

The Department of Vermont Health Access Medical Policy

Subject: Sleep Study: Facility Based **AND** Unattended/Home Sleep Test

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Description of Service or Procedure

Sleep Study refers to the continuous and simultaneous monitoring and recording of various parameters and stages of sleep for a total of 6 or more hours. It requires a physician review, interpretation and a report.

Facility based sleep study is performed in a sleep laboratory, hospital, or other dedicated unit and is supervised by a sleep technologist. Sleep studies record neurophysiologic and cardiorespiratory data points. The data points are read by a trained technologist and interpreted by a sleep physician after the test has been completed. The test is used to diagnose sleep apnea and to determine its severity.

Unattended sleep studies are utilized as an alternative diagnostic test for the diagnosis of known or suspected obstructive sleep apnea (OSA). It is the alternative to a facility based sleep study and is performed in the home. Unattended sleep study test results are equivalent to facility-based sleep study for diagnosis, treatment and outcomes for individuals with suspected OSA. The data points are read by a trained technologist and interpreted by a sleep physician after the test has been completed. The test is used to diagnose sleep apnea and to determine its severity.

OSA is a potentially serious sleep disorder in which breathing repeatedly stops and starts during sleep. Several types of sleep apnea exist, but the most common type is obstructive sleep apnea, which occurs when your throat muscles intermittently relax and block your airway during sleep creating snoring/gasping or choking sounds.

Apnea is the cessation or near cessation of respiration for a minimum of 10 seconds.

Apnea-hypopnea index (AHI) is the number of apneas or hypopneas recorded during the study per hour of sleep. It is generally expressed as the number of events per hour. Based on the AHI, the severity of OSA is classified either, mild, moderate, or severe. OSA is associated with: observed apneas, excessive daytime sleepiness or sleepiness that interferes with daily activities, or habitual snoring, gasping or choking episodes associated with awakenings.



Sometimes the Respiratory Disturbance Index (RDI) is used. This can be confusing because the RDI includes not only apneas and hypopneas, but may also include other, more subtle, breathing irregularities. This means a person's RDI can be higher than his or her AHI.

The following AHI levels are used for the diagnosis of OSA:

- Mild OSA: AHI between 5 and 15
- Moderate OSA: AHI > 15
- Severe OSA: AHI > 30

Multiple Sleep Latency Test (MSLT) is a tool used to assess daytime functioning as an index of the adequacy of sleep. MSLT is indicated as part of the evaluation of patients with suspected narcolepsy and may be useful in the evaluation of patients with suspected idiopathic hypersomnia. MSLT involves repeated measurement of sleep latency (time to onset of sleep) under standardized conditions during a day following quantified nocturnal sleep. The use of MSLT to support a diagnosis of narcolepsy is suspect if Total Sleep Time on the prior night sleep is less than 6 hours.

This MSLT is usually preceded by an overnight sleep study and is helpful in identifying any additional sleep disorders (for example, sleep apnea or periodic limb movements in sleep) that could contribute to poor quality sleep. The MSLT should not be performed after a split-night sleep study.

Consider unattended sleep study for members unable to be studied in the sleep laboratory when such a study is not possible by virtue of immobility, safety, or critical illness. When initiation of treatment is urgent and standard polysomnography is not readily available.

Unattended Sleep testing performed for the diagnosis of obstructive sleep apnea must adhere to the guidelines specified in "Clinical Guidelines for the Use of Unattended Portable Monitors in the Diagnosis of Obstructive Sleep Apnea in Adult Patients" (*Journal of Clinical Sleep Medicine*, Vol. 3, No. 7, 2007).

Disclaimer

Coverage is limited to that outlined in Medicaid Rule that pertains to the beneficiary's aid category and is only valid if the beneficiary is eligible for the applicable item or service on the date of service.

Medicaid Rule

[7102.2](#) Prior Authorization Determination

[7103](#) Medical Necessity

Medicaid Rules can be found at <http://humanservices.vermont.gov/on-line-rules>

Coverage Position

Sleep Study may be covered for beneficiaries:

- When the sleep study is prescribed by a licensed medical provider, enrolled in the Vermont Medicaid program, operating within their scope of practice in accordance with Vermont State Practice Act, who is knowledgeable in the area of sleep medicine and who provides medical care to the beneficiary AND

- Unattended sleep study is covered only for the diagnostic study of OSA and for no other indications AND
- When the clinical guidelines below are met.

Coverage Criteria

Prior to testing there must be an order from the physician and a face-to-face clinical evaluation by the treating or referred physician prior to the sleep test.

PA **is** required for a facility-based study.

PA **is not** required for an unattended sleep study/ home sleep test.

