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Medical Policy Manual

Topic: Surgeries for Snoring and Obstructive Sleep Apnea Syndrome in Adults

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IMPORTANT REMINDER

Medical Policies are developed to provide guidance for members and providers regarding coverage in accordance with contract terms. Benefit determinations are based in all cases on the applicable contract language. To the extent there may be any conflict between the Medical Policy and contract language, the contract language takes precedence.

PLEASE NOTE: Contracts exclude from coverage, among other things, services or procedures that are considered investigational or cosmetic. Providers may bill members for services or procedures that are considered investigational or cosmetic. Providers are encouraged to inform members before rendering such services that the members are likely to be financially responsible for the cost of these services.

DESCRIPTION

Obstructive Sleep Apnea (OSA)

Obstructive sleep apnea syndrome is an important syndrome associated with increased risk of heart failure and potential increase in overall morbidity and mortality.[1] OSA is defined as repeated periods of complete airway obstruction (apnea) lasting at least 10 seconds during sleep. Hypopnea, partial airway obstruction with at least 30% reduction in airflow for 10 seconds or more, may also be present. When the sequence of breaths does not meet criteria for an apnea or hypopnea, but lasts at least 10 seconds and is characterized by either increasing respiratory effort or an arousal from sleep, this is scored as a respiratory event related arousal (RERA). Inadequate oxygen intake during these episodes results in a drop in oxygen saturation, which stimulates a brief awakening that is usually accompanied by gasping until the oxygen saturation rises. This cycle usually repeats throughout the night.

A polysomnogram performed in a sleep laboratory is considered the gold standard test used to diagnose OSA. Objective measures of OSA are compiled using polysomnography monitors, which document the number of apneic and hypopneic events per hour and combine them into the apnea-hypopnea index (AHI). The respiratory disturbance index (RDI) may be defined as the number of apneas, hypopneas and RERAs per hour of sleep.

The final diagnosis of OSA rests on a combination of objective and subjective criteria (e.g. AHI or RDI and excessive daytime sleepiness) that seek to identify those levels of obstruction which are clinically significant. When sleep onset and offset are unknown (e.g., in home sleep studies), the AHI or RDI may be calculated based on the number of apneas, hypopneas, and/or RERAs per hour of recording time.

According to the American Academy of Sleep Medicine, the following AHI/RDI levels are used for the diagnosis of OSA:[2]

- Mild OSA: AHI between 5 and 15
- Moderate OSA: AHI $\geq$ 15
- Severe OSA: AHI $\geq$ 30

An increase in mortality is associated with an AHI greater than 15. More difficult to evaluate is the clinical significance of patients with mild sleep apnea. Mortality has not been shown to be increased in these patients, and frequently the most significant manifestations reported by the patient are snoring, excessive daytime sleepiness, or hypertension. The hallmark clinical symptom of OSA is excessive snoring, although it is important to note that snoring can occur in the absence of OSA. Isolated snoring in the absence of medical complications, while troubling to the patient's bed partner, is not considered a medical problem requiring surgical intervention.

Upper airway resistance syndrome (UARS)

Upper airway resistance syndrome (UARS) was initially used to describe a variant of OSA which is characterized by a partial collapse of the airway resulting in increased resistance to airflow. This resistance does not result in apnea, but the increased respiratory effort required to move air into the lungs results in fragmented sleep. These sleep fragmentations (RERAs) can be measured using an electroencephalogram (EEG). Diagnosis of UARS rests on documentation of more than 10 EEG arousals per hour of sleep along with documented episodes of abnormally negative intrathoracic pressure (i.e., more negative than -10 cm) associated with the EEG arousals. The drop in intrathoracic pressure can be measured by a variety of tests including use of an esophageal manometer, if available, as part of a polysomnogram. RERAs can also be detected absent manometry during polysomnography. It has been proposed that UARS is a distinct syndrome from OSA that may be considered a disease of arousal. However, this distinction has not been universally accepted, and the Revised International Classification of Sleep Disorders Diagnostic and Coding Manual[3] does not list UARS as a separate condition from OSA.

See Appendix 1 for additional information on diagnostic tests for OSA and UARS.

