Abstract

About 40 million people in the United States suffer from sleep problems every year. Not getting enough sleep for a long time can cause health problems. Many sleep disorders can be managed by primary care physicians; however, when abnormal sleep patterns are not easily explainable and further evaluation is necessary, expert opinion and sleep studies may be needed.

Sleep consists of two distinct states: rapid eye movement (REM), and non-rapid eye movement (NREM). REM sleep is when we dream. NREM sleep is further divided into three stages. Stages one and two are referred to as light sleep and stage three as deep sleep. The first sleep cycles each night contain relatively short REM periods and long periods of deep sleep. As the night progresses, REM sleep periods increase in length while deep sleep decreases. By morning, people spend nearly all their sleep time in stages one, two, and REM.

Polysomnography (PSG) refers to the continuous and simultaneous monitoring and recording of various physiological and pathophysiological parameters of sleep furnished in a sleep laboratory facility that includes physician review, interpretation and report. A technologist supervises the recording during sleep time and has the ability to intervene, if needed. The studies are performed to diagnose a variety of sleep disorders and to evaluate a patient’s response to therapies such as continuous positive airway pressure (CPAP). PSG is distinguished from sleep studies by the inclusion of sleep staging, which requires electroencephalogram (EEG), electrooculogram (EOG), and electromyography (EMG).

Parameters 1-3 are required for a basic PSG. Additional parameters that may be monitored include, but are not limited to, the following:

1. At minimum, a 3 lead electroencephalogram (EEG) to measure global neural encephalographic activity using electrodes placed on the scalp
2. Electrooculogram (EOG) to measure eye movements using electrodes placed near the outer canthus of each eye

3. A submental electromyogram (EMG) to measure submental electromyographic activity using electrodes placed over the mentalis, submentalis muscle, and/or masseter regions

4. Rhythm electrocardiogram (ECG)

5. Nasal and oral airflow via both thermistor and nasal pressure sensor for PSG sleep staging with 4 or more additional parameters of sleep (95810)

6. Airflow in the mask if positive airway pressure for PSG sleep staging with 4 or more additional parameters of sleep, with initiation of continuous positive airway pressure therapy or bi-level ventilation (95811)

7. Respiratory effort by chest-wall and abdominal movement measured using respiratory inductive plethysmography, endoesophageal pressure or by intercostal EMG or validated Polyvinylidene Fluoride (PVDF) impedance belt.

8. Oxygen saturation (SpO₂) by oximetry or transcutaneous monitoring


10. Body positions by directly applied sensors or by direct observation

11. Sound recordings to measure snoring

12. Continuous video monitoring

Optional parameters that can be monitored in a sleep study include the following:

- Core body temperature
- Incident light intensity
- Penile tumescence
- Pressure and pH at various esophageal levels

PSG and other sleep test monitoring devices are generally classified based on the number of biologic sensors applied and physiologic parameters recorded.

*Type I PSG is covered when used to aid the diagnosis of obstructive sleep apnea (OSA) in beneficiaries who have clinical signs and symptoms indicative of OSA if performed attended in a sleep lab facility. Type I devices are capable of recordings of all of the physiologic parameters and signals defined for PSG. The recording is furnished in a sleep laboratory facility in which a technologist is physically present to supervise the recording during sleep.
time and has the ability to intervene if needed. Minimal requirements include recording of EEG, EOG, chin EMG, anterior tibialis EMG, ECG, airflow, respiratory effort and oxygen saturation. Body position must be documented or objectively measured. Trained personnel must be in constant attendance and able to intervene.

*A Type II sleep testing device is covered when used to aid the diagnosis of OSA in beneficiaries who have clinical signs and symptoms indicative of OSA if performed unattended in or out of a sleep lab facility or attended in a sleep lab facility. Type II devices are portable devices that may measure the same channels as type I testing, except that a heart-rate monitor can replace the ECG. This device has a minimum of 7 channels (e.g., EEG, EOG, EMG, ECG-heart rate, airflow, respiratory effort, and oxygen saturation – this type of device monitors sleep staging). A sleep technician is not necessarily in constant attendance in Type II studies but is needed for preparation.

*A Type III sleep testing device is covered when used to aid the diagnosis of OSA in beneficiaries who have clinical signs and symptoms indicative of OSA if performed unattended in or out of a sleep lab facility or attended in a sleep lab facility. Type III devices monitor and record a minimum of 4 channels and must record ventilation or airflow, heart rate or ECG, and oxygen saturation. A sleep technician is not necessarily in constant attendance in Type III studies but is needed for preparation.