Care should be integrated into a comprehensive program of patient evaluation and treatment outlined by The American Academy of Sleep Medicine: Standards for Accreditation. This should include: appropriate health care utilization, comprehensive diagnostic assessment, accurate data collection and scoring and effective patient management.

A physician or other appropriately trained and supervised health provider is responsible for discussing the results of the test and recommendations with the patient.

Sleep study data can be manually scored by a Registered Polysomnographic Technologist (RPSGT) Sleep Technologist and validated and reported by a Board Certified Sleep Specialist.

Unattended or Home Sleep Test may be considered **medically necessary** for adult patients who have symptoms suggestive of obstructive sleep apnea (OSA), when ALL of the following criteria are met:

1. Caregiver/companion must be physically and cognitively capable of operating home testing equipment.
2. The beneficiary is capable of operating home testing equipment.
 - a. If the beneficiary is not capable of operating home testing equipment secondary to cognitive issues; please submit the clinical diagnosis that supports competency.
3. Patient or caregiver/companion should be educated in the correct application of sensors.
4. Absence of health conditions that decrease accuracy of the study. (See Facility-based criteria).
5. Limited to 1 night per testing episode.
6. Approved devices for unattended sleep study includes, a minimum of measuring oxygen saturation, respiratory movement, airflow and heart rate with at least 4 recording channels.
7. Auto-titrating CPAP machine shall be used to determine appropriate positive airway pressure parameters in lieu of a facility-based titration study.

CPAP auto-titration has been introduced as an unattended method to determine optimal CPAP settings. Auto-titrating devices provide continuous self-adjustment and recording of CPAP requirements during a single overnight session or nightly for a period of several days to weeks. CPAP auto-titration is typically used after documentation and grading of OSA by either Attended or Unattended Sleep Study. A combination of Unattended Sleep Study and CPAP auto-titration can be used to accomplish both OSA diagnosis and CPAP titration in the home.

Attended facility-based sleep study may be considered **medically necessary** for patients who have symptoms suggestive of obstructive sleep apnea and other sleep disorders, when ALL of the following criteria are met:

- Co-morbid medical conditions- uncontrolled moderate to severe pulmonary disease, neuromuscular disease, heart failure, cognitive impairment or impaired dexterity or mobility. Craniofacial or upper airway soft tissue abnormalities, including adenotonsillar hypertrophy.
- History of stroke (greater than 30 days previously), ischemic transient attack, coronary artery disease, or sustained supraventricular tachycardia or bradycardia arrhythmias.
- Unexplained hypertension: systemic hypertension is common in patients with OSA. Sleep related apneas are associated with pronounced hemodynamic changes. OSA causes pulmonary hypertension and can contribute to sleep apnea. Hypertension is associated with cardiovascular morbidity and there is increasing evidence that there is a significant relationship between resistant hypertension and OSA.
- Uncontrolled CHF Class III and IV. Class III is defined as marked limitation of physical activity. Comfortable at rest. Less than ordinary activity causes fatigue, palpitation, or dyspnea. Class IV is defined as unable to carry on any physical activity without discomfort. Symptoms of heart failure at rest. If any physical activity is undertaken, discomfort increases.
- Disruptive Sleep Behaviors can occur during arousals from REM sleep or partial arousals from non-REM sleep. These parasomnias include: nightmares, night terrors, sleepwalking, confusional arousals, restless leg syndrome (RLS) and periodic limb movement disorder (PLMD).
- Complex Sleep Disordered Breathing is a combination of central sleep apnea or complex sleep apnea.
- Suspected Narcolepsy: this test will provide evidence of sleepiness and to examine the pattern of REM sleep. This may help identify other disorders that may contribute to a patient's symptoms.
- Co-existing sleep disorder- OSA and narcolepsy, idiopathic hypersomnia, periodic limb movement disorder, or parasomnias.
- Suspected Nocturnal Seizures.
- Individual and caregiver/companion incapable of operating home testing equipment.

Clinical guidelines for repeat service or procedure

Repeat Facility-Based Sleep Studies may be considered medically necessary to assess efficacy of oral appliances/devices. Repeat facility or home sleep tests may be necessary to re-evaluate the diagnosis of OSA and need for continued positive airway pressure (CPAP), e.g., if there is a significant change in BMI (>5%) or the patient has undergone upper airway surgery or change in symptoms suggesting that CPAP should be re-titrated or possibly discontinued.

For home sleep tests a second night of testing is allowed if technical difficulties occurred during the first study.

Type of service or procedure not covered (this list may not be all inclusive)

Unattended Sleep Study is considered **investigational** in children (younger than 18 years of age) and is therefore not covered by VT Medicaid.

Unattended Sleep Study is not appropriate for general screening of asymptomatic populations.

The DVHA does not cover and will not approve sleep studies, attended or unattended, for employment purposes.

