National Imaging Associates, Inc.*

2024 NIA Clinical Guidelines For Medical Necessity Review

SLEEP STUDY GUIDELINES

Effective January 1, 2024 – December 31, 2024

**National Imaging Associates, Inc. (NIA) is a subsidiary of Evolent Health LLC.*

Guidelines for Clinical Review Determination

Preamble

NIA is committed to the philosophy of supporting safe and effective treatment for patients. The medical necessity criteria that follow are guidelines for the provision of diagnostic imaging. These criteria are designed to guide both providers and reviewers to the most appropriate diagnostic tests based on a patient's unique circumstances. In all cases, clinical judgment consistent with the standards of good medical practice will be used when applying the guidelines. Determinations are made based on both the guideline and clinical information provided at the time of the request. It is expected that medical necessity decisions may change as new evidence-based information is provided or based on unique aspects of the patient's condition. The treating clinician has final authority and responsibility for treatment decisions regarding the care of the patient.

Guideline Development Process

These medical necessity criteria were developed by National Imaging Associates, Inc. (NIA) for the purpose of making clinical review determinations for requests for therapies and diagnostic procedures. The developers of the criteria sets included representatives from the disciplines of radiology, internal medicine, nursing, cardiology, and other specialty groups. NIA's guidelines are reviewed yearly and modified when necessary following a literature search of pertinent and established clinical guidelines and accepted diagnostic imaging practices.

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Clinical guidelines **Sleep Disorder Treatment Initiation and Management**	**Original Date: June 2013**
CPT Codes: 94660	**Last Revised Date: May 2023**
Guideline Number: NIA_CG_400	**Implementation Date: January 2024**

GENERAL INFORMATION

- *It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.*
- *Where a specific clinical indication is not directly addressed in this guideline, medical necessity determination will be made based on widely accepted standard of care criteria. These criteria are supported by evidence-based or peer-reviewed sources such as medical literature, societal guidelines and state/national recommendations.*

INDICATIONS FOR SLEEP DISORDER TREATMENT INITIATION AND MANAGEMENT[1-3]

- The individual has been diagnosed with sleep disordered breathing that would benefit from treatment using a positive airway pressure (PAP) device, **AND** all of the following:
  - The chief purpose of the office visit with the physician is to initiate PAP device treatment or address issues related to the PAP device
  - The individual requires education or problem solution related to the PAP device
  - The visit does not include discussion of other health issues beyond initiation and management of a PAP device

NOTE: This service should not occur for the same individual on the same date as an evaluation and management service.

BACKGROUND

Treatment of sleep disorders is often managed during standard evaluation and management services. The "Sleep Disorder Treatment Initiation and Management" service can be used when the only purpose for the office visit is for the implementation of, or issue resolution related to,

a PAP device. Devices include continuous positive airway pressure (CPAP), bi-positive airway pressure (BiPAP), auto-adjusting positive airway pressure (APAP), and variable positive airway pressure (VPAP).

Kapur et. Al. (2017)[4] reported on an updated clinical practice guideline from the American Academy of Sleep Medicine. This updated guideline is based on a systematic review evaluated by a sleep medicine expert task force.

Based on expert consensus, implementation of the following is necessary for appropriate and effective management of patients with obstructive sleep apnea (OSA) treated with positive airway pressure: 1. Treatment of OSA with PAP therapy should be based on a diagnosis of OSA established using objective sleep apnea testing. 2. Adequate follow-up, including troubleshooting and monitoring of objective efficacy and usage data to ensure adequate treatment and adherence, should occur following PAP therapy initiation and during treatment of OSA.[3]

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POLICY HISTORY

Date	Summary
May 2023	No changes
May 2022	No changes

Reviewed / Approved by NIA Clinical Guideline Committee

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*National Imaging Associates, Inc.	
Clinical guidelines **Sleep Study, Unattended (Home Sleep Test)**	**Original Date: September 2013**
CPT Codes: 95800, 95801, 95806, G0398, G0399, G0400	**Last Revised Date: May 2023**
Guideline Number: NIA_CG_402	**Implementation Date: January 2024**

GENERAL INFORMATION

- *It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.*
- *Where a specific clinical indication is not directly addressed in this guideline, medical necessity determination will be made based on widely accepted standard of care criteria. These criteria are supported by evidence-based or peer-reviewed sources such as medical literature, societal guidelines and state/national recommendations.*

INDICATIONS FOR HOME SLEEP STUDY, UNATTENDED - ADULTS[1-3]

Home sleep testing (HST) for obstructive sleep apnea (OSA) should be performed in conjunction with a comprehensive sleep evaluation and adequate follow-up. A comprehensive sleep evaluation should include a sleep history (snoring, apneas, daytime sleepiness), BMI, neck circumference, cardiopulmonary examination, and identification of comorbid sleep disorders and medical conditions.

Suspected Obstructive Sleep Apnea in adults >18 years old[2, 4-6]

With a high pre-test probability of moderate to severe OSA

Signs and symptoms including:

- Excessive daytime sleepiness; **AND**
- Any **TWO** of the following:
  - Habitual loud snoring
  - Witnessed apneas or gasping and choking
  - Diagnosed hypertension

    - BMI ≥ 30 OR large neck circumference (≥ 17 inches in men, ≥ 16 inches in women) **AND**
- There are no contraindications to a home sleep study (see Table 1) **OR**
- A member of a high-risk population, including[7]:
    - Congestive heart failure, Class I or II
    - Atrial fibrillation
    - Chronic kidney disease
    - Treatment refractory hypertension
    - Type 2 diabetes
    - Nocturnal dysrhythmias
    - Pulmonary hypertension
    - High-risk driving populations
    - Class 2 or 3 Obesity (BMI ≥ 35)
    - Preoperative for bariatric surgery
    - Craniofacial or upper airway soft tissue abnormalities (see Table 2)
- **AND** any **TWO** of the following
    - Excessive daytime sleepiness
    - Habitual loud snoring
    - Witnessed apneas or gasping and choking
    - Hypertension (if above high-risk feature is not treatment refractory hypertension) or BMI ≥ 30 (if above high-risk feature is not BMI ≥ 35 or preop for bariatric surgery)[1] **AND**
- There are no contraindications to a home sleep study (see Table 1)

Commercial drivers and individuals in safety-sensitive transportation occupations with any of the following[8-10]