Surgical Treatments for OSA and UARS

Medical therapy is considered the first-line treatment for OSA and UARS. These therapies include weight loss, various continuous positive airway pressure (CPAP) devices, or orthodontic repositioning devices. See Appendix 2 for a description of medical devices used in the treatment of OSA and UARS. Most guidelines consider surgical intervention only after all medical treatments for OSA or UARS have failed.

Uvulopalatopharyngoplasty (UPPP)

Conventional surgeries for OSA include uvulopalatopharyngoplasty (UPPP) and a variety of maxillofacial surgeries such as mandibular-maxillary advancement (MMA). UPPP involves surgical resection of the mucosa and submucosa of the soft palate, tonsillar fossa, and the lateral aspect of the uvula. The UPPP procedure enlarges the oropharynx but cannot correct obstructions in the hypopharynx. Thus patients who fail UPPP may be candidates for additional procedures such as mandibular and maxillary advancement surgery.

Mandibular and maxillary advancement surgery (MMA)

Mandibular and maxillary advancement surgeries are more extensive and are proposed for patients who do not have an adequate response to UPPP. These surgeries may be used to correct obstruction of the hypopharynx, the area at the very back of the throat.

Laser assisted uvuloplasty (LAUP)

LAUP is an outpatient procedure that has been proposed as a treatment of snoring with or without associated OSA. In this procedure, the tissues of the soft palate (palatal tissues) are reshaped using a laser. The extent of the surgery is typically different than standard UPPP, since 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 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, raising unique issues of safety and effectiveness.

Radiofrequency ablation of the soft palate/volumetric reduction of the tongue base (RFTBR)

Radiofrequency ablation of the soft palate and tongue is similar in concept to LAUP, although a different energy source is used. Radiofrequency energy is used to produce thermal lesions within the tissues, rather than using a laser to ablate the tissue surface, which may be painful. These procedures may also be referred to as a somnoplasty after the Somnoplasty® System device (Somnus Medical Technologies) which was FDA approved through the 510(k) process.

Cautery assisted palatal stiffening procedure (CAPSO)

This palatal stiffening procedure uses cautery (electrically heated probes) to induce a midline palatal scar designed to stiffen the soft palate to eliminate excessive snoring.

Pillar palatal implant procedure

The Pillar™ Palatal Implant System (Restore Medical, acquired by Medtronic) is an implantable cylindrical-shaped device that is permanently implanted in the soft palate (the soft area at the back of the upper mouth). The device was cleared for marketing by the FDA through the 510(k) process with the labeled indication as follows:

“The Pillar™ Palatal Implant System is intended for the reduction of the incidence of airway obstructions in patients suffering from mild to moderate OSA (obstructive sleep apnea).”

Suspension of the tongue base

The Repose™ device involves the use of a titanium screw which is inserted into the posterior aspect of the lower jaw at the floor of the mouth. A loop of suture is passed through the tongue base and attached to the mandibular bone screw. The Repose procedure achieves a suspension or hammock of the tongue base making it less likely for the base of the tongue to drop backward during sleep.

Uvulectomy

This procedure surgically removes the uvula, the small tissue hanging from the soft palate at the back of the throat above the tongue. The uvula, which helps stiffen and shape the back of the throat and prevents food from going down the airway, is believed to be associated with excessive snoring.

Partial Glossectomy

This procedure surgically removes of a portion of the tongue or oral cavity in an effort to widen the hypopharynx.

MEDICAL POLICY CRITERIA

Note: Some member contracts have specific benefit limitations for orthognathic surgery. This policy addresses adults only.

I. Surgical Treatment of Snoring Alone

Surgical intervention for the treatment of snoring in the absence of documented obstructive sleep apnea is considered **not medically necessary**.