*A Type IV sleep testing device measuring three or more channels, one of which is airflow, is covered when used to aid the diagnosis of OSA in beneficiaries who have signs and symptoms indicative of OSA if performed unattended in or out of a sleep lab facility or attended in a sleep lab facility. Type IV devices must include airflow as one of the required 3 channels. Other measurements may include oximetry and heart rate. A sleep technician is not necessarily in constant attendance in Type IV studies but is needed for preparation.

*A sleep testing device measuring three or more channels that include actigraphy, oximetry, and peripheral arterial tone is covered when used to aid the diagnosis of OSA in beneficiaries who have signs and symptoms indicative of OSA if performed unattended in or out of a sleep lab facility or attended in a sleep lab facility. A sleep technician is not necessarily in constant attendance in such studies but is needed in preparation.

Multiple sleep latency testing (MSLT) involves four or five 20-minute nap opportunities offered at 2-hour intervals. MSLT objectively assesses sleep tendency by measuring the number of minutes it takes the patient to fall asleep. Conversely, the maintenance of wakefulness test (MWT) requires the patient to try to stay awake. MSLT is the better test for demonstration of sleep-onset REM periods, a determination that is important in establishing the diagnosis of narcolepsy. To insure validity, proper interpretation of the MSLT can only be made following a polysomnography performed on the preceding night.

Normally, sleep studies and PSG for sleep disorders are performed in sleep centers or laboratories. However, the diagnosis of OSA for coverage of CPAP may also be established by home sleep testing (HST) as indicated under number 2 (Sleep Apnea) below.
Sleep disorder clinics (centers and laboratories) are facilities in which certain conditions are diagnosed through the study of sleep. Such clinics (centers and laboratories) are for diagnosis, therapy, and research. Sleep disorder clinics (centers and laboratories) may provide some diagnostic or therapeutic services, which are covered under Medicare. These clinics (centers and laboratories) may be affiliated either with a hospital or a freestanding facility. Whether a clinic (sleep center or laboratory) is hospital-affiliated or freestanding, coverage for diagnostic services under some circumstances is covered under provisions of the law different from those for coverage of therapeutic services.

Diagnostic testing is covered only if the patient has the symptoms or complaints of one of the conditions listed below. Most of the patients who undergo the diagnostic testing are not considered inpatients, although they may come to the facility in the evening for testing and then leave after testing is over. If HST is used, they may be tested in the home environment after application of the sensors and receiving education regarding a monitoring device from the technical, professional, or appropriately trained staff of the sleep center or laboratory. The overnight stay in the sleep center or laboratory is considered an integral part of PSG, MSLT, and MWT but not for HST.

When sleep studies are performed in sleep disorder centers or laboratories or when HST is used, the following criteria must be met:

*The clinic (sleep center or laboratory) is either affiliated with a hospital or is under the direction and control of physicians. Diagnostic testing routinely performed in sleep disorder clinics (centers and laboratories) may be covered even in the absence of direct supervision by a physician:*

*Patients are referred to the sleep disorder clinic by their attending physicians, and the clinic (center or laboratory) maintains a record of the attending physician’s orders; and*

*The need for diagnostic testing is confirmed by medical evidence, e.g., physician examinations and laboratory tests. Prior to any sleep testing, the patient must have a face-to-face clinical evaluation by the treating physician which must at minimum include:*

1. Sleep history and symptoms including, but not limited to, snoring, daytime sleepiness, observed apneas, choking or gasping during sleep, morning headaches; and,

2. Epworth sleepiness scale; and,

3. Physical examination that documents body mass index, neck circumference and a focused cardiopulmonary and upper airway evaluation.
**Accreditation**

In order to perform the technical component (TC) of PSG and sleep testing (including HST), the following must be met:

*The sleep center or laboratory must maintain documentation on file that indicates it is accredited by the American Academy of Sleep Medicine (AASM), Accreditation Commission for Health Care (ACHC), or that it is accredited as a sleep laboratory by the Joint Commission. If the Joint Commission survey of the general hospital accreditation includes the hospital-based sleep lab, an additional accreditation is not needed. This documentation must be available on request. The AASM, ACHC, or Joint Commission accreditation applies to the hospital and freestanding facilities (including sleep clinics that are part of a physician’s office, and all other non-hospital-based facilities where sleep studies are performed. **Diagnostic testing performed in an Independent Diagnostic Testing Facility (IDTF) must follow the supervision and credentialing guidelines. Set forth in the Independent Diagnostic Facility (LCD).**

**Physician Training/Certification**

* The raw data from all sleep tests must be reviewed and the tests must be interpreted by either:

1. A Diplomate of the American Board of Sleep Medicine (ABSM) OR 
   Board of Medical Specialties (ABMS) OR 
2. A physician board certified in sleep medicine by a member board of the American Board of Medical Specialties (ABMS) OR 
3. An osteopathic physician board certified in sleep medicine by a member board of the American Osteopathic Association (AOA) OR 
4. An active physician staff member of an AASM accredited sleep center or sleep laboratory OR 
5. An active physician staff member of a Joint Commission accredited sleep laboratory OR 
6. An active physician staff member of an ACHC accredited sleep laboratory OR 
7. A Diplomate of the American Board of Family Medicine (ABFM) with Certificate of Added Qualifications (CAQ) in Sleep Medicine.

The globally billed professional/technical (PC/TC) components for services related to home sleep testing (G0398, G0399 or G0400) are covered for the purpose of testing a patient for the diagnosis of OSA if the home sleep testing is reasonable and necessary for the diagnosis of the patient’s condition, meets all other requirements, and the physician who performs the service meets the physician training/certification requirement.

**Technologist/Technician Credentials/Training**

* Sleep technicians or technologists attending PSG or sleep studies affiliated with HST must have appropriate personnel certification. Examples of certification in PSG and sleep
technology for technologists are:

1. Registered Polysomnography Technologist (RPSGT)
2. Registered Electroencephalographic technologist (R. EEG T.) – Polysomnography
3. Certified Respiratory Therapist - Sleep Disorders Specialist (CRT-SDS)
4. Registered Respiratory Therapist Sleep Disorders Specialist (RRT-SDS)
5. American Board of Sleep Medicine Registered Sleep Technologist (RST)

Credentialing must be provided by nationally recognized credentialing organizations such as:

- Board of Registered Polysomnographic Technologists (BRPT) that provides (RPSGT) credential: OR
- American Board of Registration of Electroencephalographic and Evoked Potential Technologists (ABRET) that provides R. EEG T.) – Polysomnography credential: OR
- Performed in a sleep center or laboratory accredited by the American Academy of Sleep Medicine (AASM), or Accreditation Commission for Health Care (ACHC), or Joint Commission: OR
- American Board of Sleep Medicine (ABSM) that provides credentialing in sleep technology; OR
- National Board for Respiratory Care, Inc. (NBRC) that provides specialty examination for respiratory therapists performing sleep disorders testing and therapeutic intervention (CRT-SDS and RRT-SDS)

All technologists and technicians conducting sleep testing who are not registered by the BRPT, ABRET, ABSM, NBRC or other accepted certification body, must be affiliated with an AASM or ACHC accredited sleep facility or Joint Commission accredited sleep facility (a Joint Commission accredited sleep laboratory). Unregistered technologists and technicians must maintain appropriate training and supervision, and, be supervised by a registered and licensed technologist, where license is required by state law.

Technologist staffing must be adequate to address the workload of the sleep facility and assure the safety of patients.

**Unattended Sleep Testing**

The technical component of HST (G0398, G0399 and G0400) and unattended sleep studies (95800, 95801, and 95806) must be provided by an accredited sleep center or laboratory as noted above and meet the requirements of the LCD for coverage. The only exception would be the global billing (professional/technical components [PC/TC]) of HST by an office based physician who meets the requirements under the Physician Training/Certification as noted earlier. In this case, the PC/TC for HST can be covered for the purpose of testing a patient for the diagnosis of OSA if the home sleep testing is reasonable and necessary for the diagnosis of the patient’s condition as outlined in the LCD, and the office based technician doing the patient instruction and HST scoring meet the training/credentialing.
requirements as outlined above. Under this circumstance, the physician would be the interpreter of the test and bill globally.

In general, pursuant to 42 CFR 410.32(a) diagnostic tests that are not ordered by the beneficiary’s treating physician are not considered reasonable and necessary. Pursuant to 42 CFR 410.32(b) diagnostic tests payable under the physician fee schedule that are furnished without the required level of supervision by a physician are not reasonable and necessary.

**Indications and Limitations of Coverage**

1. **Sleep Apnea** – *This is a potentially lethal condition where the patient stops breathing during sleep. Three types of sleep apnea have been described (central, obstructive, and mixed). The nature of the apnea episodes can be documented by clinical sleep evaluation and appropriate diagnostic testing.*

Abnormal breathing events in sleep apnea syndromes include apnea, hypopnea and respiratory effort related arousals (RERA). Apnea is a cessation of airflow for at least 10 seconds. Hypopnea is an abnormal respiratory event lasting at least 10 seconds with at least a 30% reduction in thoracoabdominal movement or airflow as compared to baseline, and with at least a 4% decrease in oxyhemoglobin saturation. RERA is defined as a period during sleep lasting at least 10 seconds during which severe narrowing of the upper airways with increasing respiratory efforts leads to electroencephalographic arousal from sleep without an appreciable reduction in airflow and oxygen saturation.