- BMI ≥40 kg/m2
- BMI ≥33 kg/m2 and either type 2 diabetes or hypertension requiring two or more medications
- Sleepiness-related crash or accident by report or observation
- Fatigue or sleepiness during the duty period

Note: PSG is the optimal test when there is:

- Concern for another sleep disorder
- A contraindication for an unattended sleep study (see **Table 1**)
- Pre-test probability of OSA is low

Table 1: CONTRAINDICATIONS FOR HOME SLEEP STUDY, UNATTENDED - ADULTS

Comorbid Medical Conditions
• Moderate to severe pulmonary disease with: FEV1/FVC 0.7 and FEV1 less than 80% predicted, oxygen use, daytime hypercapnia or hypoxemia

• Obesity hypoventilation syndrome: BMI ≥ 30 with PCO_2 > 45 on arterial blood gas OR BMI ≥ 35 with inability to lie flat in bed, hypoxemia or serum bicarbonate ≥ 27 [2, 11-15]
• Chronic opiate medication use
• Neuromuscular disease (e.g., Parkinson's disease, ALS, myotonic dystrophy, spina bifida)
• Congestive Heart Failure: NYHA class III or IV, or LVEF less than 45% (see Table 3)
• Stroke
Comorbid Sleep Disorders, known or suspected
• Periodic limb movement disorder
• Parasomnia
• REM behavior disorder
• Nocturnal seizures
• Narcolepsy or idiopathic hypersomnia
• Circadian rhythm disorder
• Central sleep apnea or complex sleep apnea
• Hypoventilation
• Sleep-related hypoxemia
• Severe insomnia
Technical Contraindications
• Inability to follow instructions or lack of mobility or dexterity to use portable equipment and the absence of a competent caregiver
• Previous negative or technically inadequate home sleep study*
Other
• Low pre-test probability of sleep apnea**
• Screening for asymptomatic individuals in high-risk populations[1]

* If a single home sleep study is inconclusive or technically inadequate or negative with continued clinical suspicion of OSA, an attended polysomnography (PSG) is recommended[2]

** If there is a low pre-test probability of sleep apnea, but well-documented ongoing concern for a sleep disorder causing functional impairment (e.g., upper airway resistance syndrome or mild OSA), PSG may be indicated

Note: HST may be indicated for the diagnosis of OSA in individuals for whom in-laboratory PSG is not possible due to immobility, safety, or critical illness[1]

Table 2: CRANIOFACIAL ABNORMALITIES[7]

- Adenotonsillar enlargement
- Modified Mallampati score of 3 or 4
- Retrognathia
- Lateral peritonsillar narrowing
- Macroglossia
- Elongated/enlarged uvula
- High arched/narrow hard palate
- Nasal abnormalities (polyps, deviation, valve abnormalities, turbinate hypertrophy)

INDICATIONS FOR REPEAT HOME SLEEP STUDY [16]

- Previously diagnosed OSA and a re-evaluation is required for the following:
    - Response to upper airway surgical procedures
    - Response after initial treatment with oral appliances
    - Re-evaluation in individuals treated for OSA with non-PAP interventions who
        - Have recurrent symptoms or
        - Develop or have a change in cardiovascular disease
    - Re-evaluation of the diagnosis after a change in ≥ 10% of body weight
    - Remote history of OSA not treated with a need to re-evaluate the diagnosis and/or initiate PAP
    - Upper airway stimulation therapy[17-19]
        - Pre-implantation re-evaluation of known OSA with:
            - PAP failure or PAP intolerance AND
            - BMI ≤ 32 AND
            - No recent sleep study OR a significant change in weight and/or symptoms
        - Post-implantation - PSG titration previously performed with insufficient clinical response, weight gain and/or return of symptoms

BACKGROUND

OSA is a common disorder and is associated with significant morbidity and mortality. Recent epidemiologic data have demonstrated that the prevalence of moderate to severe sleep-disordered breathing is 10% among 30–49-year-old men, 17% among 50–70-year-old men, 3% among 30–49-year-old women, and 9% among 50–70-year-old women. These percentages are substantially increased from previously reported studies[20, 21]. OSA is caused by recurrent complete or partial upper airway obstruction during sleep, resulting in loud snoring or apnea frequently reported by a bed partner, episodes of gasping or choking, and associated frequent awakenings from sleep. The increase in prevalence of OSA is likely largely attributable to the

rising rates of obesity in the United States, as obesity is often associated with a narrowed upper airway. There are several neurocognitive and cardiovascular effects of untreated sleep apnea.

The diagnosis of OSA is made by clinical evaluation and confirmed by sleep testing. Unattended home sleep studies are indicated to confirm the diagnosis of sleep apnea as part of a comprehensive sleep evaluation. This guideline above outlines the indications and contra-indications for unattended home sleep studies in adults with suspected OSA.

Sleep Study Types/Levels: Sleep studies refer to the continuous and simultaneous recording of various physiological parameters of sleep and breathing. Sleep studies have been classified based on the number and type of physiologic variables recorded and whether or not the study is attended by a technologist or performed using portable equipment in the home or some other unattended setting.

The types of sleep studies are as follows:

Sleep Study Types/Levels

Type (Level)	Description
I	Standard PSG with a minimum of 7 parameters measured, including electroencephalogram (EEG), electroocoulogram (EOG), electromyogram (EMG), and electrocardiogram (ECG), as well as monitors for airflow, respiratory effort, and oxygen saturation. A sleep technician is in constant attendance.
II	Comprehensive portable PSG studies that measure the same channels as type I testing, except that a heart rate monitor can replace the ECG and a sleep technician is not necessarily in attendance.
III	Monitor and record a minimum of 4 channels and must record ventilation (at least two channels of respiratory movement, or respiratory movement and airflow), heart rate or ECG, and oxygen saturation. A sleep technician is not necessarily in constant attendance but is needed for preparation.
IV	Three or more channels, one of which is airflow. Other measurements include oximetry and at least 2 other parameters (e.g., body position, EOG, peripheral arterial tonometry (PAT) snoring, actigraphy, airflow). A sleep technician is not necessarily in attendance but is needed for preparation.

Type II, Type III, and Type IV devices are used for unattended home sleep studies. Type III and Type IV devices do not include sleep EEG recording channels and do not measure sleep. Therefore, when Type III and Type IV devices are used, Apnea/Hypopnea Index (AHI) is calculated by dividing the total number of apneas + hypopneas by the total recording time.

