

Corporate Medical Policy

Polysomnography for Non-Respiratory Sleep Disorders

File Name: polysomnography_for_non_respiratory_sleep_disorders
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Description of Procedure or Service

Polysomnography (PSG) is a recording of 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).

The standard full polysomnogram includes:

- Electroencephalography (EEG) to differentiate the various stages of sleep and wake,
- Chin electromyography (EMG) and electrooculography to assess muscle tone and detect rapid eye movement (REM) sleep,
- Respiratory effort, airflow, blood oxygen saturation (oximetry) and electrocardiography to assess apneic events,
- Anterior tibialis EMG to assess periodic limb movements (PLMs) during sleep, and
- Video recording to detect any unusual behavior.

This review addresses PSG for non-respiratory sleep disorders, which include the hypersomnias (e.g., narcolepsy), parasomnias, and movement disorders (e.g., restless legs syndrome [RLS], periodic limb movement disorder [PLMD]).

Hypersomnias

The hypersomnias include such disorders as narcolepsy, Kleine-Levin syndrome, and idiopathic hypersomnolence. Narcolepsy is a neurologic disorder characterized predominantly by abnormalities of REM sleep, some abnormalities of non-REM (NREM) sleep, and the presence of excessive daytime sleepiness that cannot be fully relieved by any amount of sleep. The classic symptoms include hypersomnolence, cataplexy, sleep paralysis, and hypnagogic (onset of sleep) hallucinations. Cataplexy refers to the total or partial loss of muscle tone in response to sudden emotion. Most individuals with cataplexy have abnormally low levels of hypocretin-1 (orexin A) in the cerebrospinal fluid. Narcolepsy type 1 (narcolepsy with cataplexy) is defined as excessive daytime sleepiness (EDS) and at least one of the following criteria: (a) hypocretin deficiency or (b) cataplexy and a positive multiple sleep latency test (MSLT). In the MSLT, the individual lies down in a dark quiet room to assess the time to enter the different stages of sleep. The test is repeated every 2 hours throughout the day, and the maximum time allowed to fall asleep is typically set at 20 minutes. Individuals with narcolepsy often have a mean sleep latency of less than five minutes and two or more early-onset REM periods during the MSLT naps. People with idiopathic hypersomnia fall asleep easily but typically do not reach REM sleep during the MSLT. Narcolepsy type 2 (narcolepsy without cataplexy) is defined by chronic sleepiness plus a positive MSLT; hypocretin-1 levels are in the normal range in most individuals.

Parasomnias

Parasomnias are abnormal behavioral, experiential, or physiologic events that occur during entry into sleep, within sleep, or during arousals from sleep. Parasomnias can result in a serious

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disruption of sleep-wake schedules. Some, particularly sleepwalking, sleep terrors, and REM sleep behavior disorder, can cause injury to the individual and others. Parasomnias are classified into parasomnias associated with REM sleep, parasomnias associated with NREM sleep, and other parasomnias.

Parasomnias Associated With REM Sleep

REM sleep is normally accompanied by muscle atonia, in which there is an almost complete paralysis of the body through inhibition of motor neurons. In individuals with REM sleep behavior disorder (RBD), muscle tone is maintained during REM sleep. This can lead to abnormal or disruptive behaviors associated with vivid dreams such as talking, laughing, shouting, gesturing, grabbing, flailing arms, punching, kicking, sitting up or leaping from bed, and running. Violent episodes that carry a risk of harm to the individual or bed partner may occur up to several times nightly. Idiopathic RBD is associated with the development of degenerative synucleinopathies (Parkinson disease, dementia with Lewy bodies, multiple systems atrophy) in about half of individuals. Guidelines recommend maintaining a safe sleeping environment for both the individual and bed partner along with medical therapy. Other parasomnias associated with REM sleep are recurrent isolated sleep paralysis and nightmare disorder.