Apneas can be classified as central, obstructive or mixed based on the presence of respiratory effort during the event. In obstructive apnea events, respiratory effort continues in the absence of airflow while in central apnea events, both airflow and respiratory effort are simultaneously absent. Mixed apnea events contain respiratory effort only during a portion of the apnea event.

For a diagnosis of OSA to be made, the following criteria must be met:

A. Prior to sleep testing, the patient has a face-to-face clinical evaluation by the treating physician to assess the patient for OSA which must include, at a minimum, the following:

1. Sleep history and symptoms including, but not limited to, snoring, daytime sleepiness, observed apneas, choking or gasping during sleep, morning headaches; and,
2. Epworth Sleepiness Scale; and,
3. Physical examination that documents body mass index, neck circumference and a focused cardiopulmonary and upper airway system evaluation.

B. The patient has a covered sleep test that meets either of the following criteria:
1. The apnea-hypopnea index (AHI) or Respiratory Disturbance Index (RDI) is greater than or equal to 15 events per hour with a minimum of 30 events; or,
2. The AHI or RDI is greater than or equal to 5 and less than or equal to 14 events per hour with a minimum of 10 events and documentation of:
   a. Excessive daytime sleepiness, impaired cognition, mood disorders, or insomnia; or,
   b. Hypertension, ischemic heart disease, or history of stroke

OSA occurs when the muscles relax during sleep, causing soft tissue in the back of the throat to collapse and block the upper airway. This leads to partial reductions (hypopneas) and complete pauses (apneas) in breathing during sleep. Most pauses last between 10 and 30 seconds, but some may persist for one minute or longer. This can lead to abrupt reductions in blood oxygen saturation. OSA characterized by RERA events has been called upper airway resistance syndrome. In central sleep apnea, the airway is not blocked but respiratory coordination is impaired such that the brain does not signal the muscles of respiration to contract. All sleep apnea syndromes disrupt sleep, leading to excessive daytime sleepiness, fatigue and cognitive disturbances. OSA has also been associated with elevated risk for arterial hypertension, cardiac ischemic events, cerebral vascular accidents, insulin resistance and obesity.

The diagnosis and severity of sleep apnea syndromes is established by the clinical evaluation and a positive PSG or HST. Staging of the severity of sleep apnea can be accomplished by utilization of the apnea-hypopnea index (AHI) which is defined as the average number of apneas and hypopneas per hour of sleep. The respiratory disturbance index (RDI) is another term used to establish the diagnosis of sleep apnea and stage its severity, which in sleep tests that measure sleep with EEG is defined as the average number of apneas and hypopneas, and RERA per hour of sleep. In Type III, Type IV HST, and in HST devices measuring three or more channels that include actigraphy, oximetry, and peripheral arterial tone where sleep is not measured, the RDI is defined as the average number of apneas and hypopneas per hour of recording.

Positive airway pressure (PAP) therapy is a non-invasive technique for providing continuous (CPAP) or variable levels of air pressure from a flow generator, via a nose mask, through the nares. The purpose is to prevent the collapse of the oropharyngeal walls and the obstruction of airflow during sleep, which occurs in OSA. CPAP is the most commonly used treatment for OSA. The appropriate level for CPAP is best determined during a CPAP titration PSG. A titration PSG provides useful information on the appropriate level of CPAP during one single night in a dedicated environment. Other factors, such as body and neck or mandibular position, weight changes, and nasal obstruction may affect the appropriate CPAP level. Since these effects may change over time, automatically-adjusting positive airway pressure devices (APAP) were developed. APAP devices are designed to automatically match the treatment pressure to the patient's needs. APAP devices react to perceived treatment pressure needs by manufacturer specific processes such that the information derived from APAP may differ by device and manufacturer. Certain APAP devices may be used in an unattended way to determine a fixed CPAP treatment pressure for patients with moderate to severe OSA without significant co-morbidities such as
congestive heart failure, chronic obstructive pulmonary disease, central sleep apnea syndromes and hypoventilation syndromes. Similarly, certain APAP devices may be initiated and used in the self-adjusting mode for unattended treatment of patients previously diagnosed with moderate to severe OSA without the significant co-morbidities earlier described. A clear patient preference for APAP over manual CPAP has not been demonstrated by studies addressing the issue.