A technically adequate home sleep apnea testing 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 technically adequate diagnostic test includes a minimum of 4 hours of technically adequate oximetry and flow data obtained during a recording attempt that encompasses the habitual sleep period. A single home sleep study recording is conducted over at least one night.[2]
Unattended Sleep Study - Home Sleep Test (HST) vs. Attended Sleep Study: When a Sleep Study, Unattended (i.e., HST) is a covered benefit, the health plan may require use of the unattended study unless the individual has contraindications or co-morbidities that would require an attended sleep study. Home Sleep Tests are considered inappropriate for testing people with co-morbid conditions, people who are suspected of having sleep disorders other than OSA, and those who are not in the category of high risk for moderate to severe OSA. There may be some situations in which a home sleep test may require follow-up with an attended test when the home test is negative or there are other factors that contribute to a HST failure.

AHI/REI: After physician review and interpretation of the data recorded in sleep studies, the total number, type, and rate of occurrence of apneas (cessation of breathing for at least 10 seconds) and hypopneas (reduction, but not cessation of airflow with an associated fall in oxygen saturation of 3 to 4% or an arousal) and respiratory event–related arousals (RERAs) are reported. The number of events per hour, the Apnea/Hypopnea Index (AHI) or respiratory disturbance index (RDI) is calculated to classify the severity of OSA. **AHI** is defined as the average number of episodes of apnea and hypopnea per hour. The **RDI** is defined as the average number of respiratory disturbances (apneas, hypopneas, and respiratory event–related arousals [RERAs]) per hour.

Severity of OSA in adults > 18 years old	
AHI= 5-15/hr.	Mild OSA
AHI= 15-30/hr.	Moderate OSA
AHI= >30/hr.	Severe OSA

The term AHI is defined differently when used with Home Sleep Testing than when used with PSG. The AHI is the number of apneas + hypopneas/total recording time, rather than the total sleep time since sleep parameters are not recorded with type III and IV devices. This is known as the **REI** (Respiratory Event Index). Since arousals, and therefore RERAs, cannot be captured on HST, the term RDI does not apply. As a result, home sleep testing is more likely to underestimate the severity of sleep disordered breathing compared to the AHI by PSG. Due to this risk of false-negative HST tests, in laboratory PSG should be performed in cases where HST is technically inadequate or fails to establish the diagnosis of OSA in individuals with a high pre-test probability.

Epworth sleepiness scale[22, 23] The ESS is a self-administered questionnaire with 8 questions which is used to assess a person's level of daytime sleepiness. A score of 0-10 is considered a normal level of sleepiness and > 10 as excessive daytime sleepiness.

Treatment of OSA: Once the diagnosis of OSA is made the patient and physician should decide on an appropriate treatment strategy. Depending on the seventy of the OSA, symptoms and comorbidities, this may include positive airway pressure devices (PAP), oral appliances, behavioral treatments, surgery, and/or adjunctive treatments.[7]

Positive airway pressure (PAP) devices provide a pneumatic splint to maintain upper airway patency during sleep. PAP devices can deliver continuous positive airway pressure (CPAP), bi-level positive airway pressure (BiPAP), where there is a difference in inspiratory and expiratory positive pressure, or automatically titrating positive pressure (APAP). PAP therapy can be initiated using either APAP at home or in-laboratory titration in adults with OSA and no significant comorbidities.[24] Those with comorbidities can be considered for an in-lab PAP titration. CPAP or APAP if preferred over BiPAP except when there are higher pressure requirements required, or a failure of CPAP or APAP.[24] Adaptive Servo-Ventilation (ASV) may be useful in central and complex OSA particularly in specific CHF populations when other treatment options have failed.[25, 26]

An AHI of 15 or more, even in the absence of sleep-related symptoms, warrants treatment due to a greater association of this level of sleep disordered breathing with consequences, such as increased cardiovascular risk.[7] An AHI of 5-15 (mild OSA) per hour warrants treatment if there is excessive sleepiness, comorbid hypertension, or impaired self-related quality of life (e.g., snoring, insomnia, morning headaches, nocturia, impaired daytime functions or fatigue). "There is insufficient and inconclusive evidence to recommend or withhold PAP treatment to treat non-sleepy adults as a means to reduce cardiovascular events or mortality."[24] PAP treatments' effect on neurocognitive function, mood disorders, metabolic syndrome, heart failure and all-cause mortality is currently unclear and more evidence is needed to determine the efficacy of PAP therapy to improve outcomes and symptoms associated with OSA outside of excessive sleepiness.[27]

Positive Airway Pressure (PAP) Titration: In-laboratory titration refers to both full-night and split-night titration. PAP titration should include sleep staging and the ability to identify arousals to appropriately titrate PAP with a goal of the elimination or near elimination of apneas, hypopneas and respiratory related arousals in REM and NREM sleep, including with the individual in the supine position.[7] These pressure settings from the titration study will be programmed into the device that the individual uses at home. A cardiorespiratory sleep study without EEG recording is not recommended for PAP titration (either CPAP, BiPAP or ASV). Automatically titrating positive airway pressure (APAP) supplies variable pressure in response to acute or chronic changes (body position, sleep stage or weight changes). APAP can be initiated in the home setting in those without significant comorbidities; therapy is started in the auto-adjusting mode after which it can be maintained or changed to a fixed, continuous pressure setting determined from PAP monitoring data. Most PAP machines record at a minimum usage, leak, pressure and AHI. This requires close patient follow-up and monitoring. The choice of PAP initiation (either in the home or lab) should be based on access, cost-effectiveness, individual preference, sleep clinician judgement, and other factors.[24]

Upper airway stimulation therapy (Inspire®): Upper Airway Stimulation (UAS) system is an implantable nerve stimulator used to treat moderate to severe obstructive sleep apnea (15≤AHI≤65). It is FDA-approved for individuals 22 years and older who have failed or cannot tolerate PAP treatment and who do not have a complete concentric collapse at the soft palate level. It is also indicated for use in adult individuals between the ages of 18 and 21 with moderate to severe OSA (15≤AHI≤65) who do not have complete concentric collapse at the soft palate level; are contraindicated for/or not treated by adenotonsillectomy; have failed, or cannot tolerate, PAP therapy despite attempts to improve compliance; have followed standard of care in considering all other alternative or adjunct therapies. There are several contraindications to UAS, including central or mixed apneas, anatomical abnormalities, pregnancy, neurological conditions, and individuals requiring MRIs. In order to determine eligibility for the implantation, testing involves confirming AHI on sleep studies, medical and surgical consultation, and endoscopy during drug-induced sleep. Follow-up after implantation involves a follow-up PSG to correctly titrate the device.[17-19, 28]

