Cohere Medical Policy - Sleep Study/Polysomnography (PSG)

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Service: Sleep Study/Polysomnography (PSG)

Recommended Clinical Approach

Sleep study/polysomnography (PSG) is the continuous and simultaneous monitoring and recording of various physiological and pathophysiological parameters during sleep (e.g., brain waves, blood oxygen level, heart rate, breathing rate, and eye and leg movements) for 6 hours or more. Results are reviewed and interpreted by a physician. A comprehensive sleep evaluation must include a sleep history (e.g., snoring, apneas, daytime sleepiness), body mass index (BMI), neck circumference, cardiopulmonary examination, and identification of co-morbid sleep disorders and medical conditions.

Sleep study/PSG is performed to diagnose various sleep disorders. The gold standard for diagnosing obstructive sleep apnea (OSA) is overnight or split-night, technologist-attended facility-based polysomnography (PSG). Split-night studies are performed both to diagnose strongly suspected OSA and to evaluate response to continuous positive airway pressure (CPAP) treatment over a one-night period.[1] Completing the CPAP titration study on a second night may be appropriate. Selected patients without severe comorbid conditions may be appropriate candidates for a portable or home sleep study. Two tests may be used in addition to PSG testing. Multiple Sleep Latency Tests (MSLT) measure daytime sleepiness and aid in diagnosing types 1 and 2 narcolepsy and idiopathic hypersomnia. Maintenance of Wakefulness Tests (MWTs) measures the ability to stay awake.[2]

Medical Necessity Criteria

Indications

- ➔ A **sleep study** is considered appropriate if **ANY** of the following is **TRUE**:
  - ◆ Home-based, non-attended sleep study and **ANY** of the following is **TRUE**:
    - For an initial home study when the patient is an adult with suspected sleep apnea, including excessive daytime sleepiness and **AT LEAST TWO** of the following[1,3-5]:

        - Snoring loudly (e.g., enough to be heard through a closed door, waking others); **OR**
        - Daytime sleepiness (e.g., falling asleep while driving); **OR**
        - Observed sleep apnea, gasping, choking, or breathing that has stopped; **OR**
        - Diagnosed hypertension; **OR**
        - Body mass index (BMI) greater than or equal to 35 kg/m^2; **OR**
        - Age 50 years or older; **OR**
        - Large neck circumference (greater than 17 inches in men; greater than 16 inches in women); **OR**
    - A study is required that demonstrates less than 25% of central events are performed within 24 months of the first consultation for hypoglossal nerve stimulation (HGNS) implant[6-7]; **OR**
    - Repeat home study for **ANY** of the following[1,3]:
        - The first study was inconclusive due to technical or equipment failure; **OR**
        - The patient is unable to sleep or complete enough hours of sleep to allow a clinical diagnosis; **OR**
        - The results were inconclusive or ambiguous; **OR**
        - For re-evaluation due to weight change; **OR**
- Facility-based, technologist-attended polysomnography (PSG) (type I) with **ANY** of the following:
    - Adult with suspected sleep apnea and **ALL** of the following:
        - Home sleep study is contraindicated; **AND**
        - For an initial facility-based study when the patient is an adult with suspected sleep apnea, including excessive daytime sleepiness and **AT LEAST TWO** of the following[1,3-4]:
            - Snoring loudly (e.g., enough to be heard through a closed door, waking others); **OR**
            - Daytime sleepiness (e.g., falling asleep while driving); **OR**
            - Observed sleep apnea, gasping, choking, or breathing that has stopped; **OR**
            - Diagnosed hypertension; **OR**