II. Surgical Treatment of Obstructive Sleep Apnea (OSA) and Upper Airway Resistance Syndrome (UARS) in adults

A. Procedures

1. The following procedures may be considered **medically necessary** for the treatment of OSA and UARS when the criteria in II.B – II.D below are met:

a. Hyoid suspension

b. Mandibular-maxillary advancement (MMA) when there is objective documentation of hypopharyngeal obstruction

c. Uvulopalatopharyngoplasty (UPPP) with or without inferior sagittal osteotomy with hyoid suspension

2. All other procedures are considered **investigational** as treatments of OSA or UARS, including but not limited to:

a. Uvulectomy

b. Partial glossectomy

c. Radiofrequency volumetric tissue reduction of the tongue base or palatal tissues

d. Tongue base suspension procedures, including but not limited to the Repose™

e. Laser-assisted palatoplasty (LAUP) or volumetric tissue reduction

f. Palatal stiffening procedures, including but not limited to the following:

i. Cautery-assisted palatal stiffening operation (CAPSO)

ii. Injection of sclerosing agent

g. Implantation of palatal implants (also known as the pillar procedure)

B. There is documentation of a sleep study performed within the last 3 years;

C. The patient meets criteria for clinically significant obstructive sleep apnea (OSA) or upper airway resistance syndrome (UARS) as defined in 1 or 2 below:

1. Obstructive Sleep Apnea (OSA)

The patient has clinically significant OSA as defined below:

a. An AHI equal to or greater than 15 per hour; OR

b. An AHI equal to or greater than 5 per hour with at least one of the following associated symptoms:

i. Excessive daytime sleepiness that is not better explained by other factors

ii. Documented unexplained hypertension

iii. Ischemic heart disease or congestive heart failure

iv. History of stroke

v. Obesity

vi. Diabetes and glucose intolerance

vii. Two or more of the following that are not better explained by other factors:

(1) Choking or gasping during sleep

(2) Recurrent awakenings during sleep

(3) Unrefreshing sleep with daytime fatigue

(4) Impaired concentration or cognition

(5) Insomnia

2. Upper Airway Resistance Syndrome (UARS)

The patient has clinically significant UARS defined as greater than 10 alpha EEG arousals per hour.

D. Failure of Conservative Therapy

All of the following medical therapies have failed to improve apnea/hypopnea including associated conditions such as excess daytime sleepiness:

1. Maximal medical treatment of any underlying disease

2. Adjustment in sleep position

3. Avoidance of alcohol and sedative drugs

4. Nasal CPAP – An adequate CPAP trial must include documentation of the following:

   a. A minimum of four hours per night for three weeks of CPAP usage

   b. Reasonable attempts to address any medical, mechanical, or psychological problems associated with CPAP (e.g., adjustment of pressure settings, appropriate medication and humidification, refitting of the mask, trial of alternative pressure delivery systems such as auto-adjusting positive airway pressure or bi-level positive airway pressure)

   c. Reasonable attempts by patients with severe psychological aversion to CPAP to complete a conventional desensitization program

      i. Conventional desensitization programs include progressive steps intended to help the patient adapt first to the mask or nasal pillows, then to the air pressure. There may be more than one group or individual session, and the patient may work through the steps at home

      ii. Monitoring during desensitization programs (e.g., PAP-NAP) is considered **not medically necessary**. This monitoring may be reported using CPT code 95807

SCIENTIFIC EVIDENCE

Continuous positive airway pressure (CPAP) is the most widely accepted medical therapy for treatment of obstructive sleep apnea (OSA) and improvement of primary health outcomes such as cardiovascular disease, type 2 diabetes, and overall mortality associated with OSA.[4] Surgical interventions are being proposed as a replacement to and a second line treatment for, patients who have failed CPAP.

In order to determine the safety and effectiveness of surgical interventions for treatment of OSA as an alternative to CPAP, large, well-designed randomized controlled trials (RCTs) comparing surgical intervention to CPAP (among patients naïve to both treatments) are needed. Among patients with previous history of CPAP, head-on comparisons with other treatment modalities (such as oral appliances or surgeries) are needed. Further, for chronic conditions such as obstructive sleep apnea, RCTs with long-term follow-up are necessary in order to determine the net impact of treatment effects on primary

health outcomes.

Literature Appraisal

The evidence suggests conventional uvulopalatopharyngoplasty (UPPP), hyoid suspension, and maxillofacial surgeries such as mandibular-maxillary advancement (MMA) may improve health outcomes for some patients with OSA who have failed medical therapies for OSA.