Sleep Studies are not covered for any of the following:

- chronic lung disease
- circadian rhythm disorders
- depression
- seizures in the absence of symptoms of sleep disorder
- transient or chronic insomnia
- insomnia associated with psychiatric disorders
- employment

Definitions

Apnea - cessation or near cessation of respiration for a minimum of 10 seconds.

Apnea-Hypopnea Index - the average number of episodes of apnea and hypopnea per hour without the use of a positive airway pressure device; also referred to as the respiratory disturbance index.

Cataplexy - a condition in which there are abrupt attacks of muscular weakness and hypotonia triggered by an emotional stimulus such as mirth, anger, fear or surprise.

Hypersomnolence - need for excessive amounts of sleep and sleepiness when awake.

Hypnagogic Hallucinations - vivid dream-like experiences at the time of falling asleep which the patient cannot distinguish from reality.

Hypopnea - 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% oxygen desaturation.

Insomnia - the complaint of inadequate sleep. Insomnia is subdivided into difficulty falling asleep, frequent or sustained awakenings, early morning awakenings, or persistent sleepiness despite sleep of adequate duration.

Parasomnia - a behavior disorder during sleep that is associated with brief or partial arousals but not with marked sleep disruption or impaired daytime alertness.

Periodic Limb Movement Disorder - also known as myoclonus and is characterized by involuntary, stereotypic, repetitive limb movements that may occur during sleep and usually involve the legs. This

may cause frequent arousals and leads to insomnia or excessive daytime sleepiness. PLMD is not always associated with arousals or awakenings. It is most common in individuals over the age of 65. Not everyone who has PLMD has RLS, but 80% of people who have RLS also have PLMD. Causes are: hereditary, iron deficiency, CNS problems, kidney disorders, and may be an indicator of diabetes, kidney disease and /or anemia. Diagnosis is usually from patient reported symptoms and from the sleep study that measures occurrences and scored to determine severity. Treatment may be: dopamine agonists, benzodiazepines, improved sleep hygiene, and by yoga, medication or hot bath prior to bed.

REM Sleep Behavior Disorder - a rare parasomnia that primarily afflicts men of middle age or older, many of whom have a history of prior neurological disease. Presenting symptoms are of violent behavior during sleep reported by a bed partner. In contrast to sleepwalking, injury to patient or bystander is common, and upon awakening, the patient reports vivid, often unpleasant dream imagery.

Respiratory-Arousal Index - the total number of arousals per hour of sleep from apneas, hypopneas, and periodic increases in respiratory effort. Respiratory arousals may occur in the absence of sleep apneas or hypopneas but in association with snoring due to increased upper airway resistance, a condition called upper airway resistance syndrome (UARS).

Respiratory disturbance index (RDI) - the number of apneas, hypopneas and respiratory event related arousals (RERAs) per hour of sleep. The apnea-hypopnea index (AHI) is the number of apneas and hypopneas per hour of sleep. When a portable monitor is used that does not measure sleep, the RDI refers to the number of apneas plus hypopneas per hour of recording.

Restless Leg Syndrome - a neurologic disorder characterized by disagreeable leg sensations that usually occur at rest or before sleep and are alleviated by motor activity. Patients with this dyssomnia report an irresistible urge to move their legs when awake and inactive, especially when lying in bed just prior to sleep. This interferes with the ability to fall asleep. They report a creeping or crawling sensation deep within the calves or thighs, or sometimes even in the upper limbs, that is only relieved briefly by movement, particularly walking. Nearly all patients with restless legs also experience periodic limb movement disorder during sleep, although the reverse is not the case. Primary causes cannot be found and it is usually hereditary. Secondary causes by another disease or condition or side effect of certain medications such as: iron deficiency (with or without anemia), kidney failure, diabetes, Parkinson's disease, peripheral neuropathy, rheumatoid arthritis, pregnancy and SSRI's. RLS can be diagnosed from patient reports of symptoms and a facility-based sleep study and the use of the RLS rating scale.

Sleep Bruxism - an involuntary, forceful, grinding of the teeth during sleep that affects 10-20 percent of the population. The patient is usually aware of the problem with a typical age of onset at 17-20 years of age with spontaneous remission usually occurring by age 40.

Sleep Enuresis - bedwetting. Before age five or six, nocturnal enuresis should probably be considered a normal feature of development. The condition usually spontaneously improves at puberty, has prevalence in late adolescence of one to three percent, and is rare in adulthood.

Sleep paralysis - the experience of being awake but unable to move that usually occurs near sleep onset or offset and lasts a few seconds.

