



Sleep Studies

Policy MP-070 Origination Date: 01/22/2025 Reviewed/Revised Date: 01/22/2025 Next Review Date: 01/22/2026 Current Effective Date: 03/22/2025

Disclaimer:

- 1. Policies are subject to change in accordance with State and Federal notice requirements.
- 2. Policies outline coverage determinations for U of U Health Plans Commercial, CHIP and Healthy U (Medicaid) plans. Refer to the "Policy" section for more information.
- 3. Services requiring prior-authorization may not be covered, if prior-authorization is not obtained.
- 4. This Medical Policy does not guarantee coverage or payment of the service. The service must be a benefit in the member's plan and the member must be eligible for coverage at the time of service. Additional payment guidelines may be applied that are not included in this policy.

Description:

Sleep disorders are conditions that affect an individual's normal sleep patterns and can have an impact on quality of life. One of the most common sleep disorders is Obstructive Sleep Apnea (OSA), a condition which is characterized by repetitive episodes of upper airway obstruction due to the collapse or narrowing of the upper airway during sleep. Symptoms of OSA include daytime sleepiness, loud snoring, breathing interruptions or awakenings during sleep due to gasping or choking. If left untreated, OSA can lead to serious health consequences such as hypertension, heart disease, stroke, insulin resistance and obesity. Other sleep disorders include insomnias, hypersomnias, parasomnias, sleep movement disorders, central sleep apnea, and circadian rhythm disorders.

The evaluation of sleep disorders can be done at home or in a specialized sleep center which studies sleep patterns during the day or at night. Home Sleep Apnea Testing (HSAT) may be used to diagnose OSA by recording breathing rate, airflow, heart rate, blood oxygen levels, and sleep/wake activity during sleep. Polysomnography (PSG) records breathing, heart rate, blood oxygen levels, body movements, brain activity and eye movements during sleep. PSG is performed in a laboratory setting with a sleep technician present.

Once a diagnosis of OSA is made, Positive Airway Pressure (PAP) titration testing is performed. Generally, a mask is placed over your mouth and nose or only your nose, while CPAP delivers air with slight pressure to keep your airway from narrowing or closing, allowing you to breathe normally and sleep well. An attended split-night study combines diagnostic PSG and PAP titration into a single night. In addition to diagnosing sleep disorders, PSG may also be used to assess and adjust the treatment plan.

Sleep studies conducted during the day include the Multiple Sleep Latency Test (MSLT) and Maintenance of Wakefulness Test (MWT). MSLT is performed to measure daytime sleepiness by the speed of falling asleep under conditions that favor sleep, in a series of 20-minute trials during the patient's habitual periods of wakefulness and is most often used to diagnose narcolepsy. MWT is performed to measure how well a person can stay awake by monitoring the usual periods of wakefulness after being instructed not to fall asleep.

Sleep Testing Classification:

Type I – An attended full channel Nocturnal Polysomnography (NPSG) is performed in a hospital or freestanding sleep lab. There is continuous and simultaneous monitoring of electromyogram (EMG), electrocardiogram (EKG), electro-encephalogram (EEG), electrooculogram (EOG), oxygen saturation, respiratory effort, and airflow.

Type II – Studies are performed with portable equipment using the same monitoring sensors (EEG, EOG, EKG, EMG, oxygen saturation, respiratory effort, and airflow) as Type I but are unattended, and thus can be performed outside of the sleep laboratory.

Type III - Unattended sleep study performed with portable equipment, using a minimum of 4 channels, which measure limited cardiopulmonary parameters. Two respiratory variables (e.g., effort to breathe, airflow), oxygen saturation, and a cardiac variable (e.g., heart rate or EKG). These studies do not provide data on sleep staging, like Type I and II.

Type IV - Unattended sleep study performed with portable equipment with monitoring devices that measure only 1 or 2 parameters, typically oxygen saturation and heart rate, or in some cases, just air flow. These studies do not provide data on sleep staging either.

Policy Statement and Criteria

1. Commercial Plans/CHIP

U of U Health Plans covers Home Sleep Apnea Testing (HSAT), using a portable monitor, when ALL the following criteria are met:

- A. The member is at least 18 years of age.
- B. The member does not have any medical conditions that increase the risk of central sleep apnea, such as heart failure, neuromuscular disease, moderate-to-severe COPD, history of stroke, or chronic opioid medication use.
- C. The member does not have a seizure disorder, dementia, developmental delay, or morbid obesity (BMI \ge 45).
- D. The physician performing the test is a diplomat of the American Board of Sleep Medicine (ABSM) or is sleep medicine certified *(see certification requirements under Clinical Rationale below)*.
- E. A board-certified sleep specialist or at a Participating Facility certified as a sleep center/lab by the American Board of Sleep Medicine; or in your home if you or your

dependent are 18 years or over and the sleep study is ordered by a board-certified sleep specialist who has performed a face-to-face encounter with the member.