- The available evidence does not currently support the widespread use of surgical interventions in the management of unselected patients with obstructive sleep apnea. Given the proven efficacy of CPAP in patients with moderate and severe symptoms and significant sleep disordered breathing, surgery cannot be recommended as a first line therapy, ahead of positive airways pressure systems.[4,5]

- While studies on UPPP and hyoid suspension procedures were not randomized, data from ten studies which included more than 750 patients consistently reported improved outcomes for patients with OSA as measured by postoperative polysomnographic assessment of sleep disturbance and compared with concurrent groups being treated with CPAP.[6]

- UPPP, hyoid suspension, and MMA procedures are widely practiced among surgeons in the United States. These procedures have been considered a standard of care in the medical community.[6]

Evidence is uncertain for use of any other surgical interventions in the treatment of OSA, including but not limited to uvulectomy, partial glossectomy, tongue base reduction and minimally invasive surgical procedures such as laser-assisted uvuloplasty (LAUP), radiofrequency tongue base reduction (RFTBR), pillar stiffening procedures, and pillar implants.

Technology Assessments and Systematic Reviews

- A 2011 Agency for Healthcare Research and Quality (AHRQ) Comparative Effectiveness Review entitled “Diagnosis and Treatment of Obstructive Sleep Apnea in Adults” concluded with this statement: “Overall, the strength of evidence is insufficient to evaluate the relative efficacy of surgical interventions for the treatment of OSA.”[4] The review cited the lack of head-to-head comparisons between CPAP and proposed surgical modalities, and the lack of study of any long-term health outcomes associated with OSA treatment.

- A Cochrane review on surgery for OSA reported there are a limited number of trials assessing diverse surgical techniques.[5] Inconsistent effects were reported across all trials. The report concluded that evidence from these small studies does not currently support the widespread use of surgery in people with mild to moderate daytime symptoms associated with sleep apnea.

- An evidence-based review on the use of non-CPAP therapies in OSA cited the lack of well-designed randomized controlled trials (RCTs), while making a limited recommendation in favor of uvulopalatal flap with tonsillectomy, Pillar implants, and hyoid suspension and advising against use of LAUP.[7] The review was not able to make the highest level recommendation supporting the use of any surgical intervention.

Randomized Controlled Trials

- Results reported in published randomized studies do not show a consistent benefit across all trials.[5,8-29] In addition, conclusions cannot be reached on safety and effectiveness from these trials due poor study design including small sample size, lack of blinding, unclear allocation of concealment, incomplete data outcomes reported, short-term follow-up, or enrollment of subjects with low AHI scores indicating a patient population that may not be considered for surgery.

Nonrandomized Trials

- Most trials are limited to case series and retrospective reviews that do not permit conclusions on the effectiveness or safety of these surgical procedures for the treatment of OSA and UARS.[5,6,8-10,23,30-57] Only a single, small case series has studied the effectiveness of the PAP-NAP on desensitizing use of CPAP.[58] Lack of comparison groups, randomization, and failure to define study endpoints or treatment success prior to commencement may introduce bias in favor of the new technology. In addition, retrospective study designs do not allow for control of co-treatments or confounding factors that may influence results.

Clinical Practice Guidelines

American Academy of Sleep Medicine (AASM)

- The AASM published practice parameters in 2010 on surgical modifications of the upper airway for OSA.[59] These 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 pre-operative evaluation and postoperative follow-up.[60] The practice parameters committee gave a recommendation of "standard" for the determination of the presence and severity of OSA before initiating surgical therapy. Although several surgeries received an "optional" recommendation (uncertain clinical use) for use among specific patient populations (MMA, UPPP, radiofrequency ablation, and palatal implants), the uses of both LAUP and UPPP were not recommended. Additionally, evidence supporting the combination of surgical procedures (referred to as "Multi-Level or Stepwise Surgery [MLS]) was found to be low quality and was evaluated as an "option" for treatment based on uncertain estimates of the "benefit/harm burden."

