Anthem

Medical Policy

Subject: Selected Sleep Testing Services
Document #: MED.00002
Status: Reviewed

Publish Date: 01/03/2024
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Description/Scope

This document addresses selected services for the diagnosis of sleep disorders including:

- "Nap" studies
- Actigraphy, including use of static charge sensitive beds
- Diagnostic audio recording, with or without pulse oximetry to document sleep apnea
- Topographic brain mapping
- Acoustic pharyngometry

Note: For criteria related to other sleep testing services, refer to applicable guidelines used by the plan.

Position Statement

Investigational and Not Medically Necessary:

"Nap" studies are considered **investigational and not medically necessary** either for screening purposes or as an alternative to polysomnography for the diagnosis of obstructive sleep apnea or narcolepsy.

The following diagnostic tests are considered **investigational and not medically necessary:**

A. Diagnostic audio recording, with or without pulse oximetry, to document sleep apnea;
B. Topographic brain mapping;
C. Acoustic pharyngometry (Eccovision™ Acoustic Pharyngometer®);
D. Actigraphy or static charge sensitive beds.

Rationale

The evidence in the medical literature does not support the use of single nap studies. This type of sleep study has not been proven to meet the standards and capabilities of sleep studies conducted in a formal sleep laboratory. Wide deviations in the conditions and data collection methods available cause significant variability in the outcomes of these studies and do not allow for proper sleep assessment. Additionally, nap sleep is not physiologically the same as nighttime sleep and does not adequately reflect the range of sleep phases required for proper diagnosis, therefore, results are not accurate when compared to the current standard of a full polysomnography (PSG).

While the use of actigraphy has been demonstrated to be useful in the detection of sleep problems in "healthy" or normal individuals, potential benefits for individuals with suspected sleep disorders have not been shown. The current body of evidence supporting the use of actigraphy for individuals with sleep disorders is insufficient to allow adequate conclusions regarding efficacy.

The potential benefits of diagnostic audio recording, used alone or in conjunction with pulse oximetry, have not been demonstrated to provide clinical benefits equivalent to PSG. While such methods do potentially identify occurrences of sleep apnea, other aspects of physiological functioning are not recorded simultaneously, thus providing an incomplete clinical picture and allowing the possibility of misdiagnosis.

The Eccovision Acoustic Pharyngometer (Hood Laboratories; Pembroke, MA) is a noninvasive testing device intended to measure the upper respiratory airway by means of acoustic reflection. Some studies have suggested a correlation between pharyngeal cross-sectional areas measured using acoustic pharyngometry and the presence of OSA. In addition, studies have suggested that acoustic pharyngometry may be useful in identifying sites of airway narrowing. However, the utility of acoustic pharyngometry measurement in the clinical setting of OSA has not been demonstrated, and it remains unclear how this test will impact treatment planning and clinical outcomes.

Topographic brain mapping has been briefly described in the evaluation and diagnosis of OSA. However, the evidence is limited to small case series studies that do not allow adequate evaluation of this technology. At this time, the level of evidence supporting topographic brain mapping is insufficient to make any recommendations.

Background/Overview

Description of Sleep Disorders

Sleep disorders are some of the most common medical problems in the United States and have a significant impact on quality of life (QOL), productivity, and overall health. There are many different types of sleep-related disorders, including obstructive sleep apnea (OSA), upper airway resistance syndrome (UARS), insomnia, narcolepsy, nocturnal movement disorders, such as Restless Leg Syndrome (RLS) and Periodic Limb Movement Disorder (PLMD), unexplained excessive daytime sleepiness, and arousal disorders (parasomnias).

Sleep disorder studies are used to determine or confirm a diagnosis related to sleep disturbances. These tests vary in the number and nature of sleep parameters that are measured, in order to gain an understanding of the conditions under which sleep disturbances occur. OSA represents a very common diagnosis within the spectrum of sleep disorders and is the focus of this document. Another type of sleep disturbance is simply known as "apnea" or "central apnea." This condition, caused by problems in the central nervous system, is unrelated to OSA and is not addressed in this document.

Many portable tests have been proposed as alternatives to laboratory-based PSG for the diagnosis and follow-up of sleep disorders. These tests include, but are not limited, to: "nap studies," actigraphy, diagnostic audio-taping, topographic brain mapping, and

acoustic pharyngometry. However, none of these portable tests currently provide diagnostic information that is superior to established Type III home portable monitors (HPM), which monitor and record a minimum of four parameters: respiratory movement/effort, airflow, ECG/heart rate, and oxygen saturation.

Definitions

Acoustic Pharyngometer (Eccovision): This is a noninvasive device that uses acoustic signal processing technology to provide a graphical representation of airway patency. The technique is based on the analysis of sound waves that are launched from a loudspeaker and travel along a wave tube into the subject's airways where they are reflected. Measurement of differences in the reflected wave signals enables a graphic representation of the variations in pharyngeal cross-sectional area at several anatomic levels.

Actigraphy: This is a method used to study sleep-wake patterns and circadian rhythms by assessing the subject's movement over a period of time. Measurements usually involve the detection of wrist movements.

Airflow and respiratory effort in conjunction with oxygen saturation: These terms are translated into the standard measures of apneic-hypopneic index (AHI) or respiratory disturbance index (RDI). Oxygen saturation measures the significance of respiratory events.

Apnea: A transient period where breathing ceases.