U of U Health Plans considers attended full-channel Nocturnal Polysomnography (NPSG), performed in a healthcare facility or laboratory setting (see credentialing requirements under Clinical Rationale below) medically necessary for evaluating individuals with suspected OSA, when used as part of a comprehensive sleep evaluation, and the member has one or more of the following:

- A. Results of previous HSAT are negative, indeterminate, or technically inadequate to make a diagnosis of OSA; or
- B. Member lacks the mobility or dexterity to use portable monitoring equipment safely at home.
- C. Individual is a child or adolescent (i.e., less than 18 years of age); or
- D. Individual is known to have <u>one or more</u> of the following comorbid medical conditions that prohibits the use of a HSAT:
 - i. Moderate to severe pulmonary disease, such as COPD or uncontrolled asthma.
 - Moderate to severe neuromuscular disease (e.g., muscular dystrophy, Parkinson's, spina bifida, kyphoscoliosis, myasthenia gravis, ALS, post-polio syndrome, polymyositis, Guillain-Barré syndrome)
 - iii. Moderate to severe heart failure (New York Heart Association class III or IVsee Table 1)
 - iv. Body mass index (BMI) >45
 - v. Obesity Hypoventilation Syndrome
 - vi. Documented nocturnal seizures

Table 1:

New York Heart Association (NYHA) Functional Classification	
Class	Patient Symptoms
Ι	No limitation of physical activity. Ordinary physical activity does not cause undue
	fatigue, palpitation, dyspnea (shortness of breath).
Ш	Slight limitation of physical activity. Comfortable at rest. Ordinary physical activity
	results in fatigue, palpitation, dyspnea (shortness of breath).
===	Marked limitation of physical activity. Comfortable at rest. Less than ordinary
	activity causes fatigue, palpitation, or dyspnea.
IV	Unable to carry on any physical activity without discomfort. Symptoms of heart
	failure at rest. If any physical activity is undertaken, discomfort increases.

U of U Health Plans considers attended full-channel nocturnal polysomnography medically necessary for evaluating sleep disorders other than OSA when the following criteria are met:

- A. OSA has been excluded; or
- B. OSA has been adequately treated; or
- C. A secondary condition in addition to OSA is suspected; and
- D. One or more of the following conditions is suspected:
 - i. Periodic Limb Movement Disorder (PLMD) (not leg movements associated with another disorder such as sleep disordered breathing);
 - ii. Restless Legs Syndrome (RLS)/Willis-Ekbom Disease that has not responded to treatment;
 - iii. Parasomnia with documented disruptive, violent or potentially injurious sleep behavior suspicious of rapid eye movement sleep behavior disorder (RBD);
 - iv. Narcolepsy, once other causes of excessive sleepiness have been ruled out by appropriate clinical assessment (also see MSLT section below);
 - v. Central Sleep Apnea.

U of U Health Plans does NOT cover attended full-channel nocturnal polysomnography for evaluating any of the following conditions due to insufficient evidence of efficacy:

- A. Circadian Rhythm disorders
- B. Depression
- C. Insomnia

U of U Health Plans considers attended PAP titration medically necessary when an individual meets the above criteria for an attended full-channel nocturnal polysomnography sleep study, and the following:

- A. A split-night sleep study, performed in a healthcare facility or laboratory setting, for diagnosis and PAP titration
- B. A full night study for PAP titration, when a split-night sleep study is inadequate or not feasible and the individual has a confirmed diagnosis of OSA

U of U Health Plans does NOT cover stand-alone actigraphy testing (95803) for any sleep disorders, as this technique has not shown efficacy as a method of diagnosing OSA.

U of U Health Plans may consider Multiple Sleep Latency Testing (MSLT) and Maintenance of Wakefulness Testing (MWT) medically necessary when it is indicated by ALL of the following:

- A. Suspected narcolepsy, to confirm the diagnosis; or
- B. Evaluation of persons with suspected idiopathic hypersomnia to help differentiate idiopathic hypersomnia from narcolepsy

U of U Health Plans may consider a <u>repeat MSLT</u> and/or MWT tests medically necessary in any one of the following circumstances:

- A. The initial test was invalid or uninterpretable; or
- B. The initial test is affected by extraneous circumstances or when study conditions were not present during initial testing; or
- C. The patient is suspected to have narcolepsy but earlier MSLT or MWT evaluation did not provide polygraphic confirmation.

