Medical Affairs Policy

**Service:** Sleep Disorder Testing (Polysomnogram, Split Night Polysomnogram, Sleep Study, Multiple Sleep Latency Test (MSLT), Maintenance of Wakefulness Testing (MWT), Home Sleep Apnea Test (HSAT) Home sleep study testing (HST), Actigraphy, Pulse Oximetry, Apnea Link™ devices

**PUM 250-0030**

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**Disclaimer:** This policy is for informational purposes only and does not constitute medical advice, plan authorization, an explanation of benefits, or a guarantee of payment. Benefit plans vary in coverage and some plans may not provide coverage for all services listed in this policy. Coverage decisions are subject to all terms and conditions of the applicable benefit plan, including specific exclusions and limitations, and to applicable state and federal law. Some benefit plans administered by the organization may not utilize Medical Affairs medical policy in all their coverage determinations. Contact customer services as listed on the member card for specific plan, benefit, and network status information.

Medical policies are based on constantly changing medical science and are reviewed annually and subject to change. The organization uses tools developed by third parties, such as the evidence-based clinical guidelines developed by MCG to assist in administering health benefits. This medical policy and MCG guidelines are intended to be used in conjunction with the independent professional medical judgment of a qualified health care provider. To obtain additional information about MCG, email medical.policies@wpsic.com.

**Description:**

Sleep disorders include conditions such as obstructive sleep apnea (OSA) (blockage of the upper airway causes breathing irregularities during sleep), narcolepsy (recurring sudden periods of sleep which may be associated with disrupted nocturnal sleep), and insomnia (inability to sleep). Various tests are used to evaluate the presence and degree of a particular sleep disorder. The most commonly performed test is the polysomnogram (PSG) to diagnose Obstructive Sleep Apnea.

There are many risk factors, conditions, symptoms, and physical findings that have been identified and studied in an effort to predict whether an individual has sleep apnea or other sleep disorders. Physical night time symptoms, daytime sleepiness symptoms, and pertinent physical findings are all considered as these findings in combination may be linked to an increased risk of sleep apnea. The American Academy of Sleep Medicine (AASM) recommends a thorough sleep history and physical examination that includes the respiratory, cardiovascular, and neurologic systems, to determine whether OSA symptoms are present and whether further evaluation is necessary.

There are a variety of questionnaires and scoring tools available to aid in determining the need for a sleep study. The Epworth Sleepiness Scale has been validated and is endorsed by the AASM to help identify sleepy patients and comorbid disorders of sleepiness. Berlin scoring tool is widely used. The STOP-BANG was developed to screen for anesthesia related risk and accurately identifies individuals who would benefit from a more comprehensive health history, sleep related history, and physical exam as recommended.
by the AASM. Due to the high rate of false positive results with screening questionnaires, these scores alone are not acceptable as sole criteria for polysomnogram approval.

Sleep disorder testing services include:

➢ **Polysomnogram (PSG):** The sleep laboratory study, Home Sleep Apnea Test (HSAT) also known as a Home Sleep Study Test (HST), or Out-of-Center Sleep Testing (OCST), involves the measurement of multiple hemodynamic parameters to evaluate episodes of sleep disorders.

➢ A **split night sleep study** is a polysomnogram performed in a sleep laboratory followed that same night by polysomnography with continuous positive airway pressure devices (e.g. CPAP).

The American Academy of Sleep Medicine recommends, when OSA is identified during a laboratory sleep study, that a split-night PSG study is considered the most effective evaluation and trial treatment. **If CPAP titration cannot be completed on the same night, documentation of the reason for a separate night for CPAP titration should be submitted with the request for the titration study.** See Section E of this policy. If an apnea hypopnea index (AHI) of 40 per hour or greater is obtained within the first two hours of sleep during an in-laboratory study on an adult, a split night study with titration should be performed that night.

➢ **Actigraphy** is an evaluation of sleep quality, usually performed with a portable device worn on the wrist-used for diagnosis of conditions such as circadian rhythm disorders.

