



CLINICAL GUIDELINES

Sleep Apnea and Treatment

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eviCore healthcare Clinical Decision Support Tool Diagnostic Strategies: This tool addresses common symptoms and symptom complexes. Imaging requests for individuals with atypical symptoms or clinical presentations that are not specifically addressed will require physician review. Consultation with the referring physician, specialist and/or individual's Primary Care Physician (PCP) may provide additional insight.

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Sleep Apnea Diagnosis and Treatment Guidelines

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Abbreviations for Sleep Apnea Guidelines

AASM	American Academy of Sleep Medicine
AHI	Apnea-Hypoxia Index: normal AHI ≤ 5 ;mild OSA: AHI of ≥ 5 to 14, moderate OSA: AHI of ≥ 15 to 29, severe OSA: AHI of ≥ 30
AOSATF of AASM	Adult Obstructive Sleep Apnea Task Force of the American Academy of Sleep Medicine
APAP	Autotitrating positive airway pressure
BMI	Body mass index (body weight divided by the square of the height)
CPAP	Continuous positive airway pressure
DOT	Department of Transportation
HCPCS	Healthcare Common Procedural Coding System (Level II alphanumeric codes used to report services not included in CPT®)
IDTF	Independent Diagnostic Testing Facilities
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
MSLT	Multiple Sleep Latency Test
MWT	Maintenance of Wakefulness Test
OSA	Obstructive sleep apnea
PM	Portable monitoring (in home sleep studies)
PSG	Polysomnography
RDI	Respiratory disturbance index: (respiratory effort related arousals + apneas + hypopneas/total sleep time mild OSA: RDI of ≥ 5 to 14, moderate OSA: RDI of ≥ 15 to 29, severe OSA: RDI of ≥ 30
Screening Tools for Sleep Disorders	Epworth Sleepiness Scale, Berlin Questionnaire (for sleep apnea), STOP-BANG questionnaire, Insomnia Severity Index
OA	Oral appliance

SL-1: Obstructive Sleep Apnea

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SL-1.1: General Requirements

- Positive diagnosis of OSA, as measured by valid testing defined as:
 - ◆ The apnea-hypopnea index (AHI) or respiratory disturbance index (RDI) is ≥ 15 events per hour with a minimum of 30 events; or
 - ◆ The AHI or RDI is ≥ 5 and ≤ 14 events per hour with a minimum of 10 events and documentation of
 - Excessive daytime sleepiness, impaired cognition, mood disorders, or insomnia; or
 - Hypertension, ischemic heart disease, or history of stroke.
 - (See **SL-7.2: Practice Notes for additional information**)
- A current and comprehensive clinical evaluation (within 60 days) is required before a sleep study can be considered. (Note: The rendering site must be a qualified provider of service per health plan policy.) The clinical evaluation may include a relevant history and physical examination, appropriate laboratory studies, and other relevant diagnostic studies (such as a previous sleep study or overnight pulse oximetry). The results of a sleep questionnaire or sleep questionnaire proxy are required. See: **SL-1.2: Sleep Questionnaires**.
 - ◆ Other meaningful contact (telephone call, electronic mail or messaging) by an established patient can substitute for a face-to-face clinical evaluation
 - ◆ Documented history may include the following:
 - Persistent symptoms present for greater than 4 weeks in duration and not associated with respiratory infections.
 - House partners/spouses can describe symptoms, including apneic spells, such as gasping and choking.
 - Co-workers, friends, and/or the patient may report that the patient falls asleep during business meetings, conversations, while stopped at traffic lights, or while driving.
 - Daytime tiredness and excessive caffeine or stimulant use.
 - Excessively loud, erratic and variable snoring. (Note: Snoring alone is not always indicative of OSA).
 - Frequent awakening during the night.
 - Increased movements; sleep talking; displaying confused or erratic behavior during sleep.
 - Morning headaches, limited attention, or memory loss.
 - Drowsy driving or history of car crashes or near miss accidents related to sleepiness.
 - Prior diagnosis of OSA and response to therapy.
 - ◆ Documented physical examination should include:
 - Cardiopulmonary evaluation.
 - Level of obesity and/or neck circumference.
 - Other findings, such as: macroglossia, tonsillar hypertrophy, nasal polyps, septal deviation, turbinate hypertrophy, elongated/enlarged uvula, narrow/high arched hard palate retrognathia (recessed mandible) or micrognathia (small mandible).

SL-1.2: Sleep Questionnaires



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- Three sleep questionnaires (all self-answered by the patient) are commonly used to quantify the level of sleepiness, quality of sleep or probability of having OSA. These validated questionnaires include (but are not be limited to):
 - ◆ Epworth Sleepiness Scale;
 - ◆ Berlin Questionnaire;
 - ◆ STOP Bang Questionnaire
 - ◆ Insomnia Severity Index.
- eviCore uses the results of these questionnaires to help formulate a patient's likelihood of having sleep-related disease, so the questionnaires must be appropriate for the specific sleep issue in question (e.g. STOP-BANG and Berlin are most appropriate for OSA evaluation).
 - ◆ To view these questionnaires and their interpretation in their entirety, see **SL-8: Questionnaires.**
- Results of one of these four questionnaires are required, **or** the following condition can serve as a proxy for the sleep questionnaire requirement:
 - ◆ Witnessed apnea by a bed partner.
 - ◆ Previous diagnosis of OSA, confirmed in record.

SL-1.3: Classifications of Sleep Apnea

- Sleep apnea is defined as repetitive partial or complete cessations of breathing that occur during sleep. These breathing events can be caused by a physical obstruction of the upper airway, a lack of effort to breathe, or a combination of these two factors. The source of the sleep disordered breathing determines the type or classification of sleep apnea.
 - ◆ Obstructive sleep apnea (OSA):
 - OSA is caused by a physical obstruction in the upper airway.
 - Sleep study recording characterized by:
 - Loud snoring.
 - Obstructive apnea events – scored as apneas with apnea index or AI.
 - Hypopnea events – scored with hypopnea index or HI.
 - Significant oxyhemoglobin desaturations.
 - Arousals from sleep.
 - ◆ Central sleep apnea (CSA):
 - CSA is caused by a reduction or absence of effort to breathe by the diaphragm or respiratory muscles.
 - Sleep study recording characterized by:
 - Central apnea events, or hypopnea events.
 - Occasional snoring.
 - Oxyhemoglobin desaturation.
 - Occasional arousals from sleep.
 - ◆ Mixed sleep apnea:
 - Mixed sleep apnea is a combination of both OSA and CSA.

- Mixed apnea events generally start with a central apnea component and terminate with efforts to breathe indicative of an obstructive apnea event
- ◆ Cheyne-Stokes Respiration:
 - CSR is a form of periodic breathing characterized by the waxing and waning of respiratory effort and airflow.
 - CSR generally starts with a gradual waning of breathing effort and airflow which results in a central apnea, or hypopnea, followed by a gradual increase in breathing effort and flow.

SL-1.4: Coding

SL-1.4.1: Home Portable Monitoring (PM) (Home Sleep Testing) - Coding

There are currently 3 levels (G0398, G0399 and G0400) of home PM's, with varying number of monitored parameters. Each can be used with or without an attendant but are generally performed unattended in the patient's home.