Multiple Sleep Latency Testing (MSLT) and Maintenance of Wakefulness Testing (MWT) is considered experimental/investigational in all other indications as its effectiveness has not been established. Including but not limited to (*not an all-inclusive list*):

- Attention-deficit/hyperactivity disorder (ADD/ADHD)
- Chronic fatigue syndrome
- Circadian rhythm disorders
- Psychiatric hypersomnolence
- Restless leg syndrome
- Insomnia
- Neurologic disorders other than narcolepsy (e.g., dementia [including Alzheimer's disease and dementia with Lewy bodies] and Parkinson's disease), obstructive sleep apnea syndrome
- Evaluation of the effectiveness of Modafinil[®] therapy in narcolepsy
- Evaluation of common, uncomplicated or non-injurious parasomnias, such as typical disorders of arousal, bruxism, enuresis, nightmares or sleep talking.

U of U Health Plans considers single nap studies experimental/investigational due to a full MSLT or MWT is required for accurate diagnosis of narcolepsy.

U of U Health Plans considers home Multiple Sleep Latency Testing (MSLT) experimental/investigational as it has not been proven to be equivalent to formal MSLT performed in a sleep laboratory.

Repeat Testing

It may be necessary to perform repeat sleep studies up to twice a year for any of the following indications:

- A. To determine whether positive airway pressure treatment continues to be effective in persons with new or persistent symptoms, after interrogation of current positive airway pressure device; or
- B. To determine whether positive airway pressure treatment settings need to be changed in persons with new or persistent symptoms, after interrogation of current positive airway pressure device; or
- C. For persons with substantial weight loss (loss of 10 percent or more body weight) or some other change in their medical condition that would affect the need for continued positive airway pressure treatment (e.g., heart attack, stroke, heart failure), to determine whether continued treatment with positive airway pressure treatment is necessary; or
- D. To assess treatment response after upper airway surgical procedures and after initial treatment with oral appliances.

2. Medicaid Plans

Coverage is determined by the State of Utah Medicaid program; if Utah State Medicaid has no published coverage position and InterQual criteria are not available, the U of U Health Plans Commercial criteria will apply. For the most up-to-date Medicaid policies and coverage, please visit their website at: <u>https://medicaid.utah.gov/utah-medicaid-official-publications/</u> or the <u>Utah Medicaid code Look-Up tool</u>

CPT/HCPCS codes covered by Utah State Medicaid may still require further evaluation to determine medical necessity for coverage.

Clinical Rationale

Physician and Technician Requirements for Sleep Studies and Polysomnography Testing

The physician performing the service must meet one of the following:

- 1. Be a diplomat of the American Board of Sleep Medicine (ABSM); or
- 2. Have sleep credentials issued by ONE of the following:
 - American Board of Internal Medicine (ABIM),
 - American Board of Family Medicine (ABFM),
 - American Board of Pediatrics (ABP),
 - American Board of Psychiatry and Neurology (ABPN),
 - American Board of Otolaryngology (ABO),
 - American Osteopathic Board of Neurology and Psychiatry (AOBNP),

- American Osteopathic Board of Family Medicine, (AOBFP),
- American Osteopathic Board of Internal Medicine, (AOBIM),
- American Osteopathic Board of Ophthalmology and Otorhinolaryngology (AOBOO);

AND

3. Be an active physician staff member of a credentialed sleep center or laboratory that have active physician staff members meeting the criteria above in either 1 or 2.

The technician performing the service must meet one of the following:

- 1. American Board of Sleep Medicine (ABSM),
- 2. Registered Sleep Technologist (RST),
- 3. Board of Registered Polysomnographic Technologists (BRPT),
- 4. Registered Polysomnographic Technologist (RPSGT),
- 5. National Board for Respiratory Care (NBRC),
- 6. Certified Pulmonary Function Technologist (CPFT),
- 7. Registered Pulmonary Function Technologist (RPFT),
- 8. Certified Respiratory Therapist (CRT),
- 9. Registered Respiratory Therapist (RRT)

The sleep facility must be credentialed by one of the following:

- 1. The American Academy of Sleep Medicine (AASM), inpatient or outpatient; or
- 2. The Joint Commission sleep specific credentials for Ambulatory care sleep centers*; or
- 3. Accreditation Commission for Health Care (ACHC)
 - All centers billing sleep studies must maintain proper certification documentation as defined above; and
 - The sleep clinic must be affiliated with a hospital or be under the direction and control of a physician (MD/DO), even though the diagnostic test may be performed in the absence of direct physician supervision. This information must be documented and available upon request.