➢ **Maintenance of Sleep Wakefulness (MWT)** involves the measurement of multiple hemodynamic parameters to evaluate an individual’s ability to remain awake.

➢ **Multiple Sleep Latency Test (MSLT)** or “nap test” involves the measurement of multiple hemodynamic parameters to evaluate daytime levels of sleepiness through a series of nap trials

➢ **Pulse oximetry** is an evaluation of the heart rate and blood oxygen content.

**Definitions:**

➢ **Apnea** is defined as ≥90 percent reduction in peak signal excursion of the airflow sensor for ≥10 seconds on the recording device. Witnessed apnea is defined as an observed period of temporary cessation of breathing (typically 10 seconds or more)

➢ **Hypopnea** is defined as ≥30% reduction in excursion of the airflow sensor lasting for ≥10 seconds and associated with 3 percent oxygen desaturation on the recording device.
Apnea Hypopnea Index (AHI) is defined as the number of obstructive apneas and hypopneas per hour of recorded sleep. This is typically reported as the average number of apneas and hypopneas per hour during a (two-hour minimum) polysomnogram. AHI = (Hypopneas + Apneas) X 60 / Total Sleep Time (TST) in minutes.

Central Apnea is defined as a cessation of airflow for at least 10 seconds. The event is central if, during the apnea, there is no effort to breathe identified on the recording device.

Respiratory Disturbance Index (RDI) is defined as the total number of apneas, hypopneas, and respiratory event-related arousals (RERA’s) per hour of sleep. An RDI reported on a home study includes only apnea and hypopneas because RERA’s cannot be calculated in a home study. **RDI values are not equivalent to AHI values.** However, the home RDI score may be roughly equivalent to AHI score because the score does not include RERA’s. The more appropriate term is Respiratory Event Index (REI).

Respiratory Event Index (REI) index is used to describe the number of apneas and hypopneas when using a Home Sleep Apnea Test (HSAT) per total recording time.

Respiratory event-related arousals (RERA’s) are respiratory event related arousals from sleep that may be seen during a sleep study with EEG. The degree of hypoxia is not low enough to fulfill the criteria for apnea or hypopnea, but does result in brief arousal.

Monitoring Devices are classified by technologic capability. Sleep studies, whether in a facility or performed at home, may have the following components: electroencephalogram (EEG) to measure brain activity, electrooculogram (EOG) to monitor eye movements, electromyogram (EMG) to monitor muscle movements, electrocardiogram (EKG) to monitor heart rate and rhythm, blood oxygen saturation, breathing effort or respiratory disturbance index (RDI), and airflow monitors. Chest and abdomen movements are also sometimes monitored.

Classification is based on the number of sleep related parameters (channels) the device can measure. Portable monitoring devices vary widely in their technology and manufacturer description of channels. Type I devices are the most complex devices used primarily in laboratory technician attended overnight PSG. They measure multiple physiologic parameters. Portable monitoring devices used in home studies monitor fewer parameters. Type II portable monitor devices typically measure and record a minimum of 7 channels. Type III portable monitor devices measure and record a minimum of 4 channels. Type IV portable monitor devices have a minimum of 3 channels.

For the purposes of this policy, Type II portable monitor devices must have a minimum of 7 channels which include EEG, EOG, EMG, ECG/heart rate, airflow, respiratory
effort and O2 saturation. Type III portable monitor devices must have capability to measure and record a minimum of 4 channels including two measures of respiratory movement/airflow, one measure of ECG/heart rate and one measure of O2 saturation. Type IV devices have insufficient parameters and are considered not medically necessary.

➢ An AutoPAP device (APAP) can be used to titrate PAP therapy in the comfort of a patient’s home. The device is set up within a wide range of pressures and the patient is sent home to use the device for a specified amount of time (usually 2-4 weeks). The devices for this purpose are equipped with computer chips that can store usage patterns and the best average pressure needed for a patient to be relieved of breathing events during sleep. This information can then be used to determine the fixed CPAP pressure for a CPAP device. In some instances, the patient will continue to use the APAP device to treat their sleep apnea.