        - Body mass index (BMI) greater than or equal to 35 kg/m^2; **OR**
        - Age 50 years or older; **OR**
        - Large neck circumference (greater than 17 inches in men; greater than 16 inches in women); **AND**
    - **ANY** of the following co-morbid medical conditions[1]:
        - Significant cardiopulmonary disease (forced expiratory volume in one second [FEV_1] % predicted of less than 70 or heart failure with left ventricular ejection fraction (LVEF) less than 45%)[8-10]; **OR**
        - Potential respiratory muscle weakness due to neuromuscular conditions; **OR**
        - History of stroke; **OR**
        - Chronic opiate medication use[3]; **OR**
        - Concern for a significant non-respiratory sleep disorder(s) that require evaluation (e.g., disorders of central hypersomnolence[11], sleep-related movement disorders) or that interfere with the accuracy of home sleep apnea test (HSAT) (e.g., severe insomnia); **OR**
        - Environmental or personal factors that preclude the adequate acquisition and interpretation of data from HSAT; **OR**
        - The patient or caregiver is unable to safely use the equipment for home sleep study due to dexterity, mobility, or cognitive function; **OR**
        - A home sleep study was negative, inconclusive, or technically inadequate[1,12]; **OR**
- **ANY** of the following are suspected and Multiple Sleep Latency Testing (MSLT) planned[2]:
    - Narcolepsy with **ANY** of the following:
        - Cataplexy; **OR**
        - Excessive daytime sleepiness; **OR**
        - Hallucinations with the onset of sleep or awakening; **OR**
        - Disrupted nighttime sleep; **OR**
        - Sleep paralysis; **OR**

    - Central disorders of hypersomnia with **ANY** of the following:
        - Sleep inertia; **OR**
        - Unrefreshed sleep with adequate or long sleep time; **OR**
- An in-lab sleep study is needed when a home sleep study cannot be performed, and **ANY** of the following is **TRUE**[13]:
    - Obesity hypoventilation syndrome (defined as a body mass index [BMI] greater than 30, daytime hypercapnia [partial pressure of carbon dioxide, $PaCO_2$, greater than 45 mm Hg without other causes such as kyphosis, myopathy, hypothyroidism, or lung disease]); **OR**
    - Awake daytime hypercapnia (partial pressure of carbon dioxide, $PaCO_2$, greater than or equal to 45 mm Hg without other causes such as kyphosis, myopathy, hypothyroidism, or lung disease - serum bicarbonate greater than 28 is considered an alternative in the absence of $PaCO_2$ from arterial blood gases); **OR**
- Suspected central sleep apnea (CSA); **OR**
- Evaluation of parasomnias (e.g., undesirable or unpleasant occurrences during sleep, sleepwalking, sleep terrors, rapid eye movement, sleep behavior disorder[14], history of repeated violent or potentially injurious episodes during sleep) and **ANY** of the following is **TRUE**:
    - The patient has a history of parasomniac episodes during sleep that result in harm to the patient or others; **OR**
    - 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; **OR**
    - To evaluate sleep-related behaviors that are violent or otherwise potentially injurious to the patient; **OR**
    - The patient has a sleep behavior suggestive of parasomnias that are unusual or atypical due to **ALL** of the following:
        - Age at onset; **AND**

        - Time, duration, or frequency of occurrence of the behavior; **AND**
        - Specifics of the particular motor patterns are in question (e.g., stereotypical, repetitive, or focal); **OR**
    - In situations with forensic considerations (e.g., if onset follows trauma or if the events themselves have been associated with personal injury); **OR**
    - When the presumed parasomnia or sleep-related epilepsy does not respond to conventional therapy; **OR**
    - In cases of typical, uncomplicated, and non-injurious parasomnias when the diagnosis is not clearly delineated; **OR**
- The pediatric patient has suspected sleep apnea and an initial PSG test is indicated by **ANY** of the following[15-18]:
    - Evaluation for obstructive sleep apnea (OSA) pre- or post-removal of enlarged tonsils or adenoids; **OR**
    - Down syndrome; **OR**
    - Chiari malformation; **OR**
    - Craniofacial malformation; **OR**
    - Neuromuscular disorder (e.g., Parkinson's disease, stroke with persistent neurological sequelae, Duchenne muscular dystrophy, multiple sclerosis with associated pulmonary disease, amyotrophic lateral sclerosis, myotonic dystrophy); **OR**
    - Skeletal dysplasia (e.g., achondroplasia); **OR**
    - Suspected periodic limb movement disorder[17]; **OR**
    - Signs and symptoms of OSA with **ANY** of the following:
        - Snoring; **OR**
        - Daytime sleepiness; **OR**
        - Mouth breathing; **OR**
        - Nocturnal apnea; **OR**
        - Enuresis; **OR**
        - Pulmonary hypertension; **OR**
        - Nasal flaring or other signs of breathing difficulty; **OR**
        - Failure to thrive (weight less than 5th percentile for age); **OR**