Bilevel positive airway pressure (BPAP) is a positive pressure treatment alternative to CPAP that delivers different pressures during exhalation and inhalation. The inhalation pressure does not adapt to the patient's changing needs, as in the APAP, but the exhalation pressure can be adjusted lower. The ability to set different inhalation and exhalation pressures results in lower average airway pressures than those delivered by CPAP. Using lower pressures may reduce the incidence of side effects, such as the sensation of suffocation, difficulty exhaling, nasal congestion, etc., which contribute to patient noncompliance. A clear patient preference for BPAP over CPAP has not been demonstrated by studies addressing the issue.

**Split-Night Studies**

Split-night studies involve polysomnography in the first half of the night followed, if there is an abnormal frequency of apneas and hypopneas, by PAP titration for the remainder of the night. Polysomnography with PAP titration is indicated in patients with sleep apnea previously diagnosed by a clinical evaluation and either a positive PSG or a positive HST. Typically split-night studies are performed for two major reasons:

1. When a positive diagnosis (described below) of sleep apnea (obstructive, central or mixed) can be made within the first 4 hours of polysomnography. This could include emergency protocols where patient’s apnea is not safe to continue testing without PAP treatment.

2. In patients with a prior history of OSA who need an updated polysomnography and PAP titration.

For Positive Airway Pressure (PAP) titration, a split-night study (initial diagnostic polysomnogram followed by PAP titration during polysomnography on the same night) is an alternative to one full night of diagnostic polysomnography, followed by a second night of titration for the treatment of obstructive sleep apnea (OSA) if the following criteria are met:

A positive test for OSA is established if either of the following criteria using the Apnea-Hypopnea Index (AHI) or Respiratory Disturbance Index (RDI) is met:

- AHI or RDI greater than or equal to 15 events per hour, or
- AHI or RDI greater than or equal to 5 and less than or equal to 14 events per hour with documented symptoms of excessive daytime sleepiness, impaired cognition, mood disorders or insomnia, or documented hypertension, ischemic heart disease, or history of stroke.

- There are at least three hours for PAP titration prior to the end of the test.
- Procedure code 95811 alone should be billed for split-night studies as 95811 in this...
instance is inclusive of 95810. (Polysomnography; age 6 years or older, sleep staging with 4 or more additional parameters of sleep).

Effective for claims with dates of service on and after March 13, 2008, Coverage of CPAP therapy will be allowed when used in adult patients based upon a diagnosis of OSA by PSG or HST as contained in section 240.4 of Pub 100-03 of the Medicare NCD Manual. (See the DME MAC local coverage determination for “Positive Airway Pressure (PAP) Devices for the Treatment of Obstructive Sleep Apnea” for coverage of PAP devices.)

PAP based on clinical diagnosis alone or using a diagnostic procedure other than PSG or Type II, Type III, Type IV HST measuring at least three channels, or an HST device measuring three or more channels that include actigraphy, oximetry, and peripheral arterial tone is covered only when provided in the context of a clinic study pursuant to CMS Coverage with Evidence Development as described in CMS Publication 100-03, Medicare NCD Manual, Section 240.4.

There is limited coverage of a custom fabricated mandibular advancement oral appliance (E0486) used to treat obstructive sleep apnea (OSA) if the applicable DME policy criteria (A-D) and other limitations are met. Criteria include and not limited to the treating physician must review the report of the sleep test and the device is provided and billed for by a licensed dentist (DDS or DMD).

2. Narcolepsy – This term refers to a syndrome that is characterized by abnormal sleep tendencies, e.g., excessive daytime sleepiness or disturbed nocturnal sleep. Related diagnostic testing is covered if the patient has inappropriate sleep episodes or attacks (e.g., while driving, in the middle of a meal, in the middle of a conversation), amnesiac episodes, continuous disabling drowsiness and/or cataplexy. The sleep disorder clinic must submit documentation that this condition is severe enough to interfere with the patient’s well-being and health before Medicare benefits may be provided for diagnostic testing.

Narcolepsy can occur with and without cataplexy (sudden, brief loss of muscle tone with retained consciousness precipitated by strong emotion).

A clinical history, sleep diaries, PSG, and MSLT are key items in the evaluation of narcolepsy. PSG followed by MSLT is useful in confirming the clinical impression. Narcoleptic patients often report disrupted sleep, and PSG often confirms fragmented sleep patterns. Ordinarily, a diagnosis of narcolepsy can be confirmed by demonstrating mean sleep latency of 8 minutes or less and two or more sleep onset sleep periods on prior night PSG and MSLT.