**Indications of Coverage:**

For purposes of this policy, the ordering provider should be a sleep medicine specialist (Diplomate of the American Board of Sleep Medicine) or any of the following Board Certified specialists: Pulmonologist Pediatrician, Internist, Family Medicine Physician, Otolaryngologist, Psychiatrist, Neurologist, or Nurse Practitioner or Physician Assistant in one of the aforementioned specialties.

For all indications, the medical record from the ordering provider should include results of a health history, focused sleep history, and focused physical exam that supports the suspicion of sleep apnea or other sleep disorder. Other causes of sleep disturbance, such as an unmanageable thyroid condition, side effects of medications, sleep schedule, difficulties in initiating or maintaining sleep, should be ruled out and addressed prior to the request for the study. Snoring alone is not an indication for a sleep study.

It is the policy of the health plan that services be administered in the least costly manner and location that are safe and appropriate for the patient. If an in-lab PSG study is requested, the request must document why a home sleep apnea test (HSAT) is not appropriate.

1. **Polysomnogram (PSG):**

   I.A. **Home Sleep Apnea Test** (HSAT) PSG (unattended for individuals over age 18) with a type II or III portable monitoring device as defined above, is indicated when: all of sections 1 through 3 are met:

   1. There are no conditions that would preclude a home study. Conditions that could affect the accuracy of the study or that may require additional in lab technology include the following:
Note: If these conditions are identified, proceed to the in-lab criteria in section I.B, I.C or I.D

a. Significant heart disease (arrhythmia-unstable or refractory to treatment, pulmonary hypertension)

b. CHF (includes NYHA class III or IV, LVEF under 45%)

c. Chronic, moderate, or severe pulmonary disease

d. Significant neurologic or neuromuscular disease (Parkinson’s disease, spina bifida, myotonic dystrophy, Amyotrophic Lateral Sclerosis (ALS), kyphoscoliosis, myasthenia gravis, polio, Guillain-Barre Syndrome

e. BMI over 40

f. Suspicion or history of complex sleep apnea, central apnea, or complex sleep disorders including narcolepsy, parasomnias, periodic limb movement disorder, cataplexy, or restless leg syndrome

g. Stroke or epilepsy

h. Comorbid sleep disorders: periodic limb movement disorder, parasomnias, narcolepsy, central sleep apnea or complex sleep apnea

i. The member or care taker does not have the physical and cognitive ability to use portable monitoring equipment at home

AND

2. One of the following criteria for PSG are met:

a. Clear documentation of witnessed apnea during sleep

OR

b. Report of having fallen asleep while driving a motor vehicle

OR

c. Epworth sleep score of 10 or higher AND at least one of the following:

1. Gasping/choking that awakens the individual or sleep partner
2. Significant or “Heroic” snoring on a regular basis: typically defined as snoring loud enough to be heard 2 rooms away from the sleeper

**OR**

d. One of the following physical sleep symptoms:

1. Gasping/choking that awakens the individual or sleep partner

2. Significant or “Heroic” snoring on a regular basis: typically defined as snoring loud enough to be heard 2 rooms away from the sleeper

**AND**

any two or more of the following:

1. Report of having fallen asleep while at the workplace

2. Neck size of > 17 inches (males) > 16” (females)

3. BMI over 30

4. Mallampati Score of 3 or higher (scale of 1-4)

5. Marked retrognathia, crowding of the oropharynx or other structural abnormality that constricts the upper airway

6. Hypertension: difficult to control (defined as hypertensive despite a maximum dose of 3 antihypertensive agents) while compliant with medical therapy

3. The device being used is a type II or III portable monitor device as defined above

Note: The ApneaLink Plus with Oximetry meets criteria for a type III portable device monitor. Many earlier models do not have the appropriate channels to meet criteria.