Consequences of OSA: The most significant consequences of sleep apnea include neurocognitive and cardiovascular effects. Excessive daytime sleepiness, difficulties with concentration and memory, decreased libido, and irritability result from OSA and sleep fragmentation. Some studies have shown that motor vehicle accidents are more common among individuals with sleep apnea compared with normal controls, and some studies indicate the degree of driving impairment is similar to drivers who are impaired by alcohol consumption.[29] Individuals with OSA are at increased risk for cardiovascular consequences, including hypertension, coronary artery disease and heart failure, nocturnal cardiac arrhythmias, stroke, and death.[30, 31] However, recent metanalysis has not clearly indicated that treatment of OSA improves outcomes and symptoms associated with OSA outside of excessive sleepiness.[27]

Table 3: New York Heart Association (NYHA) Functional Classes[32]

Class	Patient Symptoms
Class I (Mild)	Cardiac disease, but no symptoms and no limitation in ordinary physical activity, e.g., shortness of breath when walking, climbing stairs, etc.
Class II (Mild)	Mild symptoms (mild shortness of breath and/or angina) and slight limitation during ordinary activity.
Class III (Moderate)	Marked limitation in activity due to symptoms, even during less-than-ordinary activity, e.g., walking short distances (20–100 m). Comfortable only at rest.
Class IV (Severe)	Severe limitations. Experiences symptoms even while *at rest*. Mostly bedbound patients.

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POLICY HISTORY

Date	Summary
May 2023	• Updated references • Added commercial driver section • General Information moved to beginning of guideline with added statement on clinical indications not addressed in this guideline
May 2022	• Updated references • Updated background Clarified: • BMI OR large neck circumference • Obesity hypoventilation syndrome: BMI ≥ 30 with PCO2 > 45 on arterial blood gas OR BMI ≥ 35 with inability to lie flat in bed, hypoxemia or serum bicarbonate ≥ 27 Added: • Under high-risk population and any two of the following - BMI ≥ 30 (if above high-risk feature is not BMI≥35 or preop for bariatric surgery) • INDICATIONS FOR REPEAT HOME SLEEP STUDY - Re-evaluation in individuals treated for OSA with non-PAP interventions who have recurrent symptoms or develop or have a change in cardiovascular disease Removed: • BMI ≥ 40 as a CI to HST

Reviewed / Approved by NIA Clinical Guideline Committee

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Clinical guidelines **SLEEP STUDY, ATTENDED (NOCTURNAL POLYSOMNOGRAPHY)**	**Original Date: June 2013**
CPT Codes: **95805, 95807, 95808, 95810, 95811**	**Last Revised Date: May 2023**
Guideline Number: NIA_CG_401 - 2	**Implementation Date: January 2024**

GENERAL INFORMATION

- *It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.*
- *Where a specific clinical indication is not directly addressed in this guideline, medical necessity determination will be made based on widely accepted standard of care criteria. These criteria are supported by evidence-based or peer-reviewed sources such as medical literature, societal guidelines and state/national recommendations.*

INDICATIONS FOR SLEEP STUDY, ATTENDED – ADULTS

Suspected sleep-related breathing disorders

- With a high pre-test probability of moderate to severe OSA[1-4]
    - Signs and symptoms including:
        - Excessive daytime sleepiness **AND** any **TWO** of the following:
            - Habitual loud snoring
            - Witnessed apneas or gasping and choking
            - Diagnosed hypertension
            - BMI ≥ 30 or large neck circumference (≥ 17 inches in men, ≥ 16 inches in women) **AND**
        - There is a contraindication for an unattended sleep study (see Table 1)

      OR

    - A member of a high-risk population that meet the following criteria,[5] including:
        - High-risk populations are:
            - Congestive heart failure

- Atrial fibrillation
- Chronic kidney disease
- Treatment refractory hypertension
- Type 2 diabetes
- Nocturnal dysrhythmias
- Stroke
- Pulmonary hypertension
- Class 2 or 3 obesity (BMI ≥ 35)
- Preoperative for bariatric surgery
- Craniofacial or upper airway soft tissue abnormalities (see Table 2)

▪ **AND** any **TWO** of the following

- Excessive daytime sleepiness
- Habitual loud snoring
- Witnessed apneas or gasping and choking
- Hypertension (if above high-risk feature is not treatment refractory hypertension) or BMI ≥ 30 (if above high-risk feature is not BMI ≥ 35 or preop for bariatric surgery) **AND**

▪ There is a contraindication for an unattended sleep study (see Table 1)

- Commercial drivers and individuals in safety-sensitive transportation occupations[6-8] with any of the following
  - BMI ≥40 kg/m2
  - BMI ≥33 kg/m2 and either type 2 diabetes or hypertension requiring two or more medications
  - Sleepiness-related crash or accident by report or observation
  - Fatigue or sleepiness during the duty period

  Note: PSG is the optimal test when there is:
  - Concern for another sleep disorder
  - A contraindication for an unattended sleep study (see Table 1)
  - Pre-test probability of OSA is low

- With documented clinical concern for central sleep apnea (CSA) based on[9]
  - Sleep symptoms (e.g., fragmented sleep, insomnia, apneas, daytime sleepiness)

  AND

  - Comorbid medical conditions (e.g., heart failure, opioid use, neurological disorders)

Table 1: CONTRAINDICATIONS FOR A HOME SLEEP STUDY, UNATTENDED - ADULTS

Comorbid Medical Conditions
• Moderate to severe pulmonary disease with: FEV1/FVC 0.7 and FEV1 less than 80% predicted, oxygen use, daytime hypercapnia or hypoxemia.
• Obesity hypoventilation syndrome: BMI ≥ 30 with PCO_2 > 45 on arterial blood gas OR BMI ≥ 35 with inability to lie flat in bed, hypoxemia or serum bicarbonate ≥ 27 [3, 10-14]
• Chronic opiate medication use
• Neuromuscular disease (e.g., Parkinson's disease, ALS, myotonic dystrophy, spina bifida)
• Congestive Heart Failure: NYHA class III or IV, or LVEF less than 45% (see Table 3)
• Stroke
Comorbid Sleep Disorders, known or suspected
• Periodic limb movement disorder
• Parasomnia
• REM behavior disorder
• Nocturnal seizures
• Narcolepsy or idiopathic hypersomnia
• Circadian rhythm disorder
• Central sleep apnea or complex sleep apnea
• Hypoventilation
• Sleep-related hypoxemia
• Severe insomnia
Technical Contraindications
• Inability to follow instructions or lack of mobility or dexterity to use portable equipment and the absence of a competent caregiver
• Previous negative or technically inadequate home sleep study*
Other
• Low pre-test probability of sleep apnea**
• Screening for asymptomatic individuals in high-risk populations[15]