The diagnosis of narcolepsy is usually confirmed by PSG followed by a MSLT. The following measurements are normally required to diagnose narcolepsy:

- PSG assessment of the quality and quantity of nighttime sleep and to exclude alternate pathology such as OSA:
• MSLT derived mean sleep latency;
• The number of REM onset sleep episodes on the PSG and MSLT.

3. Other Respiratory Disorders • This diagnostic category includes breathing disorders that are not principally defined by obstructive or central apnea/hypopnea or the upper airways resistance syndrome.

PSG is indicated for patients with neuromuscular disorder and sleep-related symptoms to evaluate symptoms of sleep disorder that are not adequately diagnosed by obtaining a sleep history, assessing sleep hygiene, and reviewing sleep diaries.

PSG and HST are not indicated to diagnose chronic lung disease. Nocturnal hypoxemia in patients with chronic obstructive, restrictive, or reactive lung disease is usually adequately evaluated by oximetry and does not require PSG or HST. However, if the patient’s symptoms suggest a diagnosis of obstructive sleep apnea or periodic limb movement disorder, indications for PSG are the same as for those disorders in patients without chronic lung disease.

4. Parasomnia • Parasomnias are a group of conditions that represent undesirable or unpleasant occurrences during sleep. Behavior during these times can often lead to damage to the surroundings and injury to the patient or to others. Parasomnia may include conditions such as sleepwalking, sleep terrors, and rapid eye movement (REM) sleep behavior disorders. In many of these cases, the nature of these conditions may be established by careful clinical evaluation. Suspected seizure disorders as possible cause of the parasomnia are appropriately evaluated by standard or prolonged sleep EEG studies. In cases where seizure disorders have been ruled out and in cases that present a history of repeated violent or injurious episodes during sleep, polysomnography may be useful in providing a diagnostic classification or prognosis. In parasomnia, PSG is routinely indicated:

• To assist with the diagnosis of paroxysmal arousals or other sleep disruptions that are thought to be seizure related when the initial clinical evaluation and results of a standard EEG are inconclusive.

• In evaluating sleep-related behaviors that are violent or otherwise potentially injurious to the patient or others.

• When evaluating patients with sleep behaviors suggestive of parasomnias that are unusual or atypical because of the patient’s age at onset: the time, duration, or frequency of occurrence of the behavior; or the specifics of the particular motor patterns in question (e.g. stereotypical, repetitive, or focal).

In parasomnia, PSG may be indicated under the following circumstances:

• In situations with forensic considerations (e.g. if onset follows trauma or if the events
themselves have been associated with personal injury).

· When the presumed parasomnia or sleep-related epilepsy does not respond to conventional therapy.

· PSG is not routinely indicated in cases of typical, uncomplicated, and non-injurious parasomnias when the diagnosis is clearly delineated.

5. Restless Legs Syndrome and Periodic Limb Movement Disorder  
Restless legs syndrome is a neurologic disorder characterized by disagreeable leg sensations that usually occur at rest or before sleep and are alleviated by motor activity. Periodic limb movements are involuntary, stereotypic, repetitive limb movements that may occur during sleep and usually involve the legs and, occasionally, the arms. Periodic limb movements during sleep often accompany restless legs syndrome. Periodic limb movement disorder is a sleep disorder characterized by periodic limb movements that cause frequent arousals and lead to insomnia or excessive daytime sleepiness. The results of PSG studies from patients with severe restless legs syndrome often show prolonged sleep latencies, decreased sleep efficiency, increased number of awakenings, significant reductions in total sleep time, and decreased amounts of slow-wave sleep. Patients with periodic limb movement disorder often have frequent periodic limb movements that are associated with arousals and awakenings, reduced total sleep time, and decreased sleep efficiency.

PSG is indicated when a diagnosis of periodic limb movement disorder is considered because of complaints by the patient or an observer of repetitive limb movements during sleep and frequent awakenings, fragmented sleep, difficulty maintaining sleep, or excessive daytime sleepiness.