Home Sleep Studies	HCPSCS	Channels
Home sleep study test (HST) with type II portable monitor, unattended; minimum of 7 channels: EEG, EOG, EMG, ECG/heart rate, airflow, respiratory effort and oxygen saturation	G0398	At least 7 monitored channels. Can calculate AHI.
Home sleep test (HST) with type III portable monitor, unattended; minimum of 4 channels: 2 respiratory movement/airflow, 1 ECG/heart rate and 1 oxygen saturation	G0399	At least 4 monitored channels (airflow/ventilation, heart rate, oxygen saturation, respiratory movement)
Home sleep test (HST) with type IV portable monitor, unattended; minimum of 3 channels	G0400	Measures 1 to 3 parameters

PSG PROCEDURE CODES	
Unattended Sleep Studies	CPT®
➤ Sleep study, unattended, measures a minimum of heart rate, oxygen saturation, and respiratory analysis (e.g., by airflow or peripheral arterial tone), and sleep time.	95800
◆ Simultaneous recording; simultaneous recording; heart rate, oxygen saturation, and respiratory analysis (e.g., by airflow or peripheral arterial tone), and sleep time. ◆ For unattended sleep study that measures a minimum of heart rate, oxygen saturation, and respiratory analysis, report 95801 ◆ Do not report CPT® 95800 in conjunction with any of the following CPT® codes: 93041-93227, 93228, 93229, 93268-93272, 95801, 95803, 95806.	
➤ Sleep study, unattended, measures a minimum of heart rate, oxygen saturation, and respiratory analysis (e.g., by airflow or peripheral arterial tone)	95801
◆ Simultaneous recording; minimum of heart rate, oxygen saturation, and respiratory analysis (e.g., by airflow or peripheral arterial tone). ◆ For unattended sleep study that measures a minimum of heart rate, oxygen saturation, and sleep time, report 95800 ◆ Do not report CPT® 95801 in conjunction with any of the following CPT® codes: 93041-93227, 93228, 93229, 93268-93272, 95800, 95806.	
➤ Sleep study, unattended, simultaneous recording of heart rate, oxygen saturation, respiratory airflow and respiratory effort (e.g. thoracoabdominal movement)	95806
◆ Simultaneous recording; minimum of ventilation, respiratory effort, ECG or heart rate, and oxygen saturation. ◆ For unattended sleep study that measures heart rate, oxygen saturation, respiratory analysis, and sleep time, report 0203T ◆ For unattended sleep study that measures heart rate, oxygen saturation, respiratory analysis, report 0204T. ◆ Do not report CPT® 95806 in conjunction with any of the following codes: CPT® 93012, 93014, 93041-93227, 93228, 93229, 93230-93272, 0203T, 0204T	

SL-1.4.2: Polysomnography (Facility-based-PSG) - Coding

PSG PROCEDURE CODES	
Attended Polysomnography and Sleep Studies	CPT®
➤ Multiple sleep latency or maintenance of wakefulness testing, recording, analysis and interpretation of physiological measurements of sleep during multiple trials to assess sleepiness or ability to remain awake.	95805
◆ Prior to treatment when the requesting physician suspects narcolepsy. ◆ Must be requested with a facility sleep study performed the night before the 95805 (CPT® 95810 or CPT® 95811).	
➤ Polysomnography; (any age), sleep staging with 1-3 additional parameters of sleep, attended by a technologist	95808
◆ Requests will be forwarded for Medical Director review	
➤ Sleep study, simultaneous recording of ventilation, respiratory effort, ECG or heart rate, and oxygen saturation, attended by a technologist with PAP titration, i.e., PAP-NAP	95807
◆ Considered experimental and investigational by some healthcare plans. <i>Requests will be forwarded for Medical Director review.</i>	
Attended Polysomnography and Sleep Studies	CPT®
➤ Polysomnography; (age 6 years or older), sleep staging with 4 or more additional parameters of sleep, attended by a technologist.	95810
◆ CPT® 95810 is used to report full-night studies. ◆ One of the more common studies.	
➤ Polysomnography; (age 6 years or older), sleep staging with 4 or more additional parameters of sleep, with initiation of continuous positive airway pressure therapy or Bi-level ventilation, attended by a technologist	95811
◆ One of the more common studies. ◆ CPT® 95811 is used either as either a split-night study with both the diagnostic study and the subsequent positive airway pressure or bi-level ventilation are initiated during the same visit, or as PAP titration alone after CPT® 95810 or inability to complete split night sequence or as a retitration of PAP therapy.	
Attended Polysomnography and Sleep Studies (PEDIATRIC CODES)	CPT®
Polysomnography, (younger than 6 years), sleep staging with 4 or more additional parameters of sleep, attended by a technologist.	95782
Polysomnography, (younger than 6 years), sleep staging with 4 or more additional parameters of sleep, with initiation of continuous positive airway pressure therapy or bi-level ventilation, attended by a technologist.	95783

SL-2: Indications/Diagnostic Testing

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SL-2.1: Home Sleep Testing (HST) Indications

- HST can be performed when all of the following three criteria are met:
 - ◆ High pre-test probability of moderate-to-severe OSA; **and**
 - ◆ HST can physically be performed, and repeated if necessary; **and** patient has the mobility, dexterity and cognitive ability to use the available equipment safely at home and the ability to follow instructions; **and**
 - ◆ Does not exhibit one of the co-morbid indications for attended sleep studies found in **SL-2.2: In-Laboratory Polysomnography- OSA Indications**.
- HST can also be used in follow-up treatment results after:
 - ◆ Surgical treatment for moderate to severe OSA, or
 - ◆ OSA Oral appliance trial, or
 - ◆ Other non-PAP supportive interventions (e.g. positional therapy).
- A follow-up visit to review test results should be performed for all patients undergoing HST

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SL-2.2: In-Laboratory Polysomnography- OSA Indications

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- PSG (CPT® 95810 or CPT® 95811 with CPT® 95811 preferred) can be considered for the following: Sleep survey or proxy symptom(s) lead to **any** pretest probability of OSA and **one** of the following:
 - ◆ HST cannot be done due to one of the following reasons:
 - OSA symptoms with low pretest probability of OSA.
 - Patient does not have the mobility, dexterity or cognitive ability to use the available equipment safely at home and the ability to follow instructions.
 - HST has been attempted and is negative, inconclusive, or technically inadequate (report submitted for review).³⁸
 - ◆ Documentation of at least one of the following suspected or known co-morbid diagnoses:
 - Morbid obesity (BMI>45, or pulmonary function studies show Obesity Hypoventilation Syndrome, or BMI>35 plus arterial blood gas with PCO₂>45, or BMI>35 plus inability to lie flat in bed).
 - Moderate to severe pulmonary disease (for example: COPD, asthma) with nocturnal oxygen use or documented arterial blood gases showing PO₂<60 or PCO₂>45
 - Documented neuromuscular disease (for example: Parkinson's, documented stroke or undocumented stroke with residua, active epilepsy, spina bifida, myotonic dystrophy, ALS)
 - Moderate to severe congestive heart failure with documented pulmonary congestion or known left ventricular ejection fraction <45%, or
 - Other critical illness that would prevent them from using the HST equipment.
 - Chronic severe insomnia (by objective measure e.g. sleep diary, validated insomnia questionnaire).³⁸
 - Chronic daily opioid use³⁸ (typically daily high-potency opioids e.g. Methadone®, Suboxone®, Dilaudid®) with stated concern for presence of central sleep apnea.

- Less than 18 years of age.
- Bi-level PAP or Adaptive Servo Ventilation PAP are specifically requested (CPT® 95811 only).
- Documented unsuccessful AutoPAP attempt.
- Central sleep apnea
- “Complex sleep apnea”
- ◆ Diagnostic Testing pre- and post- hypoglossal nerve stimulator implantation³⁷⁻⁴⁰
 - A hypoglossal nerve stimulator is a surgically implanted device that delivers stimulating electrical pulses to the hypoglossal nerve, which controls upper airway musculature. With a sensing lead, the device permits synchronization with ventilatory effort. The Stimulation Treatment for Apnea Reduction (STAR) trial was a prospective, multicenter trial of 126 participants with a body mass index less than 32, moderate to severe obstructive sleep apnea (AHI 20-50), and difficulty tolerating/adhering to CPAP. Participants, who served as their own control, experienced a significant reduction in Apnea Hypopnea Index with hypoglossal nerve stimulation (68% decrease) and oxygen desaturation index (70% decrease) at 12 months, as well as a reduction in self-reported outcomes at 12 and 24 months. ⁱⁱⁱ These improvements were maintained at 3 years. ⁱ During the trial, a response to hypoglossal nerve stimulation was defined as a reduction of AHI by at least 50% from baseline and an AHI of less than 20 events per hour at one year¹.
 - Pre-implantation:
 - Patients with a high pre-test likelihood for moderate to severe obstructive sleep apnea who have not undergone prior sleep testing should undergo home sleep testing, if appropriate per guidelines, and a PAP trial before consideration of facility testing for possible hypoglossal nerve stimulator implantation.
 - Patients who have recently undergone polysomnography, (within 12 months), do not need a repeat study unless there have been changes in weight or symptoms to suggest a clinically significant change in sleep study results.
 - In the setting of a known diagnosis of obstructive sleep apnea based on home sleep testing, the following criteria must be met prior to performance of polysomnography for pre-implantation evaluation:
 - BMI $\leq$ 32, AND
 - AHI or REI less than 65 on home sleep testing, AND
 - Intolerance to CPAP and/or bi-level PAP during a minimum of one month trial.
 - Post-implantation:
 - As per the clinical trial, polysomnography can be performed at approximately one month post-implantation for the purpose of titrating device parameters and determining therapeutic stimulation settings. ⁱ
 - Following the titration study at one month, retesting (either HST or PSG CPT® 95810) can be performed if any of the following occurs:
 - ◆ Clinical response is insufficient despite regular treatment with hypoglossal nerve stimulator.