*Sleep disorder clinics may at times render therapeutic as well as diagnostic services. Therapeutic services may be covered in a hospital outpatient setting or in a freestanding facility provided they meet the pertinent requirements for the particular type of services and are reasonable and necessary for the patient, and are performed under the direct supervision of a physician (CMS Publication 100-02, Medicare Benefit Policy Manual, Chapter 15, Section 70, D. Coverage of Therapeutic Services).

Home-Based Versus In-Laboratory Diagnostic and Therapeutic Pathway

Skomro et al. (2010) and Kuna et al. (2011) found that because of the limitations of studies directly comparing results of PSG to portable monitoring, comparative effectiveness studies have instead evaluated clinical outcomes of patients managed with portable monitoring at home vs. those managed with PSG. These non-inferiority or equivalency trials compare improvements in quality of life and other outcomes instead of directly comparing sleep test results. Based on the available evidence, diagnosis of OSA based on in-facility PSG does not lead to superior outcomes compared to HSAT in terms of functional improvement, quality of life, blood pressure, and CPAP adherence.

In 2009, a Decision Memorandum from the Centers for Medicare & Medicaid Services (CMS) determined that there is sufficient evidence to support the use of devices that measure 3 or more channels that include actigraphy, oximetry, and peripheral arterial tone (e.g., Watch-PAT 100, Itamar Medical, Inc.) to aid the diagnosis of OSA in persons 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.

In 2007, Mulgrew et al. randomly assigned 68 high-risk patients identified by a diagnostic algorithm to PSG or ambulatory titration by using a combination of auto-CPAP and overnight oximetry. After 3 months, there were no differences in AHI on CPAP between the PSG and ambulatory groups, or in the ESS score, or quality of life. Adherence to CPAP therapy was better in the ambulatory group than in the PSG group.

In 2009, Antic et al. reported results of another randomized controlled multicenter non inferiority study that compared nurse-led home diagnosis and CPAP therapy with physician-led current best practice in OSA management in 195 patients complement and extend the findings of Mulgrew et al (2007).

In 2010, McArdle et al. also confirmed that there were no differences between both groups in ESS score and CPAP adherence at 3 months. Within trial costs were significantly less in the simplified home model. Cost-effectiveness of home APAP titration compared to manual laboratory titration. In this randomized controlled study involving 249 patients with moderate to severe OSA without serious co-morbidities, outcomes at one month indicated that average nightly CPAP use, subjective sleepiness, quality of life, cognitive function and polysomnographic outcomes were similar among the per-protocol groups.

A 2007 technology assessment by the Agency for Healthcare Research and Quality (AHRQ) on Home Diagnosis of Obstructive Sleep Apnea-Hypopnea Syndrome commissioned by CMS found that according to the available literature, NPSG performed in a sleep laboratory should include EEG, EOG, EMG, oronasal airflow, chest wall effort, body position, snore microphone, ECG, and oxyhemoglobin saturation. However, diagnostic NPSG may be performed in a healthcare facility, or for appropriate cases, in the patient's home. The use of unattended home sleep monitoring using a Type II, III, or IV device, may identify apnea-hypopnea index (AHI) suggestive of obstructive sleep apnea-hypopnea syndrome (OSAHS). Type II monitors identify AHI suggestive of OSAHS with high positive ratios (greater than 10) and low negative likelihood ratios (less than 0.1) both when the portable monitors were studied in the sleep laboratory and at home. Type III monitors may have the ability to predict AHI suggestive of OSAHS with high positive likelihood ratios and low negative likelihood ratios for various AHI cut-offs in laboratory-based PSG, especially when manual scoring is used. The ability of type III monitors to predict AHI suggestive of OSAHS appears to be better in studies conducted in sleep laboratories compared to studies in the home setting. Some studies of type IV devices also showed high positive likelihood ratios and low negative likelihood ratios, at least for selected sensitivity and specificity pairs from ROC curve analyses. Similarly to type III devices, the ability of type IV devices to predict AHI suggestive of OSAHS appears to be better in studies conducted in sleep laboratories.