- In 2009, the AASM published "Clinical Guideline on the Evaluation, Management and Long-term Care of Obstructive Sleep Apnea," which recommended against the use of Laser Assisted Uvulopalatoplasty (LAUP) for all patients with OSA.[2] Despite the lack of high-quality evidence, the parameters supported the use of radiofrequency ablation and/or palatal implants among patients with mild to moderate OSA who are unable or unwilling to adhere to CPAP or oral devices. Recommendations also supported surgical intervention among patients with mild OSA who have surgically correctible severe obstructing anatomy. However, none of the recommendations in this guideline are clearly linked to an appraisal of the evidence on any of these proposed procedures.

American Academy of Otolaryngology - Head and Neck Surgery

- The AAO-HNS policy statement on surgical management of obstructive sleep apnea initially noted that further studies were needed to document the effects of LAUP.[61] In the 1998 statement update, however, the AAO-HNS included LAUP in their list of procedures that they consider to be "effective and not considered investigational", but did not provide citations of any studies supporting its rationale for the amended statement.

- The AAO-HNS has also published an overview of treatment of OSA in which consensus and evidence-based recommendations are compiled from several sources.[62] Although surgical intervention is recommended for several indications, including as secondary treatment for OSA, or "as an adjunct therapy when obstructive anatomy or functional deficiencies compromise other therapies or to improve tolerance of other OSA treatments," such recommendations are not clearly accompanied by an appraisal of the scientific evidence used to create them.

Summary

- There is sufficient evidence to suggest that conventional uvulopalatopharyngoplasty (UPPP), hyoid suspension, and maxillofacial surgeries such as mandibular-maxillary advancement (MMA) may improve health outcomes for some patients with obstructive sleep apnea (OSA). These procedures have become a standard of care and may therefore be considered medically necessary when the policy criteria are met.
- There is insufficient evidence to support surgery as first-line treatment of obstructive sleep apnea (OSA) or upper airway resistance syndrome (UARS). Therefore, surgical treatments may be considered medically necessary only after failed medical therapy, including nasal CPAP.
- There is no evidence that monitored CPAP desensitization programs (e.g., PAP-NAP) result in equivalent or superior compliance rates compared with standard desensitization programs without monitoring in patients having difficulty adapting to their CPAP device; therefore these programs are considered not medically necessary.
- There is insufficient evidence to determine the safety and efficacy of surgical interventions other than uvulopalatopharyngoplasty (UPPP), hyoid suspension, and maxillofacial surgeries, such as mandibular-maxillary advancement (MMA), in the treatment of obstructive sleep apnea (OSA). This includes but is not limited to uvulectomy, partial glossectomy, tongue base reduction, and minimally invasive surgical procedures such as laser-assisted uvuloplasty (LAUP), radiofrequency tongue base or tissue volume reduction, pillar stiffening procedures and pillar implants; the use of these interventions is considered investigational.
- Snoring in the absence of clinically significant obstructive sleep apnea (OSA) is not considered a medical condition. Therefore, any surgical intervention, including but not limited to uvulopalatopharyngoplasty (UPPP), laser-assisted uvulopalatoplasty (LAUP), radiofrequency volumetric tissue reduction of the palate, or palatal stiffening procedures for snoring alone is considered not medically necessary.

Appendix 1:	**Procedures for the Diagnosis of Sleep Disordered Breathing**
Polysomnography (PSG)	Full night PSG consists of five to eight hours of monitoring, supervised by a sleep technician, while the patient sleeps. It is performed in a sleep lab and involves the following monitoring modalities: electroencephalogram (EEG) (to stage sleep and detect arousals), electro-oculogram (EOG) (to detect arousal and REM sleep) submental electromyogram, (EMG), electrocardiogram (EKG), two-leg EMG, respiratory airflow and effort (to detect apnea), snoring, oxygen saturation, time and position. In addition, a full night PSG may include additional monitoring modalities as indicated, such as esophageal pressure monitoring, blood pressure monitoring, carbon dioxide trends, and pulse transit time.