- ♦ Substantial weight gain with return of symptoms.
- ♦ Results of previously medically necessary sleep test were inadequate due to limited sleep time or other variables.
- Note: Following the titration study at one month, the choice of home sleep apnea testing or facility polysomnography for repeat testing will be based on indications and co-morbidities outlined in **SL-2.2.1: In-Laboratory Polysomnography- Other Indications**.

SL-2.2.1: In-Laboratory Polysomnography- Other Indications

- Suspected narcolepsy or idiopathic hypersomnia, as evidenced by.^{18,19}
 - ♦ Excessive sleepiness (shown not due to other more common sleep disorders), AND
 - ♦ Recurrent daytime naps or lapses into sleep daily for at least 3 months.
 - ♦ Additional symptoms may include:
 - Cataplexy- sudden loss of muscle tone occurring in association with intense emotion (laughing or crying), OR
 - Sleep paralysis, hypnagogic hallucinations, hypnopompic hallucinations, automatic behaviors, or disrupted major sleep episode,
- Previous sleep study results (and history) consistent with possible idiopathic hypersomnia.
- Persistent symptomatic congestive heart failure (CHF), despite adequate medical treatment, and regardless of pre-test probability of OSA.
- More complicated parasomnias, **NOT including** more common conditions such as:
 - ♦ Typical disorders of arousal.
 - ♦ Nightmares.
 - ♦ Enuresis.
 - ♦ Somniloquy.
 - ♦ Bruxism.
- Rapid Eye Movement (REM) Behavior Disorder: Characterized by the acting out of dreams that are vivid, intense, and violent. Purposeful dream-enacting behaviors include talking, yelling, punching, kicking, sitting, jumping from bed, arm flailing, and grabbing. Also called “acting out of dreams.”
- Periodic limb movement disorder (PLMD), but NOT Restless Leg Syndrome (RLS). Suspected PLMD is defined by periodic episodes of repetitive limb movements during sleep not caused by another sleep disorder (such as OSA), while RLS is a subjective uncomfortable sensation experienced while awake.

Practice note

Occupational requirements (e.g., Department of Transportation [DOT], Federal Aviation Administration [FAA]) to date do not specify home vs. facility testing for initial evaluation. Indications for sleep studies should also be based on these guideline criteria.

Preoperative bariatric surgery testing should also be based on these guidelines criteria.

SL-2.3: In-Laboratory Multiple Sleep Latency Testing (excessive sleepiness) Indications and Criteria



Multiple Sleep Latency Testing (MSLT, CPT® 95805) can be considered for the following:

- Suspected narcolepsy or idiopathic hypersomnia, (see **SL 2.2: In-Laboratory Polysomnography- OSA Indications**)
- Immediately follows PSG (95810) (cannot follow split-night study)¹⁸, AND
- Comprehensive Sleep Evaluation including ESS or Berlin performed, AND
- If OSA is suspected, diagnostic study has been performed, and if OSA is present, therapy is initiated, and has resolved symptoms of increased airway resistance (e.g. eliminated snoring).
- Is not requested to assess efficacy of PAP therapy for OSA.

SL-2.4: Split Night Study or Two Night Study

Split Night Study

- Split night study (CPT® 95811) is a PSG + PAP trial, and it can be completed if:
 - ◆ Apnea Hypopnea Index (AHI) is greater than 15/hr for ≥2 hours of testing; **and**
 - ◆ ≥3 hours of sleep time remaining for PAP titration.
- CPT® 95811 can be achieved in the majority of cases in one night and is the current standard approach. This is the approach required for CPAP coverage by the Centers for Medicare and Medicaid Services (CMS).

Two Night Study

- However, in some cases it must be done in two nights (CPT® 95810). When the above AHI and 3 hour criteria are not met, the first night's study (CPT® 95810) is followed by second night PAP.
- PAP titration (CPT® 95811) is subsequently requested after a completed PSG or PM. The same indications that were used to consider PSG or HST (See **SL-2.2**), along with any new information from the PSG or PM, should be used to consider unattended APAP or attended CPAP titration.

For more information on the technical and policy requirements of PSG, as well as on PSG scoring, see Practice Notes **SL-7: Practice Notes**

SL-2.5: Repeat Sleep Testing - (Home or Attended Sleep Studies)

SL-2.5.1: Re-assessment of tx results with known OSA

- Re-assessment of treatment results (PAP) for a patient with known OSA can be performed when any of the following has occurred (either: HST, PSG-CPT® 95811, PAP, or APAP based on indications and co-morbidities found in **SL-2.4: Split Night Study or Two Night Study**):
 - ◆ Substantial weight gain (10% of body weight) with return of symptoms. BMI falls below 30 and there is either intolerance of PAP pressure or a desire to discontinue PAP therapy.
 - ◆ Clinical response is insufficient despite treatment.
 - ◆ Symptoms return despite a good initial response to CPAP.
 - ◆ PAP machine download with AHI > 5/hr with return of symptoms or > 15/hr with or without return of symptoms.
 - ◆ **NOT** to assess for the continued presence of OSA, or for the efficacy of PAP therapy in the absence of recurrent or changed symptoms.
 - ◆ **NOT** to supply new PAP equipment.
 - ◆ Must demonstrate that recurrent or continued symptoms are not due to insufficient compliance (must be using PAP > 70% of nights, 4+hrs/night with continued symptoms).
 - ◆ Results of previous medically necessary sleep test were inadequate and not diagnostic due to limited sleep time or other specified variables.

SL-2.5.2: Re-assessment of suspected narcolepsy or idiopathic

- Reassessment of suspected narcolepsy or idiopathic hypersomnia with a repeat CPT® 95810/CPT® 95805 can be considered if previous testing did not confirm the diagnosis but clinical suspicion is still present despite treatment or due to a change in symptoms (e.g. development of sleep paralysis, cataplexy, hypnagogic hallucinations or worsening hypersomnolence).
 - ◆ If the patient also has OSA, CPT® 95811 is supported instead of CPT® 95810 as the patient must be on PAP therapy prior to MSLT.

Note

Result of previous studies should be submitted for review prior to authorization of additional studies.

SL-3: Pediatric Sleep Guidelines

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SL-3.1: Proper Uses of Polysomnography in Pediatric Patients

Use of home/portable sleep studies for the diagnosis of OSA in children (17 years and younger) is considered investigational at this time. Limited portable studies, or studies in the home, are not sufficient to exclude OSA in a child with suggestive symptoms, nor can they reliably assess the severity of the disorder which is important in planning treatment. Overnight polysomnography remains the diagnostic "gold-standard" in children with OSA.