In 2011, Lettieri et al. organized an observational cohort study including 210 patients with OSA that were grouped into one of three pathways based on the type and location of their diagnostic and titration. Group 1 underwent unattended, type III home diagnostic (Stardust II) and unattended home APAP titrations (Respironics System One); group 2 underwent in-laboratory, type I diagnostic and CPAP titration studies; group 3 underwent type I diagnostic and APAP titration studies. Group 1 was primarily managed and educated in a primary care clinic, whereas groups 2 and 3 received extensive education in an academic sleep medicine center. In conclusion, the authors found that type of study and location of care did not affect PAP adherence. Patients in all three pathways demonstrated equivalent use of PAP despite differences in polysomnographic procedures, clinical education and follow-up.

In 2012, Gao et al. organized a systematic review to evaluate the effect of automatic titration compared to manual titration prior to CPAP treatment in OSA patients. The authors evaluated APAP in identifying an effective pressure and the improvement of AHI and somnolence, change in sleep quality and the acceptance and compliance of CPAP treatment compared to manual titration. Ten randomized controlled trials (849 patients) met the inclusion criteria. Studies were pooled to yield odds ratios (OR) or mean differences (MD) with 95% confidence intervals (CI). Automatic titration improved the AHI (MD=0.03/h, 95% CI=4.48-4.53) and ESS (SMD=0.02, 95% CI=0.34-0.31) as effectively as manual titration. There was no difference in sleep architecture between auto titration and manual titration. There was also no difference in acceptance of CPAP treatment or compliance with treatment. In conclusion, the authors found that automatic titration is as effective as standard manual titration in terms of improvement in AHI, somnolence and sleep quality, as well as acceptance and adherence to CPAP.

Single-Night versus Multiple-Night Home Sleep Apnea Testing

In 2005, Kushida et al. defined that a single-night PSG is usually considered adequate to determine if OSA is present and the degree of the disorder. Since the PSG is considered the reference standard, the reliability and technical accuracy of PSG is generally accepted without question. However, PSG, even when accurately measured, recorded and analyzed, may misclassify patients based upon night-to-night variability in measured parameters. For example, estimates of the sensitivity of one night of PSG to detect an AHI > 5 in patients with OSA range between 75 to 88%.

In 2009 Levendowski et al. issued the first study that investigated the variability of AHI obtained by PSG and by in home portable recording in 37 untreated mild to moderate OSA patients at a four- to six-month interval. The in-home studies were performed with Apnea Risk Evaluation System (ARES^M) Unicorder. When comparing the test-retest AHI and apnea index (AI), the in-home results were more highly correlated (r = 0.65 and 0.68) than the comparable PSG results (r = 0.56 and 0.58). The in-home results provided approximately 50% less test-retest variability than the comparable PSG AHI and AI values. Both the overall PSG AHI and AI showed a substantial bias toward increased severity upon retest (8 and 6 events/hr respectively) while the in-home bias was essentially zero. The in-home percentage of time supine showed a better correlation compared to PSG (r = 0.72 vs. 0.43). Patients biased toward more time supine during the initial PSG. No trends in time supine for in-home studies were noted.

In a 2004 study, Fietze et al. examined the night-to-night variability and diagnostic accuracy of the oxygen desaturation index (ODI) in 35 patients using the portable recording device MESAM-IV at home during 7 consecutive nights. The authors found that although the reliability of the ODI was adequate, the probability of placing the patient in the wrong severity category (ODI < or =15 or ODI >15) when only one single recording was taken is 14.4%. In conclusion, the authors found that that in most OSA patients, oxygen desaturation index variability is rather small, and screening could be reliably based on single 1-night recordings.

In 2004, Stepnowsky et al. had organized the largest study by organizing the nightly variability of AHI in a retrospective comparison of 3 sequential nights of testing performed in the home in 1091 patients who

were referred for diagnostic testing of sleep-disordered breathing (SDB). Based on night 1, approximately 90% of patients were classified consistently with "AHI-high" (the highest AHI measured across the 3 nights) using an AHI threshold of 5. However, 10% were misclassified on night 1 relative to the highest AHI level. In conclusion, the authors found that there is little, if any, significant nightly change in SDB in the home environment.

The findings of these clinical studies determined, that night-to-night variability in HSAT is comparable to laboratory based PSG and that a single night testing can correctly diagnose OSA in the majority of patients with a high pre-test probability of OSA.