➢ **Note: Only one night (one unit) of home sleep study will be approved (regardless of how many nights are recorded)**

**REMINDER:** It is the policy of the health plan that services be administered in the least costly manner and location that are safe and appropriate for the patient. If an in-lab PSG study is requested, the request must document why a home sleep apnea test (HSAT) is not appropriate.
I.B. In Laboratory PSG for the evaluation of apnea in adults is considered medically necessary when one of the criteria below are met:

1. Clear documentation of witnessed apnea during sleep

   OR

2. Report of having fallen asleep while operating a motor vehicle

   OR

3. Epworth sleepiness score of 10 or higher AND at least one of the following sleep symptoms:
   a. Gasping/choking that awakens the individual or sleep partner
   b. Significant or “Heroic” snoring on a regular basis: typically defined as snoring loud enough to be heard 2 rooms away from the sleeper

   OR

4. Gasping/choking that awakens the individual or sleep partner OR significant or “Heroic” snoring on a regular basis: typically defined as snoring loud enough to be heard 2 rooms away from the sleeper AND any two of the following:
   a. Report of having fallen asleep while at the workplace
   b. Neck size of > 17inches (males) >16” (females)
   c. BMI over 30
   d. Mallampati Score of 3 or higher (scale of 1-4)
   e. Marked retrognathia, crowding of the oropharynx or other structural abnormality that constricts the upper airway
   f. Hypertension: difficult to control (defined as hypertensive despite a maximum dose of 3 antihypertensive agents) while compliant with medical therapy

I.C. In Laboratory PSG for apnea in a patient with co-morbid conditions is considered medically necessary when the following are met:

1. One or more of the following significant co-morbid conditions is documented:
a. Significant COPD or other chronic, moderate, or severe lung disease

b. Presence of cardiac arrhythmias- unstable or refractory to treatment,

c. Unexplained pulmonary hypertension

d. Body mass index (BMI) over 40

e. Cerebrovascular disease

f. Congestive Heart Failure (CHF) (includes NYHA class III or IV, LVEF under 45%)

g. Significant heart disease (arrhythmia-unstable or refractory to treatment, pulmonary hypertension)

h. Significant neurologic or neuromuscular disease (Parkinson’s disease, spina bifida, myotonic dystrophy, Amyotrophic Lateral Sclerosis (ALS), kyphoscoliosis, myasthenia gravis, polio, Guillain-Barre Syndrome

i. Suspicion or history of complex sleep apnea, central apnea, or complex sleep disorders including narcolepsy, parasomnias, periodic limb movement disorder, cataplexy, or restless leg syndrome

j. Stroke

k. Epilepsy

l. Comorbid sleep disorders: periodic limb movement disorder, parasomnias, narcolepsy, central sleep apnea or complex sleep apnea

AND

2. Any one of the following are met:

a. Clear documentation of witnessed Apnea during sleep

b. Report of having fallen asleep while driving

c. Gasp/ choking associated with awakening “Heroic” snoring

d. Mallampati score of 3 or higher

e. Neck size of >17 inches (males) >16” (females)

f. Marked retrognathia
g. Crowding of the oropharynx

h. Structural abnormality that constricts the upper airway

i. Epworth score of 10 or higher

j. Report of having fallen asleep while at the workplace

I.D. PSG (in laboratory unless specified) is considered medically necessary for the evaluation of any of the following conditions when these conditions are the only described conditions:

1. Narcolepsy, which is characterized by Excessive Daytime Sleepiness (EDS), sleep paralysis, hypnagogic hallucinations (hallucinations occurring immediately prior to sleep), hypnopompic hallucinations (upon awakening), recurrent daytime naps or lapses into sleep for over 3-month period, cataplexy (sudden bilateral loss of postural tone associated with intense emotion).

