15 despite CPAP usage) or cannot tolerate (<4 h use per night for ≥5 nights per week) CPAP and do not have complete	P130008, S039	2014 2017	MNQ

Interventions	Devices (predicate or prior name)	Manufacturer (previously owner)	Indication	PMA/ 510(k)	Year	FDA Product Code
			concentric collapse at the soft palate level. Patients between ages 18 and 21 should also be contraindicated for or not effectively treated by adenotonsillectomy.			
Hypoglossal nerve stimulation	aura6000®	ImThera Medical		IDE	2014	
Hypoglossal nerve stimulation	Genio™	Nyxoa		European CE Mark	2019	

AHI: Apnea/Hypopnea Index; CPAP: continuous positive airway pressure; IDE: investigational device exemption; LAUP: Laser-assisted uvulopalatoplasty; OSA: obstructive sleep apnea.

The expanded indication for hypoglossal nerve stimulation in patients age 18 to 21 was based on patients with Down Syndrome and is contingent on a post-approval study of the Inspire® UAS in this age group. The post-approval study will be a multicenter, single-arm, prospective registry with 60 pediatric patients age 18 to 21. Visits will be scheduled at pre-implant, post-implant, 6 months, and yearly thereafter through 5 years.

BENEFIT APPLICATION:

Coverage is subject to member's specific benefits. Group specific policy will supersede this policy when applicable.

CURRENT CODING:

CPT Codes:

21120	Genioplasty; augmentation (autograft, allograft, prosthetic material)

21121	Genioplasty; sliding osteotomy, single piece
21122	Genioplasty; sliding osteotomies, two or more osteotomies (e.g., wedge excision or bone wedge reversal for asymmetrical chin)
21123	Genioplasty; sliding, augmentation with interpositional bone grafts (includes obtaining autografts)
21199	Osteotomy, mandible, segmental with genioglossal advancement
21299	Unlisted craniofacial and maxillofacial procedure
21685	Hyoid myotomy and suspension
41120	Glossectomy; less than one-half tongue
41130	Glossectomy; hemiglossectomy
41512	Tongue base suspension, permanent suture technique
41530	Submucosal ablation of the tongue base, radiofrequency, one or more sites, per
42120	Resection of palate or extensive resection of lesion
42140	Uvulectomy, excision of uvula
42145	Palatopharyngoplasty (e.g., uvulopalatopharyngoplasty, uvulopharyngoplasty)
42299	Unlisted procedure, Palate or Uvula
42820-42821	Tonsillectomy and adenoidectomy, code range
42825-42826	Tonsillectomy, primary or secondary, code range
42830-42831	Adenoidectomy, primary, code range
42835-42836	Adenoidectomy, secondary, code range

42950	Pharyngoplasty (plastic or reconstructive operation on pharynx)
64568	Incision for implantation of cranial nerve (e.g., vagus nerve) neurostimulator electrode array and pulse generator
64569	Revision Or Replacement of Cranial Nerve (E.g., Vagus Nerve) Neurostimulator Electrode Array, Including Connection To Existing Pulse Generator
64570	Removal of Cranial Nerve (E.g., Vagus Nerve) Neurostimulator Electrode Array and Pulse Generator
95976	Electronic analysis of implanted neurostimulator pulse generator/transmitter (eg, 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 (eg, 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
0466T	; insertion of chest wall respiratory sensor electrode or electrode array, including connection to pulse generator
0467T	Revision or replacement of chest wall respiratory sensor electrode or electrode array, including connection to existing pulse generator
0468T	Removal of chest wall respiratory sensor electrode or electrode array

HCPCS Codes:

S2080	Laser-assisted Uvulopalatoplasty (LAUP)

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POLICY HISTORY:

Adopted for Blue Advantage, January 2016
Medical Policy Group, August 2016
Medical Policy Group, December 2016
Medical Policy Group, January 2017
Medical Policy Group, September 2017
Medical Policy Group, April 2018
Medical Policy Group, June 2018
Medical Policy Group, January 2019
Medical Policy Group, February 2019
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