        - Hyponasal speech; **OR**
        - Behavioral problems (e.g., hyperactivity, developmental delay, difficulties in school); **OR**
- An attended, full-night titration study including **ALL** of the following:
    - Unattended auto-titration with APAP or auto bi-level PAP is contraindicated; **AND**
    - OSA with **ANY** of the following[19]:
        - AHI, RDI, or REI greater than or equal to 15 events per hour; **OR**
        - AHI, RDI, or REI greater than or equal to 5-14 events per hour with **ANY** of the following:
            - Excessive daytime sleepiness; **OR**
            - Insomnia; **OR**
            - Mood disorders (e.g., anxiety, depression); **OR**
            - Impaired cognition; **OR**
            - History of stroke; **OR**
            - Hypertension; **OR**
            - Ischemic heart disease; **AND**
    - **ANY** of the following:
        - The patient has **ANY** of the following co-morbid conditions:
            - Heart failure with New York Heart Association (NYHA) Classification III or IV or reduced ejection fraction less than or equal to 40%; **OR**
            - Cardiac arrhythmia(s) (acute, uncontrolled, or refractory) with documented symptoms; **OR**
            - Severe asthma with daily use of oral corticosteroids and/or immunomodulator biologics; **OR**
            - Pulmonary disease (e.g., moderate to severe COPD or interstitial lung disease) as diagnosed on pulmonary function studies (PFTs) and the patient requires chronic oxygen use; **OR**

    - Obesity hypoventilation syndrome (OHS); **OR**
    - Moderate to severe pulmonary hypertension; **OR**
    - Neuromuscular/neurodegenerative disorders with restrictive disease or hypoventilation (e.g., amyotrophic lateral sclerosis [ALS], post-polio syndrome, myasthenia gravis, Guillian-Barré syndrome, polymyositis, kyphoscoliosis); **OR**
    - Chronic opioid medication use; **OR**
- The patient has a second or associated sleep disorder other than OSA including **ANY** of the following:
    - Central nervous system disorders that increase the risk of CSA (e.g., Arnold Chiari malformation); **OR**
    - CSA or treatment-emergent sleep apnea; **OR**
    - Acute nocturnal seizures; **OR**
    - Narcolepsy or related symptoms following the evaluation and treatment of OSA in accordance with the patient's documented adherence to therapy; **OR**
    - Complex parasomnias that may include injurious, disruptive, or violent behavior (e.g., sleepwalking, REM behavior disorder); **OR**
    - Periodic limb movement disorder (PLMD); **OR**
- The patient failed a recent home APAP trial due to **ANY** of the following:
    - Auto bi-level therapy is contraindicated or was ineffective; **OR**
    - PAP therapy was not tolerated after a trial of at least 1 month with no previous attended titration; **OR**