Parasomnias Associated With Non-REM Sleep

Disorders of arousal from NREM sleep result from the intrusion of wake into NREM sleep. These include confusional arousals, sleepwalking, and sleep terrors. In these parasomnias, the individual has incomplete awakening from NREM sleep, usually appears awake with eyes open, is unresponsive to external stimuli, and is amnesic to the event. Sleepwalking can range from calm behaviors such as walking through a house to violent and/or injurious behaviors such as jumping out of a second story window. Individuals with sleep terrors (also called night terrors) typically awaken with a loud scream and feeling of intense fear, jump out of bed, and occasionally may commit a violent act.

Other Parasomnias

The category of “other parasomnias” has no specific relationship to sleep stage and includes sleep-related dissociative disorders, sleep-related enuresis, sleep-related groaning, exploding head syndrome, sleep-related hallucinations, and sleep-related eating disorder. Diagnosis of these disorders is primarily clinical, although PSG may be used for differential diagnosis.

- In sleep-related dissociative disorders, behaviors occur during an awakening but the individual is amnesic to them.
- Sleep-related enuresis (bedwetting) is characterized by recurrent involuntary voiding in individuals greater than 5 years of age.
- Sleep-related groaning is a prolonged vocalization that can occur during either NREM or REM sleep.
- Exploding head syndrome is a sensation of a sudden loud noise or explosive feeling within the head upon falling asleep or during an awakening from sleep.
- Sleep-related hallucinations are hallucinations that occur upon falling asleep or on awakening.
- Sleep-related eating disorder is characterized by recurrent episodes of arousals from sleep with involuntary eating or drinking. Individuals may have several episodes during the night, typically eat foods that they would not eat during the day, and may injure themselves by cooking during sleep.

Sleep-Related Movement Disorders

Sleep-related movement disorders include restless legs syndrome (RLS) and periodic limb movement disorder (PLMD).

Restless Legs Syndrome

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RLS is a neurologic disorder characterized by uncomfortable or odd sensations in the leg that usually occur during periods of relaxation, such as while watching television, reading, or attempting to fall asleep. Symptoms occur primarily in the evening. The sensations are typically described as creeping, crawling, itchy, burning, or tingling. There is an urge to move in an effort to relieve these feelings, which may be partially relieved by activities such as rubbing or slapping the leg, bouncing the feet, or walking around the room.

Periodic Limb Movement Disorder

Periodic limb movements are involuntary, stereotypic, repetitive limb movements during sleep, which most often occur in the lower extremities, including the toes, ankles, knees, and hips, and occasionally in the upper extremities. The repetitive movements can cause fragmented sleep architecture, with frequent awakenings, a reduction in slow wave sleep and decreased sleep efficiency, leading to excessive daytime sleepiness. PLMD alone is thought to be rare as periodic limb movements are typically associated with RLS, RBD, or narcolepsy and represent a distinct diagnosis from PLMD.

Related Policies

Sleep Apnea Diagnosis and Medical Management

Regulatory Status

A large number of polysomnography devices have been approved since 1986 by the U.S. Food and Drug Administration (FDA).

******Note: This Medical Policy is complex and technical. For questions concerning the technical language and/or specific clinical indications for its use, please consult your physician.***

Policy

BCBSNC will provide coverage for Polysomnography for Non-Respiratory Sleep Disorders when it is determined to be medically necessary because the medical criteria and guidelines noted below are met.

Benefits Application

This medical policy relates only to the services or supplies described herein. Please refer to the Member's Benefit Booklet for availability of benefits. Member's benefits may vary according to benefit design; therefore member benefit language should be reviewed before applying the terms of this medical policy.

When Polysomnography for Non-Respiratory Sleep Disorders is covered

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 individuals 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 (PLMD) is considered when there is:

- A complaint of repetitive limb movement during sleep by the individual 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

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- Excessive daytime sleepiness

When Polysomnography for Non-Respiratory Sleep Disorders is not covered

PSG for the diagnosis of PLMD is considered **not medically necessary** when there is concurrent untreated obstructive sleep apnea, restless legs syndrome, narcolepsy, or REM 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.