* If a single home sleep study is inconclusive or technically inadequate or negative with continued clinical suspicion of OSA, an attended polysomnography (PSG) is recommended.[3]

** If there is a low pre-test probability of sleep apnea, but well-documented ongoing concern for a sleep disorder causing functional impairment (e.g., upper airway resistance syndrome or mild OSA), PSG may be indicated.

Table 2: CRANIOFACIAL ABNORMALITIES[5]

- Adenotonsillar enlargement
- Modified Mallampati score of 3 or 4
- Retrognathia
- Lateral peritonsillar narrowing
- Macroglossia
- Elongated/enlarged uvula
- High arched/narrow hard palate
- Nasal abnormalities (polyps, deviation, valve abnormalities, turbinate hypertrophy)

Suspected narcolepsy/idiopathic hypersomnia[3]

- A multiple sleep latency test (MSLT) is indicated in the evaluation of hypersomnia, including narcolepsy and idiopathic hypersomnia[16-18]
- PSG must be done on the night preceding MSLT to rule out other sleep disorders and to document adequate nocturnal sleep time (6 hours)
- Narcolepsy is characterized by:
  - Excessive daytime sleepiness
  - Cataplexy
  - Hypnogogic hallucinations
  - Sleep paralysis
- Idiopathic hypersomnia is characterized by:
  - Excessive daytime sleepiness despite adequate sleep in the absence of another sleep disorder

* All other indications for an MSLT are considered experimental and investigational since effectiveness for other indications has not been established.

Suspected parasomnias and nocturnal seizure disorders[3, 19]

- Polysomnography with expanded bilateral montage and video recording is indicated for evaluation of individuals with:
  - Suspected nocturnal seizures based on clinical history with abnormal or inconclusive EEG findings
  - Suspected REM sleep behavior disorder
  - Sleep behaviors suggestive of parasomnias (paroxysmal arousals and other sleep disruptions) that are unusual or atypical because of:
    - Individual's age at onset
    - Time, duration, or frequency of occurrence
    - Behaviors that are violent or otherwise potentially injurious to the individual or others
    - Features of the motor patterns in question (e.g., stereotypical, repetitive, or focal)
    - Lack of response to conventional therapy

Evaluation of suspected periodic limb movement disorder[19, 20]

- Polysomnography is indicated when the individual or an observer report repetitive limb movements during sleep with any of the following
    - Frequent awakenings
    - Difficulty maintaining sleep
    - Excessive daytime sleepiness; **AND**
    - No known concurrent untreated sleep disorder
- PSG is not indicated in other sleep related movement disorders (restless leg syndrome, bruxism, sleep related leg cramps, rhythmic movement disorder or sleep-related myoclonus) unless another underlying sleep disorder is suspected.

INDICATIONS FOR PAP TITRATION STUDIES AND FOLLOW-UP STUDIES

Split night sleep study[21, 22]

In a split night study, the initial 2 or more hours of the PSG are used to diagnose OSA and the final portion is used to titrate continuous positive airway pressure (CPAP)

- A split-night study PSG is indicated when criteria for attended PSG is met; **AND**
    - The apnea hypopnea index (AHI) is ≥ 15 in first 2 hours
    - There are 3 hours available to perform the CPAP titration[3]

CPAP/BiPAP titration study

- Indicated after a diagnostic PSG if:
    - The AHI is ≥ 15, and a split night study was not performed; **OR**
    - The AHI is between 5 and 15 and there is significant daytime sleepiness, comorbid hypertension, or impaired self-related quality of life (e.g., snoring, insomnia, morning headaches, nocturia, impaired daytime functions or fatigue)[23]
- Indicated after a split night study if:
    - The diagnostic portion of the split does not demonstrate an AHI of ≥ 15, but the overall study reaches this threshold due to events occurring later in the night;

      OR

    - During the titration portion of the split night the titration is not successful (there are residual apneas or hypopneas)

Attended sleep study following a home sleep test (HST) is indicated with any of the following:

- HST is technically inadequate (e.g., loss of signal through the night, bad recording due to patient device interface problem, etc.)
- A single HST is inconclusive or negative with continued clinical suspicion of OSA[3]
- HST is positive (AHI > 15), and an attended sleep study is needed for CPAP/BiPAP titration

- HST shows an AHI between 5 and 15, and there is significant daytime sleepiness, comorbid hypertension or impaired self-related quality of life (e.g., snoring, insomnia, morning headaches, nocturia, impaired daytime functions or fatigue) and an attended sleep study is needed for CPAP/BiPAP titration[24]
- HST shows prolonged hypoxemia or central apneas

Repeat sleep studies in individuals with diagnosed OSA

A repeat attended sleep study is indicated if there is a contraindication for an HST (above) or for PAP titration; otherwise, HSTs should be performed

- Repeat sleep studies may be performed up to twice a year for any of the following:
    - Individuals continuing to report symptoms (e.g., daytime sleepiness or snoring) despite adequate adherence (4 hours/night for 70% of nights over a 30-day period)
    - Individuals requiring a change of device due to intolerance of current device
    - Determining if positive airway pressure treatment settings need to be changed
    - Determining if treatment with PAP is still necessary after significant weight loss
    - Determining if there is a need to reinstitute or change treatment after significant weight gain or recurrent symptoms
    - Assessing treatment response after upper airway surgical procedures, or initial treatment with oral appliances
    - Remote history of OSA not on PAP with a need to re-establish diagnosis and/or initiate CPAP
    - Reassessment of sleep-related hypoxemia and/or sleep-related hypoventilation following initiation of treatment for OSA[25]
    - Reevaluation in individuals treated for OSA who develop or have a change in cardiovascular disease[25]
    - Follow-up PSG in individuals with unexplained PAP device-generated data[25]
- Upper airway stimulation therapy[26-28]
    - Pre-implantation- re-evaluation of known OSA with:
        - PAP failure or PAP intolerance **AND**
        - BMI ≤ 32 **AND**
        - No recent sleep study **OR** a significant change in weight and/or symptoms
    - Post-implantation:
        - Initial PSG titration
        - PSG titration previously performed with insufficient clinical response, weight gain and/or return of symptoms