Limitations of Coverage:

· Actigraphy measures the movement of a limb. It can be measured as part of a sleep test but will not be paid for separately. Actigraphy is a non-covered service when is not done as part of a sleep test or when it is used for monitoring (CPT® 95803 -Actigraphy testing, recording, analysis, interpretation, and report (minimum of 72 hours to 14 consecutive days of recording).
· HSTs may be used in addition to a face to face clinical assessment by the treating physician, Epworth Sleepiness Scale, and physical examination to diagnose Obstructive Sleep Apnea (OSA) specifically; it is intended only for those patients who exhibit clinical signs and symptoms of OSA. HST is not intended to be used for the diagnosis of narcolepsy, other respiratory disorders, impotence, parasomnia, restless legs syndrome, or periodic limb movements of sleep. HST is not intended to be used for patients with comorbidities: congestive heart failure, hypo-ventilation syndrome, moderate to severe pulmonary disease, or neuromuscular disease.
· MLST is not routinely indicated for most patients with sleep apnea.
· PSG is not routinely indicated to diagnose or treat restless legs syndrome, or for patients
with epilepsy without specific complaints consistent with a sleep disorder.
• Sleep studies and polysomnography are not indicated in the management of chronic insomnia. However, if sleep apnea is suspected as a contributing factor, then sleep studies and polysomnography may be considered.
• Testing for Circadian rhythm sleep disorders is not covered. Circadian rhythm sleep disorders result from a mismatch between an individual’s sleep pattern and the timing and amount of sleep that the person desires, needs, requires, or expects. The six types of rhythm disorders are time zone change (jet lag) disorder, shift work disorder, irregular sleep-wake patterns, delayed sleep-phase syndrome, advanced sleep-phase syndrome, and non-24-hour sleep-wake disorder.
• There is limited coverage for oral appliances as outlined in the DME MAC LCD Oral Appliances for OSA (L28620). Polysomnography and/or Home Sleep Testing for evaluation or titration of a noncovered oral appliance are not covered services.

CPT/HCPCS Codes

Group 1 Paragraph: N/A

Group 1 Codes:

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 SLEEP STUDY, SIMULTANEOUS RECORDING OF VENTILATION, RESPIRATORY EFFORT, ECG OR HEART RATE, AND OXYGEN SATURATION, ATTENDED BY A TECHNOLOGIST
95807 ADDITIONAL PARAMETERS OF SLEEP, ATTENDED BY A TECHNOLOGIST
95808 POLYSOMNOGRAPHY: ANY AGE, SLEEP STAGING WITH 1-3
95809 WITH 4 OR MORE ADDITIONAL PARAMETERS OF SLEEP, ATTENDED BY A TECHNOLOGIST
95810
Group 2 Codes:
95811 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 BILEVEL VENTILATION, ATTENDED BY A TECHNOLOGIST

Group 3 Paragraph: N/A

Group 3 Codes:
95805 MULTIPLE SLEEP LATENCY OR MAINTENANCE OF WAKEFULNESS TESTING, RECORDING, ANALYSIS AND INTERPRETATION OF PHYSIOLOGICAL MEASUREMENTS OF SLEEP DURING MULTIPLE TRIALS TO ASSESS SLEEPINESS

Group 4 Paragraph: Unattended sleep studies: 95800, 95801, 95806 (in facility) and G0398, G0399, and G0400 (home)

Group 4 Codes:
95800 SLEEP STUDY, UNATTENDED, SIMULTANEOUS RECORDING; HEART RATE, OXYGEN SATURATION, RESPIRATORY ANALYSIS (EG, BY AIRFLOW OR PERIPHERAL ARTERIAL TONE), AND SLEEP TIME
95801 SLEEP STUDY, UNATTENDED, SIMULTANEOUS RECORDING; MINIMUM OF HEART RATE, OXYGEN SATURATION, AND RESPIRATORY ANALYSIS (EG, BY AIRFLOW OR PERIPHERAL ARTERIAL TONE)
95806 SLEEP STUDY, UNATTENDED, SIMULTANEOUS RECORDING OF, HEART RATE, OXYGEN SATURATION, RESPIRATORY AIRFLOW, AND RESPIRATORY EFFORT (EG, THORACOABDOMINAL MOVEMENT)
G0398 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
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

HOME SLEEP TEST (HST) WITH TYPE IV PORTABLE MONITOR, UNATTENDED: MINIMUM OF 3 CHANNELS
G0400

**Group 5 Paragraph:** Group V – Not covered

**Group 5 Codes:**

- ACTIGRAPHY TESTING, RECORDING, ANALYSIS,
- INTERPRETATION, AND REPORT (MINIMUM OF 72 HOURS TO 14 CONSECUTIVE DAYS OF RECORDING)
- 95803

**Documentation Requirements**

Supporting documentation must be made available to the contractor upon requests and should include the following at a minimum:

- The medical record must document that prior to ordering the tests, the patient received a face-to-face clinical evaluation by the treating physician. The evaluation must include:
  1. A sleep history and physical examination including, but not limited to, snoring, daytime sleepiness, observed apneas, choking or gasping during sleep, morning headaches; and,
  2. Epworth sleepiness scale; and,
  3. Physical examination that documents body mass index, neck circumference and a focused cardiopulmonary and upper airway evaluation.