	The first three elements listed above (EEG, submental electromyogram, and electro-oculogram) are required for sleep staging. By definition, a polysomnogram always includes sleep staging, while a "sleep study" does not include sleep staging. The actual components of the study will be dictated by the clinical situation. Typically, the evaluation of obstructive sleep apnea would include respiratory airflow and effort, electro-oculogram, and oxygen desaturation. An EEG may not be considered necessary to evaluate OSA, although it is required to evaluate UARS, REM sleep behavior disorder (RBD), narcolepsy or other sleep disturbances.
Split Night Polysomnography	A split night study utilizes the first two or three hours for evaluating the presence of sleep apnea and the second half to titrate and adjust CPAP. The same monitoring modalities used in full night PSG are used in split night study. In patients with severe obstructive sleep apnea, a reliable assessment of the respiratory disturbance index is possible with a partial night study. Half night study for CPAP titration is reliable in selected cases of obstructive sleep apnea. Split night studies are appropriate in patients with severe sleep apnea syndrome. The decision to conduct a split night study depends on the technical skill and experience of the staff, the initial sleep latency period, the severity and frequency of respiratory events and patient compliance. Careful patient selection and education is required to conduct a successful split night study.
Ambulatory or Portable Home Monitoring Device (PM)	A variety of portable polysomnography monitors are available for use in the home setting. Available devices evaluate different parameters including oximetry, respiratory and cardiac monitoring, and sleep/wake activity, but the majority of portable monitors do not record EEG. While evidence indicates that portable monitoring can be a safe and effective method to evaluate OSA, there is a lack of standardization among devices and additional study is needed to determine the most reliable types of devices and combinations of home monitoring. The following information may be useful in determining whether to use a portable home monitoring device:[61,64] • Portable monitoring should only be conducted in patients with a high pretest probability of OSA and absence of comorbid conditions as determined by clinical evaluation. • A positive portable study with at least 3 channels of recording (e.g., arterial oxygen saturation, airflow, respiratory effort, or heart rate) has a high positive predictive value for OSA and can be used as the basis for a CPAP trial to determine efficacy of treatment. • A negative study cannot be used to rule out OSA. Patients who have a negative result from portable monitoring or who do not respond to CPAP should undergo further evaluation. • Due to the probability of artifacts or loss of data, raw data from the portable monitoring device should be reviewed by a sleep specialist. • Follow-up and review of the APAP trial is also needed.

SNAP™ Testing	The SNAP testing system is a reflective acoustic device marketed as a screening and analysis system to locate the source of snoring and detect sleep apnea conditions.
Multiple Sleep Latency Tests (MSLT)	The MSLT measures the speed of falling asleep under conditions that favor sleep, in a series of 20-minute trials during the patient's habitual periods of wakefulness. MSLT is the preferred method of establishing the presence of true physiological sleepiness but is accurate only if following strict protocols. MSLT is used in patients with complaints of irresistible daytime sleepiness suggestive of narcolepsy.
Maintenance of Wakefulness Test (MWT)	The patient is monitored during the usual periods of wakefulness but the patient is instructed not to fall asleep as a test of the patient's ability to stay awake. It may be used to evaluate the safety of drivers and their ability to stay alert.
Radiologic Studies	Radiologic images of the head and neck for anatomic abnormalities include MRI, CT scan, and cephalometry. Such studies are intended to assess for hypopharyngeal obstruction or other suspected pathology that might explain the symptoms associated with sleep disordered breathing.
Endoscopic Studies	Nasopharyngeal and laryngeal endoscopic measurements of structure and function of the upper airway are used in selected patients with suspected abnormal anatomy as an aid in the diagnosis of OSA or in the management of complications of treatment.
Epworth Sleepiness Scale	Excessive daytime sleepiness is predominantly a subjective symptom. The Epworth sleepiness scale is a self-administered questionnaire, performed as part of the clinical evaluation, that asks patients their likelihood of falling asleep in eight situations ranked from 0 (would never fall asleep) to 3 (high chance of dozing). The numbers are then added together to give a global score between 0 and 24. A value of 10 or below is considered normal.
Apnea-Hypopnea Index (AHI); Respiratory Disturbance Index (RDI)	Apnea is defined as the cessation of respiration for at least 10 seconds. Hypopnea is a reduction but not cessation of air exchange. Apneic and hypopneic events are combined into the apnea-hypopnea index (AHI). In turn the AHI is often referred to as the respiratory disturbance index (RDI), although more recently the RDI has been redefined by some physicians to include EEG arousals in addition to apneic and hypopneic events. An AHI of greater than or equal to 20 is typically considered moderate OSA, and AHI of greater than 50 is considered severe OSA. An increase in mortality is associated with an AHI of greater than 15.