Sleep Terrors - a disorder primarily occurring in children that is characterized by the child's sudden screaming and exhibition of autonomic arousal with sweating, tachycardia and hyperventilation. The individual may be difficult to arouse and rarely remembers the episode on awakening in the morning.

Snoring - a rough, rattling, inspiratory noise produced by vibration of the pendulous palate, or sometimes of the vocal cords, during sleep or coma.

Somnambulism - sleepwalking that is usually characterized by the carrying out of automatic motor activities that range from minor to complex.

Somniloquy - the act of talking during sleep or in a hypnotic condition.

Upper Airway Resistance Syndrome (UARS) - a type of sleep apnea in which the patient demonstrates heavy snoring (stridor) without true hypopnea/apnea episodes.

Wakefulness Test - measurement of the ability to stay awake while the patient sits up in a dimly lit room (also referred to as Maintenance of Wakefulness Test (MWT)).

Restless Legs Syndrome Rating Scale

The International Restless Legs Syndrome Study Group. Validation of the International Restless Legs Syndrome Study. Group Rating Scale for restless legs syndrome. *Sleep Med* 2003;4(2):121-132.

INSTRUCTIONS FOR EXAMINER

A. Patients must meet International Restless Legs Syndrome Study Group (IRLSSG) criteria for the diagnosis of Restless Legs Syndrome (RLS) before administration of the questionnaire as follows:

International RLS Study Group criteria for the diagnosis of RLS

- a. Desire to move the extremities usually associated with discomfort or disagreeable sensations in the extremities.
- b. Motor Restlessness—patients move to relieve the discomfort, for example walking, or to provide a counter-stimulus to relieve the discomfort, for example, rubbing the legs.
- c. Symptoms are worse at rest with at least temporary relief by activity.
- d. Symptoms are worse later in the day or at night.

Exception—If the patient previously met IRLSSG criteria and has undergone a spontaneous remission or is participating in a drug study with subsequent significant alteration of symptoms.

Exception—The patient at one time got relief of symptoms by activity but is now so severe that no such relief is possible.

Exception—The patient at one time was worse later in the day or at night, but is now so severe that symptoms are equal day and night.

Exception—The questionnaire may also be administered to normal controls.

Have the patient rate his/her symptoms for the following ten questions. The patient and not the examiner should make the ratings, but the examiner should be available to clarify any misunderstandings the patient may have about the questions. Either the examiner or the patient may mark the answers on the form.

1. Overall, how would you rate the RLS discomfort in your legs or arms?
 - (4) Very severe
 - (3) Severe
 - (2) Moderate
 - (1) Mild
 - (0) None

2. Overall, how would you rate the need to move around because of your RLS symptoms?
 - (4) Very severe
 - (3) Severe
 - (2) Moderate
 - (1) Mild
 - (0) None

3. Overall, how much relief of your RLS arm or leg discomfort do you get from moving around?
 - (4) No relief
 - (3) Slight relief
 - (2) Moderate relief
 - (1) Either complete or almost complete relief
 - (0) No RLS symptoms and therefore question does not apply

4. Overall, how severe is your sleep disturbance from your RLS symptoms?

- (4) Very severe
- (3) Severe
- (2) Moderate
- (1) Mild
- (0) None

5. How severe is your tiredness or sleepiness from your RLS symptoms?

- (4) Very severe
- (3) Severe
- (2) Moderate
- (1) Mild
- (0) None

Restless Legs Syndrome Rating Scale

6. Overall, how severe is your RLS as a whole?

- (4) Very severe
- (3) Severe
- (2) Moderate
- (1) Mild
- (0) None

7. How often do you get RLS symptoms?

- (4) Very severe (This means 6 to 7 days a week.)
- (3) Severe (This means 4 to 5 days a week.)
- (2) Moderate (This means 2 to 3 days a week.)
- (1) Mild (This means 1 day a week or less.)
- (0) None

8. When you have RLS symptoms, how severe are they on an average day?

- (4) Very severe (This means 8 hours per 24 hour day or more.)
- (3) Severe (This means 3 to 8 hours per 24 hour day.)
- (2) Moderate (This means 1 to 3 hours per 24 hour day.)
- (1) Mild (This means less than 1 hour per 24 hour day.)
- (0) None

9. How severe is the impact of your RLS symptoms on your ability to carry out your, for example, carrying out a satisfactory family, home, social, school, or work life?

Overall daily affairs

- (4) Very severe
- (3) Severe
- (2) Moderate
- (1) Mild
- (0) None

10. How severe is you're RLS symptoms—for example angry, depressed, sad, anxious, or irritable?
mood disturbance

- (4) Very severe

- (3) Severe
- (2) Moderate
- (1) Mild
- (0) None

Very severe=31-40 points

Severe=21-30 points

Moderate=11-20 points

Mild=1-10 points

None=0 point

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