- When billing for a sleep disorder test, the ordering physician’s NPI must be indicated on the claim form and the order kept on record.
- Every page of the records must be legible and include appropriate patient identification. The documentation must include legible signature of the physician and/or non-physician practitioner responsible for providing care to the patient.
- The center/laboratory must maintain and provide upon request sufficient documentation that the narcolepsy patient is severe enough to interfere with the patient’s well-being and health before benefits are provided for diagnostic testing.
- Documentation must support that the accreditation, credentialing, and training requirements as stated in this LCD were met for the clinic, technologist, and physician.
- The medical record must support the level of service billed. Each parameter monitored
should be identified in the medical record.

- The complete medical record including the history and physical and results from all previous and current sleep testing, PSG, and/or HST testing within the previous three years must be submitted to support the need for services exceeding the parameters identified in the “Utilization Guidelines” section of this LCD.
- Regarding services and items listed in this LCD, an advanced beneficiary notice (ABN) is required for any items or services that do not meet the threshold for a reasonable and necessary (R&N) service under Medicare.Beneficiaries should be thoroughly educated about the benefits and risks of this item or service, in addition to the financial liability. Modifier GA must be used when physicians, practitioners, or suppliers want to indicate that they expect that Medicare will deny a service as not reasonable and necessary and they do have on file an ABN signed by the beneficiary. If such notice is not given, providers may not shift financial liability for such items or services to beneficiaries after a service is denied for R&N by Medicare. The ABN must be available to the contractor when requested.

**Utilization Guidelines**

More than one HST to establish the diagnosis of OSA would not be expected. If more than one HST session is performed for suspected OSA, persuasive medical evidence justifying the medical necessity for the additional tests will be required. Similarly, a repeat PSG must meet the indications in the LCD and must be clearly supported in the medical record. Services performed in excess of established parameters, will be subject to prepay medical review.

Initial PSG and MSLT occasionally fail to identify narcolepsy. Repeat PSG may be indicated if:

- The first study is technically inadequate due to equipment failure;
- The subject could not sleep or slept for an insufficient amount of time to allow a clinical diagnosis;
- Initiation of therapy or confirmation of the efficacy of prescribed therapy is needed; or
- The results were inconclusive or ambiguous.

A single PSG is usually sufficient to titrate PAP therapy. Assuming an unattended portable monitoring or auto-titrating PAP device does not provide sufficient data, a single PSG is sufficient to titrate PAP therapy. Repeat PSG should not be routinely indicated for the assessment of treatment results in patients whose symptoms continue to be resolved with PAP treatment. Repeat PSG or PSG with CPAP titration may be indicated in the following circumstances:

1. After surgical treatment of patients with OSA, to ensure satisfactory response; or
2. After surgical treatment of patients with OSA whose symptoms return despite a good initial response to treatment.
3. After substantial weight loss has occurred in patients on PAP for treatment of OSA to ascertain whether PAP is still needed at the previously titrated pressure;
4. After substantial weight gain has occurred in patients previously treated with PAP successfully, who are again symptomatic despite the continued use of PAP, to ascertain whether pressure adjustments are needed; or

5. When clinical response is insufficient or when symptoms return despite a good initial response to treatment with PAP

6. Initial CPAP was not tolerated and BPAP is to be used in lieu of CPAP

Ordinarily, a single PSG or HST can diagnose adult OSA. However, if the beneficiary’s treating physician has good reason to believe that the result of an HST is insufficient in light of the beneficiary’s clinical findings, a subsequent diagnostic PSG could be performed. Such retest decisions would be made on a case-by-case basis. The routine use of a two test routine (HST followed by PSG) to diagnose sleep apnea would not be considered reasonable and necessary. If more than one PSG or HST diagnostic testing session is claimed, persuasive medical evidence justifying the medical necessity for the additional tests will be required.

There are some situations in which it may be necessary for a provider to perform diagnostic and titration services on consecutive nights, it would be unusual for a provider to do so routinely. Providers showing this utilization trend would be subject to medical review.

As noted, there is limited coverage of a custom fabricated mandibular advancement oral appliance (E0486) used to treat obstructive sleep apnea (OSA) assuming all criteria and limitations are met in the applicable DME MAC LCD and article. The utilization guidelines of HST/polysomnography noted above applicable to a patient utilizing a covered appliance in lieu of CPAP therapy would apply for reasonable and necessary services. As noted under limitations - Polysomnography and or Home Sleep Testing for evaluation or titration of a noncovered oral appliance are not covered services.