The following is NOT indicated:

- Home (unattended) sleep studies in the pediatric population[29]
- Polysomnography for management of oxygen therapy
- Nap (abbreviated) polysomnography

- PSG for sleep-related bruxism

INDICATIONS FOR SLEEP STUDY, ATTENDED – PEDIATRICS (< 18 yrs.)[16, 30]:

Respiratory Indications

- Habitual snoring with one or more below signs or symptoms of obstructive sleep apnea syndrome (OSAS) in order to differentiate from primary snoring

Symptoms	Signs
Frequent snoring (≥3 nights/week)	Underweight or overweight
Gasps/observed apneas/snorting noises	Tonsillar hypertrophy
Labored breathing during sleep	Adenoidal facies
Cyanosis	Micrognathia/retrognathia
Sleeping in a seated position or with an extended neck	High-arched palate
Cyanosis	Failure to thrive
Attention-deficit/hyperactivity disorder	Hypertension
Learning problems	
Daytime sleepiness	
Sleep enuresis (especially secondary enuresis)	

Adapted from[31]

Note: In children, OSAS is often associated with daytime neurobehavioral problems (e.g., inattention, hyperactivity, impulsivity, and irritability). Daytime sleepiness is less common than in adults

- Children being considered for adenotonsillectomy to treat OSAS
- Suspected congenital central alveolar hypoventilation syndrome
- Suspected sleep-related hypoventilation due to chest wall deformities or neuromuscular disorders (e.g., Duchenne muscular dystrophy, Charcot-Marie-Tooth disease, myotonic dystrophy, congenital myopathies)[32]
- In the following respiratory disorders only if there is a clinical suspicion for an accompanying sleep-related breathing disorder:
    - Chronic asthma
    - Cystic fibrosis
    - Pulmonary hypertension
    - Bronchopulmonary dysplasia
    - Chest wall abnormality, such as kyphoscoliosis
- Following an apparent life-threatening event (ALTE) where there is clinical evidence of sleep-related breathing disorder
- Neurological disorders (e.g., myelomeningocele, Chiari malformation, known brain lesion)[32-34]

- Genetic disorders such as Achondroplasia, Down syndrome, Prader-Willi syndrome, Ehlers-Danlos syndrome, Pierre Robin sequence, sickle cell disease and mucopolysaccharidosis[35]

Non-Respiratory Indications[16]

- Suspected narcolepsy (PSG/MSLT) as suggested by the presence of:
    - Excessive daytime sleepiness
    - Cataplexy
    - Hypnogogic hallucinations
    - Sleep paralysis
- Hypersomnia from suspected causes other than narcolepsy (PSG/MSLT)
- Suspected parasomnia or seizure disorders:
    - Non-REM parasomnias, epilepsy, or nocturnal enuresis when there is a clinical suspicion for co-morbid sleep disorder, such as sleep-disordered breathing or periodic limb movement disorder (PLMD)
    - To confirm the diagnosis of an atypical or potentially injurious parasomnia or differentiate a parasomnia from sleep-related epilepsy when the initial clinical evaluation and standard EEG are inconclusive
- Suspected restless leg syndrome or periodic limb movement disorder
    - When the individual or an observer reports repetitive limb movements during sleep along with frequent awakenings, fragmented sleep, difficulty maintaining sleep, or excessive daytime sleepiness
    - To document periodic limb movements when PLMD is suspected
    - To provide supportive data for diagnosis when RLS is suspected

INDICATIONS FOR TITRATION AND FOLLOW-UP STUDIES – PEDIATRICS (< 18 years)[30, 31]

Positive airway pressure (PAP) titration in children with obstructive sleep apnea syndrome

- Children with OSAS treated with an oral appliance, to assess response to treatment
- Following an adenotonsillectomy or other pharyngeal surgery for OSAS when **ANY** of the following is met (study should be delayed 6 to 8 weeks postoperatively):
    - Moderate to severe OSAS was present on preoperative PSG
    - Cardiac complications of OSAS (e.g., right ventricular hypertrophy)
    - Craniofacial anomalies
    - Neurological disorders (e.g., Down syndrome, Prader-Willi syndrome, and myelomeningocele)
    - Obesity
    - Presence of symptoms of OSAS persisting after treatment
    - After rapid maxillary expansion
- Follow-up PSG in children on chronic PAP support to determine whether pressure requirements have changed due to:
    - The child's growth and development (weight or craniofacial)

    - Recurrent symptoms while on PAP
    - The institution of additional or alternate treatment
- Noninvasive positive pressure ventilation (NIPPV) titration in children with other sleep-related breathing disorders
- Children treated with mechanical ventilation to adjust ventilator settings
- Children treated with tracheostomy for sleep-related breathing disorders as part of the evaluation prior to decannulation

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BACKGROUND

Attended sleep studies or nocturnal polysomnography (PSG) are indicated to assess the following sleep-related disorders:

- Sleep-related breathing disorders (obstructive sleep apnea and central sleep apnea)
- Narcolepsy and idiopathic hypersomnia
- Parasomnias and seizure disorders
- Periodic limb movement disorder

Polysomnography requires a minimum of the following channels: electroencephalogram (EEG), electrooculogram (EOG), chin electromyogram (EMG), airflow, oxygen saturation, respiratory effort and heart rate, and PSGs are attended by a technologist.[3] They are used for initial diagnosis as well as follow-up of therapeutic interventions for these conditions in both adult and pediatric patients.

Types/Levels: Sleep studies refer to the continuous and simultaneous recording of various physiological parameters of sleep followed by physician review and interpretation, performed in the diagnosis and management of sleep disorders. Sleep studies have been classified based on the number and type of physiologic variables recorded and whether or not the study is attended by a technologist or performed with portable equipment in the home or some other unattended setting.