- Overnight polysomnography (PSG) in a sleep lab setting is appropriate for children (17 years of age and younger) for the diagnosis of **any** of the following conditions:
 - ◆ Sleep related breathing disorders, such as obstructive sleep apnea, upper airway resistance syndrome; **or**
 - ◆ Narcolepsy or idiopathic hypersomnia (generally would be performed in conjunction with a multiple sleep latency test); **or**
 - ◆ Congenital central alveolar hypoventilation syndrome or sleep related hypoventilation due to neuromuscular disorders or chest wall deformities:
 - Nocturnal seizure activity.
 - REM behavior disorder (rare in childhood).
 - Repeat PSG following adenotonsillectomy if there are residual symptoms of OSA or to assess for residual OSA.
 - Polysomnography of primary sleep apnea of infancy. (When other medical disorders have been ruled out).
- Overnight PSG in a sleep lab is appropriate for children with **any** of the suspected following:
 - ◆ Habitual (nightly) snoring associated with **any** of the following:
 - Restless or disturbed sleep; or
 - Behavioral disturbance, or learning disorders including deterioration in academic performance, hyperactivity, or attention deficit disorder; or
 - Unexplained enuresis; or
 - Frequent awakenings; or
 - Failure to thrive or growth impairment; or
 - Witnessed apnea; **or**
 - Excessive daytime somnolence, or altered mental status unexplained by other conditions or etiologies; **or**
 - Polycythemia unexplained by other conditions or etiologies; **or**
 - Cor pulmonale unexplained by other conditions or etiologies; **or**
 - Hypertrophy of tonsils and adenoids associated with noisy daytime respirations where surgical removal poses a significant risk and would be avoided in the absence of sleep disordered breathing.
- Polysomnography when there is clinical evidence of a sleep related breathing disorder in infants who have experienced an apparent life-threatening event (ALTE).
- Repeat overnight polysomnography in a sleep lab setting for children is considered medically necessary in **any** of the following circumstances:

- ◆ Initial polysomnography is inadequate or non-diagnostic and the accompanying caregiver reports that the child's sleep and breathing patterns during the testing were not representative of the child's sleep at home;
 - ◆ For positive airway pressure (PAP) titration in children with obstructive sleep apnea syndrome.
 - ◆ A child with previously diagnosed and treated obstructive sleep apnea who continues to exhibit persistent snoring or other symptoms of sleep disordered breathing.
 - ◆ To periodically re-evaluate the appropriateness of continuous positive airway pressure (CPAP) setting based on the child's growth pattern or the presence of recurrent symptoms while on CPAP.
 - ◆ If obesity was a major contributing factor and significant weight loss has been achieved, repeat testing may be indicated to determine the need for continued therapy.
- Polysomnographic normal standards differ between children and adults. In the pediatric age range, abnormalities include oxygen desaturation under 92%, more than one obstructive apnea per hour, and elevations of ET CO₂ measurements of more than 50 mm Hg for more than 10% of sleep time or a peak level of greater than 53 mm Hg.

Pediatric Diagnostic Classification and Severity of SDB⁴¹

(ONE OR MORE OF THE FOLLOWING)

	APNEA INDEX Event/hr	SpO ₂ NADIR (%)	ETCO ₂ PEAK (Torr)	ETCO ₂ > 50 Torr (%TST)	Arousals/hr
Primary Snoring	≤1	>92	< 53	<10%	EEG <11
UARS	≤1	>92	< 53	<10%	RERA >1, EEG >11
Mild OSAS	1–4	86–91	>53	10–24%	EEG >11
Moderate OSAS	5–10	76–85	>60	25–49%	EEG >11
Severe OSAS	10	≤75	>65	≥50%	EEG >11

SL-3.2: CPAP in Pediatric Patients

CPAP is indicated when *all* of the following criteria are met:

- ◆ OSA diagnosis has been established by PSG; *and*
- ◆ Adenotonsillectomy has been unsuccessful or is contraindicated, or when definitive surgery is indicated but must await complete dental and facial development.

SL-3.3: Improper Uses of Polysomnography in Pediatric Patients

The peer-reviewed medical literature **does not** support the following:

- ◆ Repeat polysomnography in the follow-up of patients with obstructive sleep apnea treated with CPAP when symptoms attributable to sleep apnea have resolved;
- ◆ Polysomnography in children for **any** of the following:
 - Sleep walking or night terrors;
 - Routine evaluation of adenotonsillar hypertrophy alone without other clinical signs or symptoms suggestive of obstructive sleep disordered breathing;
 - Routine follow-up for children whose symptoms have resolved post-adenotonsillectomy.

SL-4: Treatment of Obstructive Sleep Apnea (OSA)

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SL-4.1: General Requirements

- A positive diagnosis of OSA, as measured by HST or PSG when:
 - ◆ The apnea-hypopnea index (AHI) or respiratory disturbance index (RDI) is ≥ 15 events per hour with a minimum of 30 events, OR
 - ◆ The AHI/RDI is ≥ 5 and ≤ 14 events per hour with a minimum of 10 events and documentation of:
 - Excessive daytime sleepiness, impaired cognition, mood disorders, or insomnia, OR
 - Hypertension, ischemic heart disease, or history of stroke.
- Results from the sleep study are used to determine the type of sleep apnea, the severity of the breathing disorder, and the most appropriate form of treatment. Depending on these factors, a variety of PAP devices, and location of titration of therapy, can be considered.
- Positive airway pressure is the treatment of choice for the various forms of sleep apnea. Positive airway pressure (PAP) is produced by a flow generator and applied to the airway through nasal, oral, or oronasal mask interfaces

SL 4.1.1: Treatment of Obstructive Sleep Apnea - Coding

Treatment Codes (HCPCS and CPT®)	CODE
Continuous airway pressure (CPAP/APAP) device	E0601
Respiratory assist device, bi-level pressure (BiPAP) capability, WITHOUT backup rate feature, used with noninvasive interface, e.g. nasal or facial mask (intermittent assist device with continuous positive airway pressure device)	E0470
Respiratory assist device, bi-level pressure (BiPAP) capability (including ASV), WITH backup rate feature, used with noninvasive interface, e.g. nasal or facial mask (intermittent assist device with continuous positive airway pressure device)	E0471
Respiratory assist device, bi-level pressure (BiPAP) capability, WITH backup rate feature, used with invasive interface, e.g. tracheostomy tube (intermittent assist device with continuous positive airway pressure device)	E0472
Humidifier, non-heated, used with positive airway pressure (CPAP/BiPAP/APAP) device	E0561
Humidifier, heated, used with positive airway pressure (CPAP/BiPAP/APAP) device	E0562
Tubing with heating element	A4604
Combination oral/nasal mask	A7027
Replacement oral cushion combo mask	A7028
Replacement nasal pillow comb mask	A7029
CPAP full face mask	A7030
Replacement facemask interface	A7031
Replacement nasal cushion	A7032
Replacement nasal pillows	A7033

Nasal interface (mask or cannula type) used with PAP device	A7034
Positive airway pressure headgear	A7035
Positive airway pressure chinstrap	A7036
Positive airway pressure tubing	A7037
Positive airway pressure filter	A7038
Filter, non-disposable w/ PAP	A7039
PAP oral interface	A7044
Replace exhalation port	A7045
Replacement, water chamber, PAP device	A7046
Monitoring feature/device, stand-alone or integrated, any type, includes all accessories, components and electronics, not otherwise classified (this code relates to Compliance and the data download of a patient's PAP therapy).	A9279
CPAP initiation and management (code is used to report the initiation and instruction when a patient begins therapy)	CPT® 94660

SL 4.1.2: Current Practice Recommendations for CSA with CHF

- CPAP: Standard
- BiPAP (including ST): Option if CPAP ineffective
- ASV:
 - ◆ OPTION if EF > 45% or mild sleep disordered breathing;
 - ◆ **STANDARD AGAINST** if EF < 45% with moderate/severe sleep disordered breathing.³⁵

SL 4.1.3: Treatment of Opioid-Induced Sleep Disordered Breathing

- CSAS associated with drug or substance use: There is currently no evidence to support routine use of facility-based diagnostic sleep testing due to concurrent opioid or other substance use in the absence of clinical history or previous diagnostic testing suggesting or confirming the presence of sleep disordered breathing. Recent studies suggest “medium increased risk” for central apnea in long-term opioid users, but further investigation is recommended. If diagnostic testing is indicated, home sleep testing is not supported for evaluation of chronic opioid users³⁸ (see **SL-2.2.1: In-Laboratory Polysomnography- Other Indications**). With respect to treatment, current literature is “markedly limited” and further studies are clearly needed to conclusively determine if CPAP is less effective than BiPAP or ASV, although recent studies suggest ASV may be effective in treatment-resistant patients.^{36, 37}

SL-4.2: Positive Airway Pressure Devices ***Nurse Reviewer Pearl***

SL-4.2.1: Auto-titration of positive airway pressure in unattended setting

- Initial E0601 APAP Titration can be considered for the following (ALL):
 - ◆ A face-to-face clinical evaluation by the treating physician following the diagnostic study and prior to the titration and
 - ◆ A positive diagnosis of OSA, as measured by HST or PSG when:

