FEP 2.01.99 Polysomnography for Non‒Respiratory Sleep Disorders

**Effective Date:** January 15, 2018

**Related Policies:**
2.01.18 Diagnosis and Medical Management of Obstructive Sleep Apnea Syndrome

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**Diagnosis and Medical Management of Obstructive Sleep Apnea Syndrome**

**Description**

Polysomnography (PSG) records multiple physiologic parameters relevant to sleep. Videorecording may also be performed during PSG to assess parasomnias such as rapid eye movement (REM) sleep behavior disorder (RBD).

**FDA REGULATORY STATUS**

A large number of PSG devices have been approved since 1986. U.S. Food and Drug Administration product code: OLV.

**POLICY STATEMENT**

Polysomnography (PSG) and a multiple sleep latency test performed on the day after the PSG may be considered **medically necessary** in the evaluation of suspected narcolepsy or idiopathic hypersomnia.

PSG may be **medically necessary** when evaluating patients with parasomnias when there is a history of sleep-related injurious or potentially injurious disruptive behaviors.

PSG may be **medically necessary** when a diagnosis of periodic limb movement disorder is considered when there is:

- A complaint of repetitive limb movement during sleep by the patient or an observer; and
- No other concurrent sleep disorder; and
- At least one of the following is present:
  - Frequent awakenings; or
  - Fragmented sleep; or
  - Difficulty maintaining sleep; or
  - Excessive daytime sleepiness.

PSG for the diagnosis of periodic limb movement disorder is considered **not medically necessary** when there is concurrent untreated obstructive sleep apnea, restless legs syndrome, narcolepsy, or rapid eye movement sleep behavior disorder.

PSG is considered **investigational** for the diagnosis of non‒respiratory sleep disorders not meeting the criteria above, including but not limited to nightmare disorder, depression, sleep-related bruxism, or noninjurious disorders of arousal.
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BENEFIT APPLICATION

Experimental or investigational procedures, treatments, drugs, or devices are not covered (See General Exclusion Section of brochure).

RATIONALE

Summary of Evidence

For individuals who have suspected hypersomnia who receive PSG, the evidence includes a systematic review on diagnostic accuracy. Relevant outcomes are test accuracy, symptoms, functional outcomes, and quality of life. The evidence has suggested that PSG followed by the multiple sleep latency test is associated with moderate sensitivity and high specificity in support of the diagnosis of narcolepsy. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have typical or benign parasomnia who receive PSG, the evidence includes systematic reviews of studies on diagnostic accuracy and controlled cohort studies. Relevant outcomes are test accuracy, symptoms, functional outcomes, and quality of life. The evidence has suggested that typical and benign parasomnias (eg, sleepwalking, sleep terrors) may be diagnosed on the basis of their clinical features and do not require PSG. The evidence is sufficient to determine that the technology is unlikely to improve the net health outcome.

For individuals who have violent or potentially injurious parasomnia who receive PSG, the evidence includes systematic reviews of studies on diagnostic accuracy and controlled cohort studies. Relevant outcomes are test accuracy, symptoms, functional outcomes, and quality of life. For the diagnosis of RBD, combined use of clinical history and PSG to document the loss of muscle atonia during REM sleep increases diagnostic accuracy and is considered the criterion standard for diagnosis. Diagnostic accuracy is increased with videorecording during PSG to assess parasomnias such as RBD. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have restless legs syndrome who receive PSG, the evidence includes systematic reviews of studies on diagnostic accuracy and controlled cohort studies. Relevant outcomes are test accuracy, symptoms, functional outcomes, and quality of life. Restless legs syndrome does not require PSG because the syndrome is a sensorimotor disorder, the symptoms of which occur predominantly when awake; therefore, PSG results are generally not useful. The evidence is sufficient to determine that the technology is unlikely to improve the net health outcome.

For individuals who have periodic limb movement disorder who receive PSG, the evidence includes a systematic review. Relevant outcomes are test accuracy, symptoms, functional outcomes, and quality of life. PSG with electromyography of the anterior tibialis is the only method available to diagnose periodic limb movement disorder, but this sleep-related movement disorder is rare and should only be evaluated using PSG in the absence of symptoms of other disorders. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

SUPPLEMENTAL INFORMATION

Practice Guidelines and Position Statements

In 2005, the American Academy of Sleep Medicine (AASM) published practice parameters for polysomnography (PSG) and related procedures. AASM made the following recommendations on the use of PSG for nonrespiratory indications (see Table 1).

Table 1. Practice Parameters on PSG for Nonrespiratory Indications

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Grade</th>
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<tr>
<td>Polysomnography and a multiple sleep latency test performed on the day after the polysomnographic</td>
<td>Standard</td>
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Common, uncomplicated, noninjurious parasomnias, such as typical disorders of arousal, nightmares, enuresis, sleepwalking, and bruxism, can usually be diagnosed by clinical evaluation alone.

Polysomnography is not routinely indicated in cases of typical, uncomplicated, and noninjurious parasomnias when the diagnosis is clearly delineated.

A clinical history, neurologic examination, and a routine EEG obtained while the patient is awake and asleep are often sufficient to establish the diagnosis and permit the appropriate treatment of a sleep-related seizure disorder. The need for a routine EEG should be based on clinical judgment and the likelihood that the patient has a sleep-related seizure disorder.