Appendix 2: Nonsurgical Devices for Treatment of OSA or UARS	
CPAP	Nasal or oral continuous positive airway pressure (CPAP) or auto-titrating continuous positive airway pressure (APAP) is continuous positive airway pressure applied through the nose or via oral appliance. It is delivered by a flow generator through a mask to supply a pressure level sufficient to keep the upper airway patent. The pressure used is determined individually with a range of three to 15 centimeters of water.

BiPAP ®	Bi-level respiratory assist device delivers alternating levels of positive airway pressure instead of the continuous pressure applied by CPAP. A bi-level positive airway pressure device with back-up rate feature is a ventilation support system. These devices are in the FDA category of non-continuous ventilator, and as such, are primarily intended to augment patient ventilation. The term BiPAP® is a registered trademark of *Respironics Inc*., but is widely used to describe any bi-level positive airway pressure device as described above.
APAP	Auto-adjusting CPAP (APAP) is a more recent technology which alternates airway pressure between exhalation and inhalation on a breath-by-breath basis. With the C-Flex™ (Respironics, Inc) airway pressure is reduced during early exhalation in proportion to the patient's expiratory flow rate. Pressure is then increased again toward the end of exhalation when airway collapse is most likely. Unlike BiPAP which delivers a static lower expiratory pressure, the C-Flex varies the pressure within the expiratory phase.
Oral Appliances (OA)	OA for the treatment of sleep disordered breathing are devices worn in the mouth during sleep to maintain a patent airway by raising the uvula, depressing the tongue, and/or advancing the mandible (in which case they are also known as mandibular advancement devices [MAD]). Commercially available devices are usually custom-molded or custom-fitted for the individual patient by a qualified dental health professional trained and experienced in the overall care of oral health, the temporomandibular joint, dental occlusion and associated oral structures. According to the American Academy of Sleep Medicine, dental management of patients with oral appliances should be overseen by practitioners who trained in sleep medicine and sleep related breathing disorders.[65,66] Oral appliances can range from simple retaining devices, to adjustable, hinged, or two-piece designs. Some designs can be used in conjunction with a CPAP device (e.g., OPAP®).

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CROSS REFERENCES

Orthognathic Surgery, Surgery, Policy No. 137

CODES	NUMBER	DESCRIPTION
Note: There is no specific CPT code for the tongue base reduction procedure. The most appropriate code to use is 41599 (unlisted procedure) or 41530. 41120 (partial glossectomy) describes a surgical resection and is not the appropriate code to use for submitting claims for tongue base reduction.		
CPT	21121	Genioplasty; sliding osteotomy, single piece
	21122	Genioplasty; sliding osteotomies, two or more osteotomies (eg, wedge excision or bone wedge reversal for asymmetrical chin)
	21141	Reconstruction midface, LeFort 1; single piece, segment movement in any direction (eg, for Long Face Syndrome), without bone graft
	21145	Reconstruction midface, LeFort 1; single piece, segment movement in any direction, requiring bone grafts (includes obtaining autografts)
	21196	Reconstruction of mandibular rami and /or body, sagittal split; with internal rigid fixation

CODES	NUMBER	DESCRIPTION
	21198	Osteotomy, mandible, segmental
	21199	Osteotomy, mandible, segmental; with genioglossus advancement
	21685	Hyoid myotomy and suspension
	41120	Glossectomy; less than one-half tongue
	41500	Fixation of tongue, mechanical, other than suture (eg, K-wire)
	41512	Tongue base suspension, permanent suture technique
	41530	Submucosal ablation of the tongue base, radiofrequency, one or more sites, per session
	42140	Uvulectomy, excision of uvula
	42145	Palatopharyngoplasty (eg, Uvulopalatopharyngoplasty, Uvulopharyngoplasty)
	42160	Destruction of lesion, palate or uvula (thermal, cryo, or chemical)
HCPCS	S2080	Laser-assisted uvulopalatoplasty (LAUP)