- The apnea-hypopnea index (AHI) AHI/RDI is ≥ 15 events per hour with a minimum of 30 events, **OR**
- The AHI/RDI is ≥ 5 and ≤ 14 events per hour with a minimum of 10 events and documentation of:
 - Excessive daytime sleepiness, impaired cognition, mood disorders, or insomnia, **OR**
 - Hypertension, ischemic heart disease, or history of stroke, **and**
- ◆ Rendering site is a qualified provider of service per health plan policy
- Repeat E0601 APAP Titration (includes re-titration following initial CPT® 95811 when uncomplicated) can be considered for the following (ALL):
 - ◆ A positive diagnosis of OSA, as measured by HST or PSG when:
 - The AHI/RDI is ≥ 15 events per hour with a minimum of 30 events, **OR**
 - The AHI/RDI is ≥ 5 and ≤ 14 events per hour with a minimum of 10 events and documentation of:
 - Excessive daytime sleepiness, impaired cognition, mood disorders, or insomnia, **OR**
 - Hypertension, ischemic heart disease, or history of stroke.
 - ◆ Attempted compliance with preexisting or existing therapy (70% of nights, 4+ hours/night) has not adequately treated signs and symptoms.
 - ◆ Persistent symptoms or unimproved AHI/RDI in individual currently on APAP/CPAP therapy, when the patient and/or their caregiver has received the following from the treating physician or supplier of the PAP device:
 - Instruction in the proper use and care of the equipment, and
 - Mask re-fitting or adjustment if necessary, and
 - Education for proper use of PAP accessories, **AND**
 - ◆ Rendering site is a qualified provider of service per health plan policy

SL-4.2.2: Continuous Positive Airway Pressure therapy

- Initiation of E0601 PAP Therapy and establishing compliance (All of the following):
 - ◆ A positive diagnosis of OSA, as measured by HST or PSG when:
 - The AHI/RDI is ≥ 15 events per hour with a minimum of 30 events, **OR**
 - The AHI/RDI is ≥ 5 and ≤ 14 events per hour with a minimum of 10 events and documentation of:
 - Excessive daytime sleepiness, impaired cognition, mood disorders, or insomnia, **OR**
 - Hypertension, ischemic heart disease, or history of stroke
 - ◆ The patient and/or their caregiver have received instruction from the treating physician and supplier of the CPAP device and accessories in the proper use and care of the equipment²², **AND**
 - ◆ A compliance support plan between the treating physician and DME supplier has been established, **AND**
 - ◆ Rendering site is a qualified provider of service per health plan policy
- Authorization for equipment purchase (All of the following):
 - ◆ Resolution of symptoms and improved AHI during initiation period, **AND**

- ◆ Device must be consistently used (70% of nights) for an average of four hours or more per 24 hour period, during a consecutive 30 day period during the first 3 months of usage, AND
- ◆ Re-evaluation of symptoms during days 31-90²¹
- ◆ Rendering site is a qualified provider of service per health plan policy
- Extension of establishing compliance with E0601 (All of the following):
 - ◆ Failure to resolve symptoms or unimproved AHI during initial compliance period²², AND
 - ◆ Inconsistent usage of device related to improper fit, lack of education, intolerance of PAP therapy, or device malfunction, AND
 - ◆ Patient has received from the ordering physician or supplier of the PAP device in the past 30 days:
 - Instruction in the proper use and care of the equipment, AND
 - Mask refitting or adjustment if necessary, AND
 - Education for proper use of PAP accessories, AND
 - ◆ Rendering site is a qualified provider of service per health plan policy
- Replacement APAP/CPAP E0601 device (All of the following):
 - ◆ Continued resolution of symptoms and improved AHI on therapy, AND
 - ◆ Device consistently used for an average of four hours or more per 24 hr period, 70% of nights, AND
 - ◆ Device is not operating AND
 - ◆ DME supplier has physically evaluated the device and determined that it is unable to be repaired, AND
 - ◆ Device to be replaced is no longer covered under a warranty, AND
 - ◆ Rendering site is a qualified provider of service per health plan policy

SL-4.2.3: Bi-level Positive Airway Pressure – spontaneous mode

- Initiation of E0470 PAP Therapy and establishing compliance (ALL):
 - ◆ One of the following medical conditions must be documented in the patient's record:
 - Neuromuscular disease or restrictive thoracic disorder:
 - Neuromuscular disease (e.g. amyotrophic lateral sclerosis) or a severe thoracic cage abnormality (e.g. severe kyphoscoliosis, post-thoracoplasty TB), AND
 - One of the following:
 - An arterial blood gas PaCO₂, done while awake and breathing the patient's prescribed FiO₂, is ≥ 45 mm Hg, or
 - Sleep oximetry demonstrates oxygen saturation $\leq 88\%$ for ≥ 5 minutes of nocturnal recording time (minimum recording time of 2 hours), done while breathing the patient's prescribed FiO₂, or
 - Neuromuscular disease only:
 - ◆ Maximal inspiratory pressure is < 60 cm H₂O, or
 - ◆ Forced vital capacity is $< 50\%$ predicted, or
 - ◆ Symptomatic respiratory disease impairing activities of daily living, OR

- Severe COPD:
 - An arterial blood gas PaCO₂ is ≥ 52 mm Hg done while awake and breathing the patient's prescribed FiO₂, or
 - Sleep oximetry demonstrates oxygen saturation $\leq 88\%$ for ≥ 5 minutes of nocturnal recording time (minimum recording time of 2 hours), done while breathing 2 LPM or the patient's prescribed FiO₂ (whichever is higher), and
 - OSA and treatment with CPAP has been considered and ruled out, OR
- Central sleep apnea or complex sleep apnea diagnosis when:
 - Objective information documents the following¹⁹
 - Diagnosis of central sleep apnea or complex sleep apnea, and
 - Central hypopnea/apneas are $\geq 50\%$ of total, or
 - Central apnea index ≥ 5 per hour.
 - Significant improvement of the sleep-associated hypoventilation with the use of an E0470 device on the settings that will be prescribed for initial use at home, while breathing the patient's prescribed FiO₂, OR
- Obstructive sleep apnea when:
 - Diagnosis of OSA has been established with AHI/RDI ≥ 15 , or ≥ 5 and ≤ 14 with excessive sleepiness, impaired cognition, insomnia, stroke, ischemic heart disease or hypertension, and
 - CPAP (E0601) has been tried and proven either ineffective or not tolerated, based on a therapeutic trial conducted in either a facility or a home setting²², OR
- Obesity-hypoventilation syndrome during sleep:
 - $\leq 88\%$ for ≥ 5 minutes of nocturnal recording time (minimum recording time of 2 hours), and
 - Occurs in the absence of obstructive events, and
 - Patient has BMI > 30 kg/m²
- Other sleep-related hypoventilation syndrome:
 - A facility-based PSG demonstrates an increase in PaCO₂ (or surrogate PCO₂) during sleep to a value > 55 mm Hg for > 10 minutes, OR
 - A facility-based PSG demonstrates a > 10 mm Hg increase in PaCO₂ (or surrogate PCO₂) during sleep to a value > 50 mm Hg for > 10 minutes
- ◆ Rendering site is a qualified provider of service per health plan policy
- Continued E0470 therapy after initial 3 months (All of the following):
 - ◆ Re-evaluation of symptoms during days 61 – 90, AND
 - ◆ Device must be consistently used (70% of nights) for an average of four hours or more per 24 hour period, during a consecutive 30 day period during the first 3 months of usage, AND
 - ◆ Resolution of symptoms; AND
 - ◆ Rendering site is a qualified provider of service per health plan policy.
- Replacement Bi-level PAP E0470 device (All of the following):
 - ◆ Continued resolution of symptoms and improved AHI/RDI on therapy; AND
 - ◆ Device consistently used for an average of four hours or more per 24 hour period, 70% of nights, AND

- ◆ Device is not operating, AND
- ◆ DME supplier has physically evaluated the device and determined that it is unable to be repaired, AND
- ◆ Device to be replaced is no longer covered under a warranty; AND
- ◆ Rendering site is a qualified provider of service per health plan policy.