The types of sleep studies are as follows:

Types of Sleep Studies

Type (Level)	Description
I	Standard polysomnography (PSG) with a minimum of 7 parameters measured, including EEG, EOG, chin EMG, and ECG, as well as monitors for airflow, respiratory effort, and oxygen saturation. A sleep technician is in constant attendance.
II	Comprehensive portable PSG studies that measure the same channels as type I testing, except that a heart rate monitor can replace the ECG and a sleep technician is not necessarily in attendance.

III	Monitor and record a minimum of 4 channels and must record ventilation (at least two channels of respiratory movement, or respiratory movement and airflow), heart rate or ECG, and oxygen saturation. A sleep technician is not necessarily in constant attendance but is needed for preparation.
IV	Three or more channels, one of which is airflow. Other measurements include oximetry and at least 2 other parameters (e.g., body position, EOG, peripheral arterial tonometry (PAT) snoring, actigraphy, airflow). A sleep technician is not necessarily in attendance but is needed for preparation.

Type II, Type III and Type IV devices are used for unattended home sleep studies. Type III and Type IV devices do not include sleep EEG recording channels and do not measure sleep. Therefore, when Type III and Type IV devices are used, apnea/hypopnea index (AHI) is calculated by dividing the total number of apneas + hypopneas by the total recording time.

Home sleep test (HST): Unattended (home) sleep studies are considered medically necessary for individuals with symptoms suggestive of OSA when the home sleep study is used as part of a comprehensive sleep evaluation, using a Type II, Type III, or Type IV device measuring airflow. Home sleep tests are considered inappropriate for testing people with co-morbid conditions, people who are suspected of having sleep disorders other than obstructive sleep apnea (OSA), and those who are not in the category of high-risk for moderate to severe OSA. There may be some situations in which home sleep test may require follow-up with an attended test when the home test is negative or there are other factors that contribute to a technical failure. (See separate clinical guideline for "Sleep Study, Unattended" when that procedure requires authorization.)[15]

AHI/RDI: After physician review and interpretation of the data recorded in sleep studies, the total number, type, and rate of occurrence of apneas (cessation of breathing for at least 10 seconds) and hypopneas (reduction, but not cessation of airflow with an associated fall in oxygen saturation of 3 to 4% or an arousal) and respiratory event–related arousals (RERAs) are reported. The number of events per hour, the apnea/hypopnea index (AHI) or respiratory disturbance index (RDI) is calculated to classify the severity of OSA: **AHI** is defined as the average number of episodes of apnea and hypopnea per hour. The **RDI** is defined as the average number of respiratory disturbances (apneas, hypopneas, and respiratory event–related arousals [RERAs]) per hour.[36, 37]

Severity of OSA in adults > 18 years old	
AHI= 5-15/hr.	Mild OSA
AHI= 15-30/hr.	Moderate OSA
AHI= > 30/hr.	Severe OSA

Obstructive sleep apnea (OSA): Obstructive sleep apnea is characterized by recurrent episodes of upper airway obstruction and is linked with reductions in ventilation, resulting in repeated arousals and episodic oxyhemoglobin desaturations during sleep.

Central sleep apnea (CSA): The central sleep apnea syndrome is characterized by a lack of drive to breathe during sleep, and there is a diminished or absent respiratory effort during cessation of airflow.[9]

Epworth sleepiness scale (ESS) (Johns, 1991): The ESS is a self-administered questionnaire with 8 questions which is used to assess a person's level of daytime sleepiness. A score of 0-10 is considered a normal level of sleepiness and > 10 as excessive daytime sleepiness.[38]

Daytime nap polysomnography: (sometimes referred to as "PAP-nap") is not considered medically necessary.

Maintenance of wakefulness test is considered investigational for members with symptoms suggestive of OSA because its effectiveness for this indication has not been established.[39]

Narcolepsy: PSG must be done on the night preceding the multiple sleep latency testing (MSLT) to rule out other sleep disorders and to document adequate nocturnal sleep time prior to daytime MSLT. The MSLT helps confirm diagnosis of narcolepsy and determine severity of daytime sleepiness.

- MSLT includes minimum channels of EEG, EOG, chin EMG and ECG.
- The use of MSLT to support a diagnosis of narcolepsy is suspected if total sleep time on prior night sleep study is less than 6 hours.
- MSLT should not be performed after a split night sleep study.

Parasomnias and seizure disorders: Polysomnography for evaluation of parasomnias and seizure disorders includes minimum channels of EEG (using an expanded bilateral montage), EOG, and chin EMG (and anterior tibialis or extensor digitorum EMG for body movements). The PSG should also include video with documented technologist observations.

- PSG is used to assist in the diagnosis of paroxysmal arousals or other sleep disruptions that are unusual or atypical.
- PSG is not routinely indicated in cases of typical, uncomplicated, non-injurious parasomnias when the diagnosis is clearly delineated.
- PSG is used to evaluate suspected nocturnal seizures based on clinical history with abnormal or inconclusive EEG findings.
- PSG is used to evaluate suspected REM sleep behavior disorder (dream enactment behavior in sleep due to loss of muscle atonia during REM sleep, which in often seen with, or precedes, neurodegenerative disease).[40]
- For pediatric patients, studies have indicated that there is a significant prevalence of sleep disordered breathing, ranging from 58% to 100% on PSG in children with chronic NREM parasomnias.

Periodic limb movement disorder: Polysomnography for the evaluation of periodic limb movement disorder includes minimum channels of EEG, EOG, chin EMG, and left and right anterior tibialis EMG AND respiratory effort, airflow and oximetry.

PAP titration (CPAP/BIPAP/APAP): In-laboratory titration refers to both full-night and split-night titration. PAP titration should include sleep staging and the ability to identify arousals to appropriately titrate PAP with a goal of the elimination or near elimination of apneas, hypopneas and respiratory-related arousals in REM and NREM sleep, including REM sleep with the individual in the supine position.[5] These pressure settings from the titration study will be programmed into the device that the individual uses at home. A cardiorespiratory sleep study without EEG recording is not recommended for PAP titration (either CPAP, BiPAP or ASV). Automatically titrating positive airway pressure (APAP) supplies variable pressure in response to acute or chronic changes (body position, sleep stage or weight changes). APAP can be initiated in the home setting in those without significant comorbidities; therapy is started in the auto-adjusting mode after which it can be maintained or changed to a fixed, continuous pressure setting determined from PAP monitoring data. Most PAP machines record at a minimum usage, leak, pressure and AHI. This requires close patient follow-up and monitoring. The choice of PAP initiation (either in the home or lab) should be based on access, cost-effectiveness, individual preference, sleep clinician judgement, and other factors.[18, 24, 41, 42]

Split-night study: A split-night study should not be used unless criteria are met for a second night titration study (see above in "split night study" section). A split night study is expected for most attended PSGs in those who have a high suspicion of OSA. In a split night sleep study, the diagnosis of OSA is established in the first half of the night and the optimal CPAP pressure is determined during the second half of the night. In this type of study, the apnea/hypopnea index (AHI) needs to be > 15 in the first 2 hours of the diagnostic portion of the study, and there needs to be at least 3 hours available to perform the titration portion.