2. To evaluate violent or injurious behavior to self or sleep partner during sleep: including seizures or rapid eye movement (REM) behavior disorder (violent dreams or vocalization during REM sleep)

3. History of or clinical features associated with central sleep apnea (CSA) (e.g. Cheyne-Stokes breathing, hyper or hypo-ventilation associated with respiratory disease, central nervous system disease or neuromuscular diseases)

4. Adult with obesity hypoventilation syndrome suspected as documented by all of the following:
   a. BMI greater than 30
   b. Daytime hypercapnia with PaCO₂ of 45 mm Hg or greater
   c. Daytime hypoxemia with PaO₂ of 70mm Hg or less
   d. Normal TSH level
   e. No evidence of COPD by pulmonary function tests (e.g. normal FEV₁/FVC ratio)

5. For postoperative evaluation of the effectiveness of palate or other surgery to correct obstruction if the surgery was covered (only one follow up/repeat polysomnogram is considered medically necessary).
6. To insure therapeutic benefit of an oral appliance if the OA was covered. (Home
or in lab study with the appliance in place–after final fitting/adjustment of the
device) All other follow up care including (but not limited to) adjustments,
modifications, titration studies of a titratable device, professional services are
considered to be incidental to / included in the oral appliance.

7. A two-month trial of a positive airway pressure device (for example, CPAP,
BiPAP (BPAP), AutoPAP) has not resolved the sleep disorder symptoms, OR
the symptoms returned after good initial response to treatment despite
appropriate follow up to address issues of PAP intolerance such as:
claustrophobia, difficulty tolerating the pressure setting, appropriate mask fit,
mucous membrane irritation, unintentional removal of mask during sleep

8. For re-evaluation (polysomnoogram or re-titration study) when an individual with
diagnosed obstructive sleep apnea, consistently using a PAP device, has a
significant change in physical condition (for example but not limited to: surgery
of the neck, significant changes in weight defined as 10% reduction in of body
weight or BMI <30)

9. When CPAP was initiated during an inpatient hospital stay, (home or laboratory
PSG) e.g. to determine need for continued PAP use

10. When a home sleep apnea test score (AHI /RDI/ REI) is <5, but the sleep
disorder specialist gives documentation of why they believe the result has
underestimated the AHI-requires Medical Director review.

11. When a patient has been using Adaptive Servo Ventilation: (e.g. VPAP™ Adapt
with Adaptive Servo Ventilation (ASV) or BiPAP® with auto Servo Ventilation
(SV) and his left ventricular ejection fraction (LEVF) is ≤45%.

12. When a home sleep study identifies unanticipated central apnea.

I.E. Titration study for PAP devices: When a home sleep study result meets criteria
for treatment, a 4-week trial of home auto pap will be approved. A laboratory PSG
to allow for PAP titration is indicated when any of the following occur:

1. An AHI of 40 was not documented in the first 2 hours of the initial laboratory
PSG, but the entire PSG resulted in an AHI of 15/hour or higher.

2. An AHI of 40 was not documented in the first 2 hours of the initial laboratory
PSG, but the entire PSG resulted in an AHI of between five and 15 per hour in
an individual with significant comorbidities (see Section C-1)
3. Titration during a split night study was not adequate to improve the AHI (e.g. inadequate amount of time left, unable to achieve adequate pressure, intolerance of mask or pressures).

4. Home Auto Pap titration has failed to resolve the AHI sufficiently after a four-week trial

I.F. **Pediatric PSG:** For criteria, refer to MCG: Polysomnography (PSG). Study is performed in a Sleep Center and ordered by a Sleep Medicine Specialist.

II. **Multiple Sleep Latency Test (MSLT),** performed in a sleep laboratory, is used to measure levels of daytime tendency to fall asleep. MSLT is considered medically necessary for the evaluation of suspected narcolepsy (characterized by EDS, sleep paralysis, hallucinations, and/or cataplexy) or idiopathic hypersomnia. A nighttime polysomnogram, which has ruled out the presence of obstructive sleep apnea and documents appropriate sleep, should immediately precede the daytime MSLT.

III. For requests for PSG with MSLT when PSG has already recently been performed. If a PSG has previously ruled out sleep apnea, the request for a repeat PSG immediately prior to the MSLT must include results of the first study and documentation as to why a second sleep study should precede the MSLT. If the PSG prior to the MSLT was not at least 6 hours or if the MSLT was not requested with the first PSG because narcolepsy was not suspected, then the 2nd PSG can be approved.