SL-4.2.4: Bi-level Positive Airway Pressure – spontaneous/timed mode

- Initiation of E0471 PAP Therapy and establishing compliance (ALL):
 - ◆ One of the following medical conditions must be documented in the patient's record:
 - Neuromuscular disease or restrictive thoracic disorder:
 - Neuromuscular disease (e.g. amyotrophic lateral sclerosis) or a severe thoracic cage abnormality (e.g. severe kyphoscoliosis, post-thoracoplasty TB), AND
 - One of the following:
 - An arterial blood gas PaCO₂, done while awake and breathing the patient's prescribed FiO₂, is ≥ 45 mm Hg, or
 - Sleep oximetry demonstrates oxygen saturation ≤ 88% for ≥ 5 minutes of nocturnal recording time (minimum recording time of 2 hours), done while breathing the patient's prescribed FiO₂, or
 - Neuromuscular disease only:
 - ◆ Maximal inspiratory pressure is < 60cm H₂O, or
 - ◆ Forced vital capacity is < 50% predicted, OR
 - Severe COPD:
 - PaCO₂ is ≥ 7mm Hg compared to the initial blood gas taken while awake and breathing prescribed FiO₂, and
 - A facility-based PSG demonstrates oxygen saturation of < 88% for ≥5 minutes of nocturnal recording time (minimum recording time of 2 hours) that is not caused by obstructive upper airway events (AHI < 5)
 - ◆ (See above for coverage of E0470 for OSA), OR
 - An arterial blood gas PaCO₂ done while awake and breathing the patient's prescribed FiO₂ is ≥ 52 mm Hg, and
 - Sleep oximetry while breathing with the E0470 device, demonstrates oxygen saturation ≤ 88% for ≥ 5 minutes of nocturnal recording time (minimum recording time of 2 hours), done while breathing oxygen at 2 LPM or the patient's prescribed FiO₂ (whichever is higher), OR
 - Central sleep apnea or complex sleep apnea diagnosis when:
 - Objective information documents the following:¹⁹
 - Diagnosis of central sleep apnea or complex sleep apnea:
 - ◆ Central hypopnea/apneas are ≥ 50% of total, and
 - ◆ Central apnea index ≥ 5 per hour.
 - Significant improvement of the sleep-associated hypoventilation with the use of an E0470 device on the settings that will be prescribed for initial use at home, while breathing the patient's prescribed FiO₂, OR
 - Other hypoventilation syndrome when:
 - A covered E0470 device is being used, and

- A facility-based PSG demonstrates an increase in PaCO₂ (or surrogate PCO₂) during sleep to a value > 55 mm Hg for > 10 minutes, OR
- A facility-based PSG demonstrates a > 10 mm Hg increase in PaCO₂ (or surrogate PCO₂) during sleep to a value > 50 mm Hg for > 10 minutes
- ◆ Rendering site is a qualified provider of service per health plan policy
- Continued E0471 therapy after initial 3 months (All of the following):
 - ◆ Re-evaluation of symptoms during days 61 – 90, AND
 - ◆ Device must be consistently used (70% of nights) for an average of four hours or more per 24 hour period, during a consecutive 30 day period during the first 3 months of usage, AND
 - ◆ Resolution of symptoms, AND
 - ◆ Rendering site is a qualified provider of service per health plan policy
- Replacement Bi-level PAP E0471 device (All of the following):
 - ◆ Continued resolution of symptoms and improved AHI/RDI on therapy; AND
 - ◆ Device consistently used for an average of four hours or more per 24 hr period, 70% of nights; AND
 - ◆ Device is not operating; AND
 - ◆ DME supplier has physically evaluated the device and determined that it is unable to be repaired; AND
 - ◆ Device to be replaced is no longer covered under a warranty; AND
 - ◆ Rendering site is a qualified provider of service per health plan policy.

SL-4.2.5: Heated (E0562) and non-heated (E0561) humidifier

- Initial set-up (All of the following):
 - ◆ When requested by treating physician and PAP device (E0470/471 or E0601) has been approved; AND
 - ◆ No previous humidifier has been provided; AND
 - ◆ Rendering site is a qualified provider of service per health plan policy.
- Replacement Bi-level PAP E0471 device (All of the following):
 - ◆ Continued resolution of symptoms and improved AHI on PAP therapy; AND
 - ◆ Device consistently used for an average of four hours or more per 24 hr period, 70% of nights; AND
 - ◆ Humidifier device is not operating ;AND
 - ◆ DME supplier has physically evaluated the device and determined that it is unable to be repaired; AND
 - ◆ Device to be replaced is no longer covered under a warranty; AND
 - ◆ Rendering site is a qualified provider of service per health plan policy.

SL-4.2.6: Adaptive Servo Ventilation (ASV) therapy (E0471)

- Initiation of E0471 ASV Therapy and establishing compliance (ALL):
 - ◆ One of the following medical conditions must be documented in the patient's record:
 - Central sleep apnea (including Cheyne-Stokes breathing):
 - Diagnosis of central sleep apnea or complex sleep apnea, and
 - Central hypopnea/apneas are ≥ 50% of total, or

- Central apnea index ≥ 5 per hour, **and**
- Mild CSA, or Moderate or Severe CSA with EF $> 45\%$.

OR

- Complex Sleep Apnea Syndrome
 - Documented persistent, treatment-emergent central or mixed apnea with application of CPAP
 - Central hypopnea/apneas are $\geq 50\%$ of total, or
 - Central apnea index ≥ 5 per hour, **and**
 - Failure of prior Bi-level trial (spontaneous or spontaneous/timed)

OR

- Central Sleep Apnea Syndrome due to opioid or substance use:
 - CPAP has been shown to be ineffective following a reasonable treatment attempt/trial, **AND**
 - Opioid therapy cannot be reduced or discontinued, **and**
 - Central hypopnea/apneas are $\geq 50\%$ of total, or
 - Central apnea index ≥ 5 per hour.

and

- ◆ Rendering site is a qualified provider of service per health plan policy
- Continued E0471 therapy after initial 3 months (All of the following):
 - ◆ Re-evaluation of symptoms during days 61 – 90, **and**
 - ◆ Device must be consistently used (70% of nights) for an average of four hours or more per 24 hr period, during a consecutive 30 day period during the first 3 months of usage, **and**
 - ◆ Resolution of symptoms; **and**
 - ◆ Rendering site is a qualified provider of service per health plan policy.
- Replacement ASV E0471 device (All of the following):
 - ◆ Continued resolution of symptoms and improved AHI/RDI on therapy; **and**
Device consistently used for an average of four hours or more per 24 hr period, 70% of nights, **and**
 - ◆ Device is not operating, **and**
 - ◆ DME supplier has physically evaluated the device and determined that it is unable to be repaired, **and**
 - ◆ Device to be replaced is no longer covered under a warranty, **and**
 - ◆ Rendering site is a qualified provider of service per health plan policy.

SL-4.2.7: Continuous positive airway pressure ventilation (CPAP), initiation, and management (94660)

- Physician face-to-face service addressing PAP usage:
 - ◆ Physician application or adjustment of mask or pressure titration or PAP related service; **and**
 - ◆ Service cannot be adequately provided by a certified or registered respiratory therapist, licensed clinician, or sleep technologist when within scope of practice per state regulations; **and**
 - ◆ Another evaluation and management service is not performed.

SL-4.3: Positive Airway Pressure Treatment Supplies

SL-4.3.1: PAP Masks and parts A7027, A7030, A7034, A7044, A7035, A7036

- Combination oral/nasal mask, used with PAP, each (A7027):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Frequency: 1 per 3 months.
 - ◆ No other PAP mask ordered (i.e., A7030, A7034, or A7044).
- Oral cushion used with combination oral/nasal mask, replacement only (A7028):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Only compatible with A7027 mask.
 - ◆ Frequency: 2 per month.
- Nasal pillows used with combination oral/nasal mask, replacement only, pair (A7029):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Only compatible with A7027 mask.
 - ◆ Frequency: 2 per month.
- Full face mask used with PAP, each (A7030):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Frequency: 1 per 3 months.
 - ◆ No other PAP mask ordered (i.e., A7027, A7034, or A7044).
- Full face mask interface replacement, each (A7031):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Only compatible with A7030 mask.
 - ◆ Frequency: 2 per month.
- Nasal interface (mask or cannula type) used with PAP, each (A7034):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Frequency: 1 per 3 months.
 - ◆ No other PAP mask ordered (i.e., A7027, A7030, or A7044).
- Cushion for use on nasal mask interface, replacement only, each (A7032):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Only compatible with A7034 mask.
 - ◆ Frequency: 2 per month.
- Nasal pillow for use on nasal cannula type interface, replacement only, pair (A7033):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Only compatible with A7034 mask.
 - ◆ Frequency: 2 per month.
- Oral interface used with PAP, each (A7044):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Frequency: 1 per 6 months.
 - ◆ No other PAP mask ordered (i.e., A7027, A7030, or A7034).