Treatment of OSA: Once the diagnosis of OSA is made, the patient and physician should decide on an appropriate treatment strategy. Depending on the severity of the OSA, symptoms, and comorbidities, this may include positive airway pressure devices (PAP), oral appliances, behavioral treatments, surgery, and/or adjunctive treatments.[5, 43]

Positive airway pressure (PAP) devices provide a pneumatic splint to maintain upper airway patency during sleep. PAP devices can deliver continuous positive airway pressure (CPAP), bi-level positive airway pressure (BiPAP), where there is a difference in inspiratory and expiratory positive pressure, or automatically titrating positive pressure (APAP). PAP therapy can be initiated using either APAP at home or in-laboratory titration in adults with OSA and no significant comorbidities.[24] Those with comorbidities can be considered for an in-lab PAP titration. CPAP or APAP is preferred over BiPAP except when there is higher pressure requirements required or a failure of CPAP or APAP.[24] Adaptive servo-ventilation (ASV) may be useful in central and complex OSA particularly in specific CHF populations when other treatment options have failed.[16, 44]

An AHI of 15 or more, even in the absence of sleep-related symptoms, warrants treatment due to a greater association of this level of sleep-disordered breathing with consequences, such as increased cardiovascular risk.[5] An AHI of 5-15 (mild OSA) per hour warrants treatment if there is excessive sleepiness, comorbid hypertension, or impaired self-related quality of life (e.g.,

snoring, insomnia, morning headaches, nocturia, impaired daytime functions, or fatigue). "There is insufficient and inconclusive evidence to recommend or withhold PAP treatment to treat non-sleepy adults as a means to reduce cardiovascular events or mortality."[24] PAP treatment's effect on neurocognitive function, mood disorders, metabolic syndrome, heart failure, and all-cause mortality is currently unclear, and more evidence is needed to determine the efficacy of PAP therapy to improve outcomes and symptoms associated with OSA outside of excessive sleepiness.[23]

Upper airway stimulation therapy (Inspire®): Upper airway stimulation (UAS) system is an implantable nerve stimulator used to treat moderate to severe obstructive sleep apnea (15≤AHI≤65). It is FDA-approved for individuals 22 years and older who have failed or cannot tolerate PAP treatment and who do not have a complete concentric collapse at the soft palate level. It is also indicated for use in individuals between the ages of 18 and 21 with moderate to severe OSA (15≤AHI≤65) who do not have complete concentric collapse at the soft palate level; are contraindicated for/or not treated by adenotonsillectomy; have failed, or cannot tolerate, PAP therapy despite attempts to improve compliance; have followed standard of care in considering all other alternative or adjunct therapies. There are several contraindications to UAS, including central or mixed apneas, anatomical abnormalities, pregnancy, neurological conditions, and individuals requiring MRIs. To determine eligibility for the implantation, testing involves confirming AHI on sleep studies, medical and surgical consultation, and endoscopy during drug-induced sleep. Follow-up after implantation involves a follow-up PSG to correctly titrate the device.[26-28, 45]

Consequences of OSA: The most significant consequences of sleep apnea include neurocognitive and cardiovascular effects. Excessive daytime sleepiness, difficulties with concentration and memory, decreased libido, and irritability result from OSA and sleep fragmentation. Some studies have shown that motor vehicle accidents are more common among individuals with sleep apnea compared with normal controls, and some studies indicate the degree of driving impairment is similar to drivers who are impaired by alcohol consumption.[46] Individuals with OSA are at increased risk for cardiovascular consequences, including hypertension, coronary artery disease and heart failure, nocturnal cardiac arrhythmias, stroke, and death.[47, 48] However, recent metanalysis has not clearly indicated that treatment of OSA improves outcomes and symptoms associated with OSA outside of excessive sleepiness.[23]

Table 3: New York Heart Association (NYHA) Functional Classes[49]

Class	Patient Symptoms
Class I (Mild)	Cardiac disease, but no symptoms and no limitation in ordinary physical activity, e.g., shortness of breath when walking, climbing stairs, etc.
Class II (Mild)	Mild symptoms (mild shortness of breath and/or angina) and slight limitation during ordinary activity.

Class III (Moderate)	Marked limitation in activity due to symptoms, even during less-than-ordinary activity, e.g., walking short distances (20–100 m). Comfortable only at rest.
Class IV (Severe)	Severe limitations. Experiences symptoms even while *at rest*. Mostly bedbound patients.

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POLICY HISTORY

Date	Summary
May 2023	• Updated references • Added commercial driver section • Added initial evaluation of an inconclusive finding on a prior imaging report that requires further clarification
May 2022	Updated references Clarified: • Obesity hypoventilation syndrome: BMI ≥ 30 with PCO2 > 45 on arterial blood gas OR BMI ≥ 35 with inability to lie flat in bed, hypoxemia, or serum bicarbonate ≥ 27 • Repeat sleep studies in individuals with diagnosed OSA: Determining if there is a need to *reinstitute* or *change treatment* after significant weight gain or recurrent symptoms • Class 2 or 3 Obesity (BMI ≥ 35) Added: • Under high-risk population and any two of the following - BMI ≥ 30 (if above high-risk feature is not BMI ≥ 35 or preop for bariatric surgery) Repeat sleep studies in individuals with diagnosed OSA • Reassessment of sleep-related hypoxemia and/or sleep-related hypoventilation following initiation of treatment for OSA. • Reevaluation in individuals treated for OSA who develop or have a change in cardiovascular disease. • Follow-up PSG in individuals with unexplained PAP device-generated data Removed: • BMI ≥ 40 as a CI to HST

Reviewed / Approved by NIA Clinical Guideline Committee

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