Multiple-Night Home Sleep Apnea Testing versus One-Night Home Sleep Apnea Testing

In 2007, Collop et al. released clinical guidelines on the use of unattended home (portable) monitoring devices for the diagnosis of obstructive sleep apnea (OSA) in adults, from the American Academy of Sleep Medicine (AASM) for the diagnosis of OSA should be performed only in conjunction with a comprehensive sleep evaluation. The guidelines state that unattended sleep studies are not appropriate for the diagnosis of OSA in patients with significant comorbid medical conditions that may degrade the accuracy of unattended sleep studies, including moderate to severe pulmonary disease, neuromuscular disease, or congestive heart failure. The guidelines note that unattended sleep studies are not appropriate for the diagnostic evaluation of OSA in patients suspected of having other sleep disorders. The guidelines state that unattended sleep studies are not appropriate for general screening of asymptomatic populations.

In 2003 comprehensive review, Flemons et al. reported on portable monitors for PSG. The review was co-sponsored by the AASM, the American College of Chest Physicians (ACCP) and the American Thoracic Society (ATS). The authors concluded that the use of portable monitoring as an initial diagnostic tool for selected patients may reduce costs because patients with positive results could go ahead with CPAP titration studies and patients with negative results might not require additional testing.

In 2017, Kapur, et al. published updated guidelines from the AASM stating that attended NPSG should be used for diagnosis in patients in whom there is a concern for significant non-respiratory sleep disorder(s) that require evaluation (e.g., disorders of central hypersomnolence, parasomnias, sleep related movement disorders) or interfere with accuracy of unattended (home) sleep studies (e.g., severe insomnia); or environmental or personal factors that preclude the adequate acquisition and interpretation of data from unattended sleep studies. The guidelines state that attended NPSG, rather than home sleep apnea testing, be used for the diagnosis of OSA in patients with significant cardiorespiratory disease, potential respiratory muscle weakness due to neuromuscular condition, awake hypoventilation or suspicion of sleep related hypoventilation, chronic opioid medication use, history of stroke or severe insomnia. NPSG is required for the diagnosis of non-obstructive sleepdisordered breathing (e.g., central sleep apnea, hypoventilation and sleep related hypoxemia). The guidelines state that a technically adequate home sleep study device incorporates a minimum of the following sensors: nasal pressure, chest and abdominal respiratory inductance plethysmography, and oximetry; or else PAT with oximetry and actigraphy. A home sleep study protocol that includes a single night recording is adequate for the diagnosis of OSA. If a single home sleep apnea test is negative, inconclusive, or technically inadequate, attended NPSG should be performed for the diagnosis of OSA.

In 2017, Kirk et al. released AASM's Position Statement for the use of Home Sleep Apnea Test (HSAT) for Diagnosis of OSA in Children states that use of a home sleep apnea test is not recommended for the diagnosis of obstructive sleep apnea in children. The AASM remarks that for the purposes of this position statement, children are defined as individuals < 18 years old. The ultimate judgment regarding propriety of any specific care must be made by the clinician, in light of the individual circumstances presented by the patient, available diagnostic tools, accessible treatment options, and resources.

A 2024 UpToDate review describes the epidemiology, clinical presentation, diagnostic approach and complications of OSA. The differences in polysomnography (PSG), full-night studies, split-night studies and home sleep apnea tests (HSAT) are discussed, along with guidelines and criteria as to which tests are better to use after specific clinical findings. Based upon the inadequacy of most HSAT being able to detect complex or mild sleep-related events, the authors recommend full-night or split-night, attended, in-laboratory PSG to diagnose patients with suspected mild OSA, complicated OSA, non-respiratory sleep disorders, or patients with suspected OSA who have mission-critical jobs, rather than using HSAT. In patients with a high likelihood of moderate or severe uncomplicated OSA that have no other suspected non-respiratory sleep disorders, they recommend a Type 3 HSAT device, with the results being interpreted by a provider whom has experience in sleep medicine. However, if any of the study results are negative and suspicion for OSA remains, an in-laboratory PSG should be repeated or performed.