        - Adequate objective adherence to therapy (greater than or equal to 4 hours per night for at least 70% of nights in a 30-day consecutive period as documented by APAP download) with **ANY** of the following:
            - Symptoms of residual excessive daytime sleepiness; **OR**
            - Residual AHI greater than or equal to 5 as evidenced by APAP download; **OR**
- Split-night protocol for strong pretest suspicion of OSA and initiation of treatment with positive pressure device including **ALL** of the following[1]:
    - For initial testing with **ALL** of the following:
        - Sleep-disordered breathing as indicated by **ANY** of the following[20]:
            - Loud snoring; **OR**
            - Gasping or choking during sleep; **OR**
            - Excessive daytime sleepiness; **OR**
            - Cognitive deficits (e.g., concentration, memory); **OR**
            - Morning headaches; **OR**
            - BMI greater than or equal to 30; **OR**
            - Large neck circumference (greater than 17 inches in men; greater than 16 inches in women); **OR**
            - Unexplained nocturnal reflux; **OR**
            - Sleep-related bruxism; **OR**
            - Erectile dysfunction; **OR**
            - Apneas or hypoxemia during procedures requiring anesthesia; **AND**
        - **ANY** of the following:
            - A non-diagnostic HSAT performed no more than 1 year prior and **ANY** of the following:
                - An OSA diagnosis was not determined when there was a high pretest probability of OSA; **OR**

    - An effort was made to perform the test again if the original test was determined to be technically inadequate; **OR**
- The patient has **ANY** of the following co-morbid conditions:
    - Heart failure with New York Heart Association (NYHA) Classification III or IV or reduced ejection fraction less than or equal to 40%; **OR**
    - Cardiac arrhythmia(s) (acute, uncontrolled, or refractory) with documented symptoms; **OR**
    - Severe asthma with daily use of oral corticosteroids and/or immunomodulator biologics; **OR**
    - Pulmonary disease (e.g., moderate to severe COPD or interstitial lung disease) as diagnosed on pulmonary function studies (PFTs) and the patient requires chronic oxygen use; **OR**
    - Obesity hypoventilation syndrome (OHS); **OR**
    - Moderate to severe pulmonary hypertension; **OR**
    - Neuromuscular/neurodegenerative disorders with restrictive disease or hypoventilation (e.g., amyotrophic lateral sclerosis [ALS], post-polio syndrome, myasthenia gravis, Guillian-Barré syndrome, polymyositis, kyphoscoliosis); **OR**
    - Chronic opioid medication use; **OR**
- The patient has a second or associated sleep disorder other than OSA including **ANY** of the following:

        - Central nervous system disorders that increase the risk of CSA (e.g., Arnold Chiari malformation); **OR**
        - CSA or treatment-emergent sleep apnea; **OR**
        - Acute nocturnal seizures; **OR**
        - Narcolepsy or related symptoms following the evaluation and treatment of OSA in accordance with the patient's documented adherence to therapy; **OR**
        - Complex parasomnias that may include injurious, disruptive, or violent behavior (e.g., sleepwalking, REM behavior disorder); **OR**
        - Periodic limb movement disorder (PLMD); **OR**
    - For repeat split-night testing with **ANY** of the following:
        - The patient has **ANY** of the following:
            - Symptoms of OSA that persist or recur despite PAP therapy; **OR**
            - A change in weight (gain or loss greater than or equal to 10% of total body weight) when OSA symptoms have worsened or improved and re-evaluation is required to determine needed therapy modifications; **OR**
            - A change in cardiovascular status (e.g., stroke, arrhythmia, uncontrolled hypertension, hospitalization for heart failure; **OR**
        - To re-evaluate the indicators of OSA after **ANY** of the following:
            - Adenoidectomy; **OR**
            - Tonsillectomy; **OR**
            - Maxillomandibular advancement surgery (MMA); **OR**
            - Uvulopalatoplasty (UPPP); **OR**

- Other surgery related to the upper airway; **OR**
- A non-diagnostic HSAT performed no more than 1 year prior and **ANY** of the following:
  - An OSA diagnosis was not determined when there was a high pretest probability of OSA; **OR**
  - An effort was made to perform the test again if the original test was determined to be technically inadequate; **OR**
- The patient requires evaluation to begin using a fabricated oral mandibular advancement appliance (OAT); **OR**