- Headgear used with PAP, each (A7035):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Frequency: 1 per 6 months.
- Chinstrap used with PAP, each (A7036):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Frequency: 1 per 6 months.

SL-4.3.2: Positive airway pressure tubing (A4604, A7037)

- Tubing with integrated heating element for use with PAP devices, each (A4604):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Frequency: 1 per 3 months.
 - ◆ No other PAP tubing ordered (i.e., A7037).
- Tubing used with PAP devices, each (A7037):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Frequency: 1 per 3 months.
 - ◆ No other PAP tubing ordered (i.e., A4604).

SL-4.3.3: Positive airway pressure device filters (A7038, A7039)

- Filter, disposable, used with PAP devices (A7038):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Frequency: 2 per 1 month.
- Filter, non-disposable, used with PAP devices (A7039):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Frequency: 1 per 6 months.

SL-4.3.4: Miscellaneous positive airway pressure supplies (A7045, A7046)

- Exhalation port with or without swivel used with accessories for positive airway devices, replacement only (A7045):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Frequency: 1 per 6 months.
- Water chamber for humidifier, used with positive airway pressure device, replacement, each (A7046):
 - ◆ Coverage criteria for PAP device is met.
 - ◆ Frequency: 1 per 6 months.

SL-5: Sleep Apnea Treatment Program Exclusions

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SL-5.2: Durable Medical Equipment Device and Supply Exclusions	32

SL-5.1: Experimental and Investigational

- The effectiveness of the following therapies has not been established in the treatment of OSA; these therapies may be considered experimental and investigational:
 - ◆ Provent Sleep Apnea Therapy
 - ◆ Winx Therapy System/Oral Pressure Therapy

SL-5.2: Durable Medical Equipment Device and Supply Exclusions

- CPT® 94799 – Unlisted pulmonary service or procedure
 - ◆ Due to the presence of more specific codes, medical necessity for this code cannot be established
- E1399 – Miscellaneous durable medical equipment items, components, and accessories
 - ◆ Due to the presence of more specific codes for PAP equipment, medical necessity for this code cannot be established for PAP equipment

SL-6: Actigraphy (CPT® 95803)

- Actigraph devices, worn on the wrist, record movement and utilize rest activity patterns to estimate sleep parameters.
- Actigraphy requires long term recording for most indications, typically 7 to 14 days.
- Actigraphy can be considered for the following indications:
 - ◆ Suspected central hypersomnia (narcolepsy or idiopathic hypersomnia) for 1 to 2 weeks prior to MSLT as a means of objectively documenting sleep time.
 - ◆ Suspected insufficient sleep syndrome if there is doubt about the accuracy of history and sleep diaries.
 - ◆ Suspected long sleeper to document a regular pattern of 10 or more hours of sleep.
 - ◆ Suspected circadian rhythm disorders, including delayed sleep-wake phase disorder, advanced sleep-wake phase disorder, irregular sleep-wake rhythm disorder, shift work disorder to assess timing of habitual sleep period and total sleep time.
 - ◆ Chronic Insomnia as an estimate of sleep efficiency, wake after sleep onset and total sleep time, when there is doubt as to the accuracy of sleep diary data.^{38,39,40}

Note

Actigraphy may be considered experimental and investigational by some healthcare plans.

SL-7: Practice Notes

SL-7.1: Occupational Requirements	35
SL-7.2: Technical and Policy Requirements of PSG	35

SL-7.1: Occupational Requirements

- The FAA does not give any specific guidance on when testing is required. They recommend Maintenance of Wakefulness Test (evaluates daytime alertness) if there remains any question, as well as, CPT® 95810 or CPT® 95811.
- The US DOT will not qualify a driver with “respiratory dysfunction (including sleep apnea) likely to interfere with ability to control or drive.” Sleep apnea requires a medical examination by (proposed administrative rule) “prefer[ably] Over-night” PSG but “accept[s] Home Sleep Testing as a controversial, new technology.” It is not clear whether sleep apnea will disqualify a driver that already has a license.
 - ◆ Federal Motor Carrier Safety Administration (FMCSA). Regulations: 49 CFR Parts 300-399. Available at: <http://www.fmcsa.dot.gov/regulations/title49/b/5/3>. Accessed October 16, 2017.

SL-7.2: Technical and Policy Requirements of PSG

- The parameters, settings, filters, technical specifications, sleep stage scoring and event scoring should be done in accordance with the AASM Manual for the Scoring of Sleep and Associated Events.
- AHST should, at a minimum, record airflow, respiratory effort, and blood oxygenation. The type of biosensors used to monitor these parameters for in-laboratory PSG are recommended for use in HSTs and include the following:
 - ◆ Oronasal thermal sensor and nasal pressure transducer for airflow, apnea and hypopnea; **and**
 - ◆ Oximetry with a high sampling rate and fast averaging time for blood oxygenation; **and**
 - ◆ Ideally, a calibrated or uncalibrated respiratory inductance plethysmography for respiratory effort.
- Apnea-Hypopnea Index (AHI) by HST is the number of apneas + hypopneas / total recording time rather than total sleep time. As a result, HST's are likely to underestimate the severity of events compared to the Apnea- Hypopnea Index (AHI) by PSG. Due to the known rate of false negative HST, in-laboratory PSG should be performed in cases where HST is technically inadequate or fails to establish the diagnosis of OSA in patients with a high pretest probability.
- The eviCore guidelines recognize that HST can be appropriately performed by Joint Commission (JCAHO) and Medicare IDTF-approved facilities.
- PSG is called Type I monitoring:
 - ◆ Consists of minimum of 6 hours of constant monitoring in a controlled facility environment.
 - ◆ Involves 7 measurement parameters (3 channels of EEG, 2 channel electrooculography, 2 channels of anterior tibialis EMG, ECG or heart rate, oxygen saturation, airflow monitoring, and measures of sub-mental breathing/respiratory effort).

- ◆ Facilities also typically record body position (with video) and snoring (via microphone).
- Results are reported and calculations of the Apnea-Hypoxia Index (AHI) or Respiratory Disturbance Index (RDI) are performed.
- ◆ Scoring PSG:
 - OSA is confirmed if >15 obstructive events per hour or >5 obstructive events per hour plus clinical symptoms
 - Obstructive events include apneas, hypopneas, or respiratory-effort related arousals for calculation of RDI.
 - Obstructive events include apneas and hypopneas for calculation of AHIRDI cannot accurately be calculated by HST due to limited respiratory channels.
 - REI is acceptable for reporting sleep disordered breathing by HST.

SL-8: Questionnaires

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SL-8.1: Epworth Sleepiness Scale

The **Epworth Sleepiness Scale** is comprised of eight questions, with a maximum score of 24. A score >10 indicates moderate to high probability of excessive daytime sleepiness.

Epworth Sleepiness Scale	
Use the following scale to choose the most appropriate number for each situation: 0 = would never doze or sleep; 1 = slight chance of dozing or sleeping 2 = moderate chance of dozing or sleeping; 3 = high chance of dozing or sleeping	
Situation	Chance of Dozing or Sleeping
1. Sitting and reading	
2. Watching TV	
3. Sitting inactive in a public place	
4. Being a passenger in a motor vehicle for an hour or more	
5. Lying down in the afternoon	
6. Sitting and talking to someone	
7. Sitting quietly after lunch (no alcohol)	
8. Stopped for a few minutes in traffic while driving	
Total Epworth Score (add up the points)	

SL-8.2: The Berlin Questionnaire

The **Berlin Questionnaire** is comprised of 3 categories and ten questions. Two or more categories with a positive score indicate high probability of OSA.