Polysomnography is not routinely indicated for patients with a seizure disorder who have no specific complaints consistent with a sleep disorder.

Polysomnography is indicated when evaluating patients with sleep behaviors suggestive of parasomnias that are unusual or atypical because of the patient’s age at onset; the time, duration or frequency of occurrence of the behavior; or the specifics of the particular motor patterns in question.

Polysomnography ... is indicated in evaluating sleep-related behaviors that are violent or otherwise potentially injurious to the patient or others.

Polysomnography may be indicated in situations with forensic considerations (e.g., if onset follows trauma or if the events themselves have been associated with personal injury).

Polysomnography may be indicated when the presumed parasomnia or sleep-related seizure disorder does not respond to conventional therapy.

Polysomnography is indicated when a diagnosis of periodic limb movement disorder is considered because of complaints by the patient or an observer of repetitive limb movement during sleep and frequent awakenings, fragmented sleep, difficulty maintaining sleep, or excessive daytime sleepiness.

Intra-individual night-to-night variability exists in patients with periodic limb movement sleep disorder, and a single study might not be adequate to establish this diagnosis.

Polysomnography is not routinely indicated to diagnose or treat restless legs syndrome, except where uncertainty exists in the diagnosis.

Polysomnography is not routinely indicated for the diagnosis of circadian rhythm sleep disorders.

EEG: electroencephalography.

In 2012, AASM published practice parameters on nonrespiratory indications for PSG and multiple sleep latency testing in children. The following recommendations for PSG and multiple sleep latency test were made (see Table 2).

Table 2: Practice Parameters on PSG for Nonrespiratory Indications in Children

<table>
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<tr>
<th>Recommendation</th>
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<tr>
<td>PSG is indicated for children suspected of having PLMD for diagnosing PLMD</td>
<td>Standard</td>
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<tr>
<td>The MSLT, preceded by nocturnal PSG, is indicated in children as part of the evaluation for suspected narcolepsy</td>
<td>Standard</td>
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<tr>
<td>Children with frequent NREM parasomnias, epilepsy, or nocturnal enuresis should be clinically screened for the presence of comorbid sleep disorders, and polysomnography should be performed if there is a suspicion for sleep-disordered breathing or periodic limb movement disorder</td>
<td>Guideline</td>
</tr>
<tr>
<td>The MSLT, preceded by nocturnal PSG, is indicated in children suspected of having hypersomnia from causes other than narcolepsy to assess excessive sleepiness and to aid in differentiation from narcolepsy</td>
<td>Option</td>
</tr>
<tr>
<td>The polysomnogram using an expanded EEG montage is indicated in children 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</td>
<td>Option</td>
</tr>
<tr>
<td>Polysomnography is indicated in children suspected of having RLS who require supportive data for diagnosing RLS</td>
<td>Option</td>
</tr>
<tr>
<td>Polysomnography is not routinely indicated for evaluation of children with sleep-related bruxism</td>
<td>Standard</td>
</tr>
<tr>
<td>EEG: electroencephalography; MSLT: multiple sleep latency test; NREM: non–rapid eye movement; PLMD: periodic limb movement disorder; PSG: polysomnography; RLS: restless legs syndrome.</td>
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AASM issued a 2012 practice parameter on the treatment of restless legs syndrome (RLS) and periodic limb movement disorder in adults. The practice parameter noted many different treatment efficacy measures are used to assess RLS due to its multifaceted nature. Measures included a number of subjective scales; the only objective measurements were sleep-related parameters by PSG or actigraphy.

AASM issued a 2010 best practice guide on the treatment of nightmare disorders in adults (classified as a parasomnia). AASM stated that overnight PSG is not routinely used to assess nightmare disorder but may be used to exclude other parasomnias or sleep-disordered breathing. PSG may underestimate the incidence and frequency of posttraumatic stress disorder–associated nightmares.

AASM issued a 2010 best practice guide on the treatment of rapid eye movement (REM) sleep behavior disorder (RBD). Minimal diagnostic criteria for RBD included:

"A) Presence of R[EM] sleep without atonia, defined as sustained or intermittent elevation of submental EMG [electromyographic] tone or excessive phasic muscle activity in the limb EMG [electromyography] …;
B) At least 1 of the following:
   1) Sleep related injurious or potentially injurious disruptive behaviors by history;
   2) Abnormal R[EM] behaviors documented on polysomnogram (PSG);
C) Absence of epileptiform activity during R[EM] sleep unless RBD can be clearly distinguished from any concurrent R[EM] sleep-related seizure disorder;
D) Sleep disturbance not better explained by another sleep disorder, medical or neurological disorder, mental disorder, medication use, or substance use disorder."

U.S. Preventive Services Task Force Recommendations

Not applicable.

Medicare National Coverage

There is no national coverage determination (NCD). In the absence of an NCD, coverage decisions are left to the discretion of local Medicare carriers.

REFERENCES


POLICY HISTORY

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<tr>
<th>Date</th>
<th>Action</th>
<th>Description</th>
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<tr>
<td>December 2015</td>
<td>New Policy</td>
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December 2016  Update Policy  No change to policy statement.
December 2017  Update Policy  Policy updated with literature review through July 21, 2017; no references added. Policy statements unchanged.