- Repeat PSG test, as indicated by **ANY** of the following:
  - Confirmation of the efficacy of prescribed therapy is needed (e.g., oral appliance, postoperative assessment of response to intervention); **OR**
  - Assessing treatment response for **ANY** of the following[21-22]:
    - Initial treatment with oral appliances (pre-implantation or re-evaluation of known OSA) with **ANY** of the following:
      - PAP failure or PAP intolerance with a BMI less than or equal to 35 and no recent sleep study; **OR**
      - A significant change in weight and/or symptoms; **OR**
    - After upper airway surgical procedures (post-implantation) with **ANY** of the following:
      - Initial PSG titration; **OR**
      - PSG titration previously performed with insufficient clinical response, weight gain and/or return of symptoms; **OR**

- Multiple Sleep Latency Test (MSLT) performed in a sleep laboratory for **ANY** of the following[2]:
  - For initial MSLT with **ALL** of the following:
    - Evaluation of presence or treatment response for features of **ANY** of the following:
      - Central disorders of hypersomnia; **OR**

        - Narcolepsy (including, cataplexy, EDS, sleep paralysis, hypersomnia); **AND**
    - Testing consists of 5 episodes of 20-minute nap trials at 2-hour intervals, measuring the onset of sleep and rapid eye movement (REM) sleep, immediately following a negative PSG when narcolepsy is suspected; **OR**
- Repeat MSLT may be required if initial results are indeterminate or negative when narcolepsy is suspected; **OR**

- Maintenance of Wakefulness Tests (MWT) performed in a sleep laboratory are considered appropriate when **ANY** of the following is **TRUE**:
    - For initial MWT with **ALL** of the following[23]:
        - To assess an individual's ability to remain awake when his or her inability to remain awake constitutes a public or personal safety issue; **OR**
        - To assess response to treatment and the patient has excessive daytime sleepiness; **OR**
    - Repeat MWT may be required if initial results are indeterminate or negative when symptoms persist; **OR**

Non-Indications

➔ A **home sleep apnea study** is not considered appropriate if **ANY** of the following is **TRUE**[1,3]:

- The request is for a pediatric home-based sleep study[18]; **OR**
- The patient is an adult and testing is for **ANY** of the following:
    - For the diagnosis of **ANY** of the following:
        - Circadian rhythm sleep disorders; **OR**
        - Chronic lung disease; **OR**
        - Preoperative evaluation for laser-assisted uvulopalatopharyngoplasty without clinical evidence of suspicion of OSA; **OR**
    - **ANY** of the following:
        - Significant cardiopulmonary disease (forced expiratory volume in one second [FEV_1] % predicted of less than 70 or heart failure with left ventricular ejection fraction (LVEF) less than 45%)[8-10]; **OR**

- Potential respiratory muscle weakness due to neuromuscular conditions[24]; **OR**
- Periodic limb movement disorder or restless leg syndrome without suspicion of OSA[24]; **OR**
- Hypoventilation syndrome (awake hypoventilation or suspected sleep-related hypoventilation); **OR**
- Acute opioid use (medication not normally taken by the patient)[25]; **OR**
- Chronic opioid medication use[25]; **OR**
- History of stroke[26]; **OR**
- Suspected sleep disorder other than OSA (e.g., CSA, parasomnia, narcolepsy)[24,26]; **OR**
- Actigraphy used for the diagnosis of sleep disorders; **OR**
- The patient or caregiver is unable to manage equipment; **OR**
- The patient is asymptomatic and testing is for general screening.