Patient BMI - _____	
Category 1	Category 2
1. Do you snore? a. Yes b. No c. Don't know <i>If you snore:.....</i>	6. How often do you feel tired or fatigued after your sleep a. Nearly every day b. 3-4 times a week c. 1-2 times a week d. 1-2 times a month e. Never or nearly never
2. Your snoring is: a. Slightly louder than breathing b. As loud as talking c. Louder than talking d. Very loud-can be heard in adjacent rooms	7. During your waking time, do you feel tired, fatigued, or not up to par? a. Nearly every day b. 3-4 times a week c. 1-2 times a week d. 1-2 times a month e. Never or nearly never
3. How often do you snore? a. Almost every day b. 3-4 times a week c. 1-2 times a week d. 1-2 times a month e. Never or almost never	8. Have you ever nodded off or fallen asleep while driving a vehicle a. Yes b. No <i>If yes:</i>
4. Does your snoring bother other people? a. Yes b. No c. Don't know	9. How often does this occur? a. Nearly every day b. 3-4 times a week c. 1-2 times a week d. 1-2 times a month e. Never or nearly never
5. Has anyone noticed that you quit breathing during your sleep? a. Nearly every day b. 3-4 times a week c. 1-2 times a week d. 1-2 times a month e. Never or nearly never	Category 3
	a. Do you have high blood pressure? b. Yes c. No Don't know

Berlin Questionnaire Scoring

- **Category 1:** Items 1-5
 - ◆ Item 1: if 'Yes', assign **1 point**
 - ◆ Item 2: if 'c' or 'd' is the response, assign **1 point**
 - ◆ Item 3: if 'a' or 'b' is the response, assign **1 point**
 - ◆ Item 4: if 'a' is the response, assign **1 point**
 - ◆ Item 5: if 'a' or 'b' is the response, assign **2 points**
 - ◆ Add Points. Category 1 is positive if the total score is 2 or more points.
- **Category 2:** Items 6, 7, 8 (item 9 should be noted separately)
 - ◆ Item 6: if 'a' or 'b' is the response, assign **1 point**
 - ◆ Item 7: if 'a' or 'b' is the response, assign **1 point**
 - ◆ Item 8: if 'a' is the response, assign **1 point**
 - ◆ Add Points. Category 2 is positive if the total score is 2 or more points
- **Category 3:** is positive if the answer to Item 10 is 'Yes' **OR** if the BMI of the patient is greater than 30kg/m².
- **High Risk:** if there are 2 or more Categories where the score is positive
- **Low Risk:** if there is only 1 or no Categories where the score is positive

SL-8.3: STOP Bang

STOP Bang questionnaire has eight yes/no questions. A “yes” answer on three or more questions indicates high probability of OSA.

Snoring

1. Do you snore loudly (louder than talking or loud enough to be heard through closed doors?)

Tired

2. Do you often feel tired, fatigued, or sleepy during daytime?

Observed

3. Has anyone observed you stop breathing during your sleep?

Blood Pressure

4. Do you have or are you being treated for high blood pressure?

BMI

5. BMI higher than 35kg/m²

Age

6. Age over 50 years old?

Neck Circumference

7. Neck circumference greater than 40cm?

Gender

8. Gender male?

- High risk of OSA: answering “yes” to three or more items
- Low risk of OSA: answering “yes” to less than three items

SL-8.4: Insomnia Severity Index

The Insomnia Severity Index has seven questions. The seven answers are added up to get a total score. When you have your total score, look at the 'Guidelines for Scoring/Interpretation' at the bottom of the Insomnia Severity Index page to see where your sleep difficulty fits. Print out a copy of your completed Insomnia Severity Index to take to your health care provider.

For each question, please **CIRCLE** the number that best describes your answer. [Click here to print the Insomnia Severity Index.](#)

Please rate the **CURRENT (i.e. LAST 2 WEEKS) SEVERITY** of your insomnia problem(s).

Insomnia problem	None	Mild	Moderate	Severe	Very severe
1. Difficulty falling asleep	0	1	2	3	4
2. Difficulty staying asleep	0	1	2	3	4
3. Problem waking up too early	0	1	2	3	4

4. How **SATISFIED/DISSATISFIED** are you with your **CURRENT** sleep pattern?

Very Satisfied	Satisfied	Moderately Satisfied	Dissatisfied	Very Dissatisfied
0	1	2	3	4

5. How **NOTICEABLE** to others do you think your sleep problem is in terms of impairing the quality of your life?

Not at all Noticeable	A Little	Somewhat	Much	Very Much Noticeable
0	1	2	3	4

6. How **WORRIED/DISTRESSED** are you about your current sleep problem?

Not at all Worried	A Little	Somewhat	Much	Very Much Worried
0	1	2	3	4

7. To what extent do you consider your sleep problem to **INTERFERE** with your daily functioning (e.g. daytime fatigue, mood, ability to function at work/daily chores, concentration, memory, mood, etc.) **CURRENTLY**?

Not at all Interfering	A Little	Somewhat	Much	Very Much Interfering
0	1	2	3	4

Guidelines for Scoring/Interpretation:

Add the scores for all seven items (questions 1 + 2 + 3 + 4 + 5 + 6 + 7) = _____ your total score.

Total score categories:

0-7 = No clinically significant insomnia

8-14 = Sub threshold insomnia

15-21 = Clinical insomnia (moderate severity)

22-28 = Clinical insomnia (severe)

SL-9: Oral Appliances for the Treatment of Obstructive Sleep Apnea

SL-9.1: Custom-fit Oral Appliances

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Treatment Codes (HCPCS and CPT®)	CODE
Oral device/appliance used to reduce upper airway collapsibility, adjustable or non-adjustable, prefabricated, includes fitting and adjustment	E0485
Oral device/appliance used to reduce upper airway collapsibility, adjustable or non-adjustable, custom fabricated, includes fitting and adjustment	E0486
Non-covered item or service (Used for oral appliances that do not incorporate all of the criteria as set forth in the Policy Article; tongue-retaining or tongue-positioning devices; and devices that are used only to treat snoring without a diagnosis of obstructive sleep apnea)	A9270
Durable medical equipment, miscellaneous	E1399

Continuous positive airway pressure is the gold standard for treatment of obstructive sleep apnea.⁴³ Oral appliances are an alternative treatment option for patients who are intolerant to PAP therapy or who prefer an alternative to CPAP.⁴³ Subjective adherence and side effect profile are improved with oral appliances compared to CPAP. However, CPAP results in a greater reduction in respiratory events (AHI, RDI or REI) and greater improvement in oxygen saturation. Oral appliances significantly reduce apnea hypopnea index regardless of severity of obstructive sleep apnea, although patients with moderate to severe OSA are more likely to achieve their target AHI with CPAP compared to the oral appliance.⁴³ Both oral appliances and CPAP improve excessive daytime sleepiness, quality of life, and cognitive performance.^{43, 44, 45} The AASM task force indicates that use of oral appliances in patients with severe obstructive sleep apnea should be reserved for clinical scenarios where CPAP is not tolerated or does not provide benefit.⁴³

SL-9.1 Custom-fit Oral Appliances

The most common oral appliance utilized for the treatment of obstructive sleep apnea is the mandibular advancement device.⁴⁴ There was insufficient evidence for the AASM task force to assess the efficacy of tongue retaining devices, which are also less well tolerated.^{43,44} Custom-made mandibular advancement devices appliance are more effective for symptom improvement, compliance and tolerance compared to ready-made appliances.^{43,46}

- Custom-fit oral appliances are indicated when all of the following are met:
 - ◆ A positive diagnosis of obstructive sleep apnea on a covered sleep study as demonstrated by one of the following:
 - AHI, RDI, or REI > 5 ≤14 events per hour with a minimum of 10 events over the duration of the sleep test and documentation of:
 - Excessive daytime sleepiness, impaired cognition, mood disorders, or insomnia, or
 - Hypertension, ischemic heart disease, or history of stroke; **OR**

- AHI, RDI, or REI $\geq 15 < 30$ events per hour with a minimum of 30 events over the duration of the sleep test;
- AHI, RDI, or REI AHI > 30 events per hour
- ◆ Documentation of:
 - Intolerance or lack of benefit after a minimum of a one month trial of PAP, **or**
 - PAP is contraindicated for the patient as documented by the treating physician, **or**
 - Patient prefers alternative treatment to CPAP **AND** AHI, RDI, or REI is less than 30.
- ◆ The device is ordered by the treating physician following a face to face visit and review of sleep study results.
- ◆ A qualified licensed dentist (DDS and DMD) provides a custom device and follow-up to assess for dental-related side effects.

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