Applicable Coding

CPT Codes 95782 Polysomnography; younger than 6 years, sleep staging with 4 or more additional parameters of sleep, attended by a technologist 95783 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 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) 95805 Multiple sleep latency or maintenance of wakefulness testing, recording, analysis and interpretation of physiological measurements of sleep during multiple trials to assess sleepiness 95806 Sleep study, unattended, simultaneous recording of, heart rate, oxygen saturation, respiratory airflow, and respiratory effort (eg, thoracoabdominal movement) 95807 Sleep study, simultaneous recording of ventilation, respiratory effort, ECG or heart rate, and oxygen saturation, attended by a technologist 95808 Polysomnography; any age, sleep staging with 1-3 additional parameters of sleep, attended by a technologist 95810 Polysomnography; age 6 years or older, sleep staging with 4 or more additional parameters of sleep, attended by a technologist 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 bi-level ventilation, attended by a technologist

Not covered as stand-alone testing

95803 Actigraphy testing, recording, analysis, interpretation, and report (minimum of 72 hours to 14 consecutive days of recording)

HCPCS Codes

- **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
- **G0399** 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
- **G0400** Home sleep test (HST) with type IV portable monitor, unattended; minimum of 3 channels

References:

- 1. American Academy of Sleep Medicine (AASM). International Classification of Sleep Disorders, 3rd ed. (ICSD-3) 2024. https://aasm.org/clinical-resources/international-classification-sleep-disorders/
- American Academy of Sleep Medicine (AASM). Manual for the Scoring of Sleep and Associated Events: Rules, terminology and technical specifications. Version: 3; Updated February 2023. Accessed: January 17, 2025. Available at: https://aasm.org/clinical-resources/scoring-manual/
- 3. American Academy of Sleep Medicine (AASM). Standards for accreditation of out of center sleep testing (OCST) in adult patients. Updated November 2016. Accessed: January 17, 2025. Available at: <u>https://aasm.org/accreditation/</u>
- American Academy of Sleep Medicine (AASM). Style Guide for Sleep Medicine Terminology. Last updated: January 13, 2025. Accessed: January 17, 2025. Available at: <u>http://aasmnet.org/jcsm/resources/documents/style-guide-sleep-medicine-terms.pdf</u>
- 5. American Heart Association (AHA) "Classes of Heart Failure" Last Reviewed: June 7, 2023. Accessed: January 17, 2025. Available at: <u>https://www.heart.org/en/health-topics/heart-failure/what-is-heart-failure/classes-of-heart-failure</u>
- 6. American Thoracic Society. Patient Education/Information Series. Sleep studies: in the sleep laboratory and in the home. Am J Respir Crit Care Med. 2015 Aug 15;192(4):p3-4. Online version updated June 2019. Accessed: January 17, 2025. Available at: https://www.thoracic.org/patients/patient-resources/resources/obstructive-sleep-apnea-in-adults.pdf
- 7. American Thoracic Society. Patient Education/Information Series. What is Obstructive Sleep Apnea in Adults? Am J Respir Crit Care Med Vol. 196, P1-P2, 2017. Online version updated 2019. Accessed: January 17, 2025. Available at: https://www.thoracic.org/patients/patient-resources/resources/obstructive-sleep-apnea-in-adults.pdf
- 8. Antic NA, Buchan C, Esterman A, et al. A randomized controlled trial of nurse-led care for symptomatic moderate-severe obstructive sleep apnea. Am J Respir Crit Care Med. 2009 Mar 15;179(6):501-8.
- 9. Center for Medicare and Medicaid Services (CMS) 100-02, Medicare Benefit Policy Manual, Chapter 15, Section 70, D. Coverage of Therapeutic Services. Last updated October 7, 2024. Accessed: January 17, 2025. Available at: https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/bp102c15.pdf
- 10. Centers for Medicare & Medicaid Services (CMS). Decision memo for sleep testing for obstructive sleep apnea (OSA) (CAG-00405N). Medicare Coverage Database. Baltimore, MD: CMS; March 3, 2009.
- Collop NA, Anderson WM, Boehlecke B, et al.; Portable Monitoring Task Force of the American Academy of Sleep Medicine. Clinical guidelines for the use of unattended portable monitors in the diagnosis of obstructive sleep apnea in adult patients. J Clin Sleep Med. 2007 Dec 15;3(7):737-47.
- 12. Fietze I, Dingli K, Diefenbach K, et al. Night-to-night variation of the oxygen desaturation index in sleep apnea syndrome. Eur Respir J 2004; 24:987-93.
- 13. Flemons WW, Littner MR, Rowley JA, et al. Home diagnosis of sleep apnea: a systematic review of the literature. Chest. October 2003; 124(4):1543-1579.
- 14. Gao W, Jin Y, Wang Y, Sun M, Cehn B, Zhou N, Deng Y. Is automatic CPAP titration as effective as manual CPAP titration in OSAHS patients? A meta-analysis. Sleep Breath. 2012 Jun;16(2):329-40.
- 15. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease. Updated 2020. Accessed: January 17, 2025. Available at: http://goldcopd.org/gold-reports/