Level of Care Criteria

Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
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 (e.g., by airflow or peripheral arterial tone), and sleep time

95801	Sleep study, unattended, simultaneous recording; minimum of heart rate, oxygen saturation, and respiratory analysis (e.g., by airflow or peripheral arterial tone)
95803	Actigraphy testing, recording, analysis, interpretation, and report (minimum of 72 hours to 14 consecutive days of recording)
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 (e.g., 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

Medical Evidence

Queisi et al (2024) performed a retrospective review to compare polysomnographic (PSG) sleep parameters for people with multiple sclerosis (PwMS). The study is a large single cohort from a single center versus existing published standards. A total of 299 PwMS were evaluated at a facility for polysomnography (PSG). Data included "total sleep time (TST), sleep efficiency (SE), sleep onset latency (SOL), relative REM latency, total apnea-hypopnea indices (AHI), spontaneous arousal indices (AI), total periodic leg movements indices (PLMI) and, sleep architecture metrics" (e.g., the percentage spent in stages N1/N2, N3, and REM). Compared to normative data, PwMS had an average of 85.9 min shorter TST, 27.3 min longer SOL, 62.1 min longer REM latency, 10.7% lower SE, 16.4% more N1/N2, and 11.4% less N3. The population demonstrated a high prevalence of OSA (60.7%); the mean AHI was also higher by 11.1 events per hour. Fatigue is a primary symptom among PwMS - the study highlighted the need for established parameters for PwMS.[27]

The American Heart Association (AHA) (2021) issued a scientific statement regarding obstructive sleep apnea (OSA) and cardiovascular disease. Testing is recommended for cardiovascular conditions, including resistant hypertension, pulmonary hypertension, recurrent atrial fibrillation, heart failure, stroke, and for survivors of sudden cardiac death. Follow-up testing is recommended to determine the effectiveness of treatment.[8]

The American Academy of Sleep Medicine (AASM) has published a guideline and position statements related to testing for OSA and other sleep disorders, including the following:

- Das et al (2022) developed a position statement for AASM focusing on enhancing public health and safety by diagnosing and treating OSA in those in the transportation industry. Recommendations have included mandatory testing and treatment for OSA for rail and highway personnel in safety-sensitive positions.[28]
- Kapur et al (2017) published the *Clinical Practice Guideline for Diagnostic Testing for Adult Sleep Apnea*, with clinical recommendations using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) system. A strong recommendation was made for facility-based testing rather than

home testing for patients with significant cardiorespiratory disease, neuromuscular conditions with respiratory muscle weakness, a history of stroke, severe insomnia, or chronic opioid use.[1]

- Kirk et al (2017) published a position statement regarding home sleep apnea testing for diagnosing OSA in children. The authors concluded that home testing is not recommended in children less than 18 years of age. Limited evidence exists comparing attended PSG to home testing.[18]

Khan et al (2015) systematically reviewed the peer-reviewed literature regarding central disorders of hypersomnolence. They state that there have been significant advances in recent years, particularly in the diagnosis and management of narcolepsy type 1. A 24-hour PSG is important in the diagnosis of central disorders of hypersomnia.[11]

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Clinical Guideline Revision History/Information

Original Date: October 27, 2023		
Review History		
Version 2	2/6/2025	• Annual review. • Reorganization of the boolean logic and indication order throughout the medical necessity criteria. • Literature review - Medical Evidence section updated (Queisi et al, 2024).

Version 3	3/13/2025	• Updated the home-based, non-attended sleep study indication with STOP-BANG criteria. An indication was also added - "test is required within 24 months of the first consultation for hypoglossal nerve stimulation (HGNS) implant" (Corral et al, 2017 and Masa et al, 2011).
		• For the suspicion indications and use of Multiple Sleep Latency Testing (MSLT), added "central disorders of hypersomnia with **ANY** of the following:
		  ○ Sleep inertia; **OR**
		  ○ Unrefreshed sleep with adequate or long sleep time; **OR"**
		• Separated the indications for MSLT performed in a sleep laboratory and Maintenance of Wakefulness Tests (MWT).
		• Added indication for full-night titration study.
		• Rewrote the indication for the split-night protocol for strong pre-test suspicion of OSA.