IV. **Maintenance of Wakefulness Testing,** performed in a sleep lab in an attempt to measure an individual’s ability to stay alert is considered medically necessary for evaluation of narcolepsy and idiopathic hypersomnia.

**Limitations of Coverage:**

A. Review contract and endorsements for exclusions and prior authorization or benefit requirements.

B. If used for a condition/diagnosis other than listed in the Indications of Coverage, deny as experimental, investigational, and unproven to affect health outcomes.

C. If used for a condition/diagnosis that is listed in the Indications of Coverage, but the criteria are not met, deny as not medically necessary.

D. The following services are considered not medically necessary:

   1. A polysomnogram when these are the only conditions described:

      a. Snoring
b. Acute or chronic insomnia

c. Chronic obstructive pulmonary disease

d. Asthma

e. Hypertension

f. Headache

g. Frequent nighttime arousals

h. Night terrors

i. Sleep walking

2. A (second) laboratory polysomnogram for CPAP titration when there is no documentation of the reason a split-night study was not done during the initial study

3. An in-lab CPAP titration study after home polysomnogram when there is no documentation of a contraindication to autoPAP titration (such as HST result suspicious for central sleep apnea or complex sleep apnea)

4. More than one follow up study for oral appliance effectiveness.

5. MSLTs that are unattended, performed at home, or repeated.

6. Pulse oximetry used alone for evaluation of sleep disorders, as this is considered a type IV portable device.

E. The following tests are considered experimental, investigational, and unproven to affect health outcomes as there is insufficient peer-reviewed scientific literature documenting the effectiveness of these tests in the diagnosis of OSA:

1. Actigraphy.

2. SNAP test (or any home testing device) with less than 4 channels. (Older models)

3. Sleep Strip (a sticker-type device adhered to the upper lip during sleep that can measure breathing irregularities).

4. Testing using Type IV portable monitor devices as described in definitions section (e.g. Apnealink™, ApneaLink with Oximetry™ WatchPAT™ Home Sleep Apnea Testing)
5. Maintenance of Wakefulness Testing is considered investigational for diagnosis of OSA, and for management or assessment of response to therapy for sleep disorders. Check member certificate for occupation related requests.

**Documentation Required:**

- Office notes

**References:**


Update 2014:

1. MCG Inpatient and Surgical Care 18th Edition. Apnea, Apparent Life Threatening Event ORG: P-12 (ISC)

2. MCG Ambulatory Care 18th Edition. ACG: A-0144 Polysomnography (PSG), Portable or Home Sleep Study

3. MCG Ambulatory Care 18th Edition. ACG: A-0145 Polysomnography (PSG, Sleep Center


7. Hayes Health Technology Brief. Split-Night Polysomnography for Continuous Positive Airway Pressure (CPAP) Titration in Adults with Obstructive Sleep Apnea. Publication Date March 19, 2014


Update 2015:


2. MCG Ambulatory Care 19th Edition. ACG. A-0146 Multiple Sleep Latency Test (MSLT) and Maintenance of Wakefulness Test (MWT)

3. MCG Ambulatory Care 19th Edition. ACG. A-0144 Polysomnography (PSG), Portable or Home Sleep Study

4. MCG Ambulatory Care 19th Edition. ACG. A-0146 Polysomnography (PSG), Sleep Center


Update 2016


4. MCG Ambulatory Care 20th Edition. ACG. A-0146 Multiple Sleep Latency Test (MSLT) and Maintenance of Wakefulness Test (MWT)

5. MCG Ambulatory Care 20th Edition. ACG. A-0144 Polysomnography (PSG), Portable or Home Sleep Study

6. MCG Ambulatory Care 20th Edition. ACG. A-0146 Polysomnography (PSG), Sleep Center


10. Ulasli S, Gunay E, Koyuncu T et.al. Predictive value of Berlin Questionnaire and Epworth Sleepiness Scale for obstructive sleep apnea in a sleep clinic population Clin

Arise / WPS Review History:

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➢ Note: For review/revision history prior to 2014 see previous Medical Policy or Coverage Policy Bulletin

Approved by the Medical Director