- 16. Kapur VK, Auckley DH, Chowdhuri S, et al. Clinical Practice Guideline for Diagnostic Testing for Adult Obstructive Sleep Apnea: An American Academy of Sleep Medicine Clinical Practice Guideline. J Clin Sleep Med, Vol.13, No.3. 2017 Mar 15;13(3):479504.
- 17. Kirk V, Baughn J, D'Andrea L, Friedman N, Galion A, Garetz S, et al. American Academy of Sleep Medicine Position Paper for the Use of a Home Sleep Apnea Test for the Diagnosis of OSA in Children. J Clin Sleep Med. 2017 Oct 15;13(10):1199-1203.
- 18. Kuna ST, Gurubhagavatula I, Maislin G, et al. Noninferiority of functional outcome in ambulatory management of obstructive sleep apnea. Am J Respir Crit Care Med. 2011 May 1;183(9):1238-44.
- 19. Kushida CA, Littner MR, Morgenthaler T, et al. Practice parameters for the indications for polysomnography and related procedures: an update for 2005. Sleep. 2005 Apr 1; 28 (4):499-521.
- 20. Lettieri CF, Lettieri CJ, Carter K. Does home sleep testing impair continuous positive airway pressure adherence in patients with obstructive sleep apnea? Chest. 2011 Apr;139(4):849-54.
- 21. Levendowski D, Steward D, Woodson BT, et al. The impact of obstructive sleep apnea variability measured in-lab versus inhome on sample size calculations. Int Arch Med. 2009 Jan 2; 2(1):2.
- 22. McArdle N, Singh B, Murphy M, et al. Continuous positive airway pressure titration for obstructive sleep apnoea: automatic versus manual titration. Thorax. 2010 Jul;65(7):606-11.
- 23. Mulgrew AT, Fox N, Ayas NT, et al. Diagnosis and initial management of obstructive sleep apnea without polysomnography: a randomized validation study. Ann Intern Med. 2007 Feb 6; 146 (3):157-66.
- Skomro RP, Gjevre J, Reid J, et al. Outcomes of home-based diagnosis and treatment of obstructive sleep apnea. Chest. 2010 Aug;138(2):257-63. Sleep-related breathing disorders in adults: recommendations for syndrome definition and measurement techniques in clinical research. The Report of an American Academy of Sleep Medicine Task Force. Sleep. 1999 Aug 1;22(5):667-89.
- 25. Stepnowsky CJ Jr., Orr WC, Davidson TM. Nightly variability of sleep-disordered breathing measured over 3 nights. Otolaryngol Head Neck Surg. 2004 Dec; 131(6):837-43.
- 26. UpToDate, Inc. "Clinical presentation and diagnosis of obstructive sleep apnea in adults" Topic 7706, version 66.0, last updated October 9, 2024. Accessed: January 17, 2025.. Available at: <u>https://www.uptodate.com/contents/clinical-presentation-and-diagnosis-of-obstructive-sleep-apnea-in-adults?sectionName=Selecting%20home%20or%20in-laboratory%20testing&search=cpap&topicRef=14892&anchor=H1138075207&source=see_link#H1_</u>

Disclaimer:

This document is for informational purposes only and should not be relied on in the diagnosis and care of individual patients. Medical and Coding/Reimbursement policies do not constitute medical advice, plan preauthorization, certification, an explanation of benefits, or a contract. Members should consult with appropriate health care providers to obtain needed medical advice, care, and treatment. Benefits and eligibility are determined before medical guidelines and payment guidelines are applied. Benefits are determined by the member's individual benefit plan that is in effect at the time services are rendered.

The codes for treatments and procedures applicable to this policy are included for informational purposes. Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

U of U Health Plans makes no representations and accepts no liability with respect to the content of any external information cited or relied upon in this policy. U of U Health Plans updates its Coverage Policies regularly, and reserves the right to amend these policies and give notice in accordance with State and Federal requirements.

No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without permission from U of U Health Plans.

"University of Utah Health Plans" and its accompanying logo, and its accompanying marks are protected and registered trademarks of the provider of this Service and or University of Utah Health. Also, the content of this Service is proprietary and is protected by copyright. You may access the copyrighted content of this Service only for purposes set forth in these Conditions of Use.

© CPT Only – American Medical Association