Policy Guidelines

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. Evidence indicates 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 an 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 cohort studies. Relevant outcomes are test accuracy, symptoms, functional outcomes, and quality of life. The evidence indicates that typical and benign parasomnias (e.g., sleepwalking, sleep terrors) may be diagnosed on the basis of their clinical features and do not require PSG. The evidence is insufficient to determine that the technology results in an improvement in 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 loss of muscle tone 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 an improvement in the net health outcome.

For individuals who have restless legs syndrome (RLS) 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. RLS does not require PSG because RLS is a sensorimotor disorder, the symptoms of which occur predominantly when awake. Therefore, PSG results are generally not useful. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have periodic limb movement disorder (PLMD) 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 PLMD, 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 an improvement in the net health outcome.

Billing/Coding/Physician Documentation Information

This policy may apply to the following codes. Inclusion of a code in this section does not guarantee that it will be reimbursed. For further information on reimbursement guidelines, please see Administrative

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Policies on the Blue Cross Blue Shield of North Carolina web site at www.bcbsnc.com. They are listed in the Category Search on the Medical Policy search page.

Applicable codes: 95782, 95783, 95805, 95808, 95810, 95811

BCBSNC may request medical records for determination of medical necessity. When medical records are requested, letters of support and/or explanation are often useful, but are not sufficient documentation unless all specific information needed to make a medical necessity determination is included.

Scientific Background and Reference Sources

Kushida CA, Littner MR, Morgenthaler T, et al. Practice parameters for the indications for polysomnography and related procedures: an update for 2005. *Sleep* 28(4):499-521. <http://www.aasmnet.org/practiceparameters.aspx?cid=120>. Accessed September 10, 2015.

Aurora RN, Zak RS, Maganti RK, et al. Best practice guide for the treatment of REM sleep behavior disorder (RBD) *J Clin Sleep Med* 2010; 6(1):85-95. http://www.aasmnet.org/Resources/bestpracticeguides/PP_RBD.pdf. Accessed September 10, 2015.

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Specialty Matched Consultant Advisory Panel 5/2016

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Cesari M, Heidebreder A, St Louis EK, et al. Video-polysomnography procedures for diagnosis of rapid eye movement sleep behavior disorder (RBD) and the identification of its prodromal stages: guidelines from the International RBD Study Group. *Sleep*. Mar 14 2022; 45(3).

Specialty Matched Consultant Advisory Panel 5/2023

Policy Implementation/Update Information

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- 10/30/15 New policy issued. Polysomnography for Non-Respiratory Sleep Disorders may be considered medically necessary when criteria are met. Notification given 10/30/15 for policy effective date 12/30/15. (sk)
- 7/1/16 Specialty Matched Consultant Advisory Panel review 5/25/2016. (sk)
- 1/27/17 Reference added. Policy Guidelines updated. (sk)
- 6/30/17 Specialty Matched Consultant Advisory Panel review 5/31/2017. (sk)
- 10/13/17 Reference added. (sk)
- 6/29/18 Specialty Matched Consultant Advisory Panel review 5/23/2018. (sk)
- 9/28/18 Reference added. (sk)
- 5/28/19 Specialty Matched Consultant Advisory Panel review 5/15/2019. (sk)
- 8/27/19 Reference added. (sk)
- 6/23/20 Specialty Matched Consultant Advisory Panel review 5/20/2020. (sk)
- 6/15/21 Reference added. Specialty Matched Consultant Advisory Panel review 5/19/2021. (sk)
- 8/10/21 Reference added. (sk)
- 6/14/22 Specialty Matched Consultant Advisory Panel review 5/18/2022. (sk)
- 6/30/23 Reference added. Specialty Matched Consultant Advisory Panel review 5/17/2023. (sk)

Medical policy is not an authorization, certification, explanation of benefits or a contract. Benefits and eligibility are determined before medical guidelines and payment guidelines are applied. Benefits are determined by the group contract and subscriber certificate that is in effect at the time services are rendered. This document is solely provided for informational purposes only and is based on research of current medical literature and review of common medical practices in the treatment and diagnosis of disease. Medical practices and knowledge are constantly changing and BCBSNC reserves the right to review and revise its medical policies periodically.