Apnea-Hypopnea index (AHI) or Respiratory disturbance index (RDI): A measure of apnea severity defined by the total number of episodes of apnea or hypopnea during a full period of sleep divided by the number of hours asleep. For the purposes of this document, the terms AHI and RDI are interchangeable, although they may differ slightly in clinical use. An AHI/RDI greater than 30 is consistent with severe OSA. In some cases, respiratory effort-related arousals (or RERAS) are included in the RDI value. These RERA episodes represent EEG arousals associated with increased respiratory efforts but do not qualify as apneic or hypopneic episodes because of the absence of their defining air flow changes and/or levels of oxygen desaturation.

Continuous positive airway pressure (CPAP): This is a noninvasive treatment for OSA that involves delivery of pressurized air during sleep through a device that snugly covers the nose. The appropriate setting for standard CPAP treatment is determined during a titration sleep study.

Epworth sleepiness scale (ESS): A standardized measure of the degree of sleepiness.

Excessive daytime sleepiness: This refers to a condition where a person feels very drowsy during the day, even after getting adequate nighttime rest, and has a tendency to fall asleep or requires extra effort to avoid sleeping in inappropriate situations, such as at work or driving. This condition is also defined as a score greater than or equal to 10 on the Epworth Sleepiness Scale.

Home/Portable sleep study: A diagnostic test proposed for home use which may be self-administered or attended by a technician. The machine is returned to the doctor the following morning for data analysis.

Hypopnea: Breathing that is more shallow, and/or slower, than normal.

Nap study: This term refers to a shorter daytime version of a PSG sleep study.

Narcolepsy: This refers to a neurological condition, where individuals experience profound daytime sleepiness, which may also include sudden, periodic, and transient loss of muscle tone associated with extreme emotions, such as laughter or anger (cataplexy).

Obstructive sleep apnea (OSA): This is a form of sleep disturbance, which occurs as the result of a physical occlusion of the upper airway during sleep, which interferes with normal breathing. The occlusion is usually in the back of the tongue and/or flabby tissue in the upper airway. This condition is associated with frequent awakening and often with daytime sleepiness.

Sleep disorder: A disruptive pattern of sleep that may include difficulty falling or staying asleep, falling asleep at inappropriate times, excessive total sleep time, or abnormal behaviors associated with sleep.

Upper airway: The area of the upper respiratory system including the nose, mouth and throat.

Coding

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

When services are Investigational and Not Medically Necessary:

CPT	
92700	Unlisted otorhinolaryngological service or procedure [when specified as acoustic pharyngometry] (Note: CPT code 92520 Laryngeal function studies; aerodynamic testing and acoustic testing is not considered appropriate for this service)
95803	Actigraphy testing, recording, analysis, interpretation, and report; (minimum of 72 hours to 14 consecutive days of recording)
95999	Unlisted neurological or neuromuscular diagnostic procedure [when specified as nap study]
HCPCS	
S8040	Topographic brain mapping [for evaluation of a sleep disorder]
ICD-10 Diagnosis	
	All diagnoses

References

Peer Reviewed Publications:

1. Conley S, Knies A, Batten J, et al. Agreement between actigraphic and polysomnographic measures of sleep in adults with and without chronic conditions: a systematic review and meta-analysis. Sleep Med Rev. 2019; 46:151-160.
2. D'Andrea LA. Diagnostic studies in the assessment of pediatric sleep-disordered breathing: techniques and indications. Pediatr Clin North Am. 2004; 51(1):169-186.

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11. O'Driscoll DM, Foster AM, Davey MJ, et al. Can actigraphy measure sleep fragmentation in children? Arch Dis Child. 2010; 95(12):1031-1033.
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13. Werner H, Molinari L, Guyer C, Jenni OG. Agreement rates between actigraphy, diary, and questionnaire for children's sleep patterns. Arch Pediatr Adolesc Med. 2008; 162(4):350-358.
14. Westbrook PR, Levendowski DJ, Cvetinovic M, et al. Description and validation of the apnea risk evaluation system: a novel method to diagnose sleep apnea-hypopnea in the home. Chest. 2005; 128(4):2166-2175.
15. Young T, Skatrud J, Peppard PE. Risk factors for obstructive sleep apnea in adults. JAMA. 2004; 291(16):2013-2016.
16. Yavuz-Kodat E, Reynaud E, Geoffray MM, et al. Validity of actigraphy compared to polysomnography for sleep assessment in children with autism spectrum disorder. Front Psychiatry. 2019; 10:551.

Government Agency, Medical Society, and Other Authoritative Publications:

1. Berry RB, Quan SF, Abreu AR, et al. for the American Academy of Sleep Medicine. The AASM Manual for the Scoring of Sleep and Associated Events: Rules, Terminology and Technical Specifications. Version 2.6. Darien, IL: AASM; 2020.
2. Centers for Medicare and Medicaid Services. National Coverage Determination for Sleep Testing for Obstructive Sleep Apnea. NCD #240.4.1. Effective March 3, 2009. Available at: https://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=330&ncdver=1&DocID=240.4.1&ncd_id=240.4&ncd_version=3&basket=ncd%25253A240%25252E4%25253A3%25253AContinuous+Positive+Airway+Pressure+%252528CPAP%252529+Therapy+For+Obstructive+Sleep+Apnea+%252528OSA%252529&bc=gAAAAAgAAAAA&. Accessed on November 13, 2023.
3. Collop NA, Anderson WM, Boehlecke B, et al. Portable Monitoring Task Force of the American Academy of Sleep Medicine. Clinical guidelines for the use of unattended portable monitors in the diagnosis of obstructive sleep apnea in adult patients. J Clin Sleep Med. 2007; 3(7):737-747.
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14. Trikalinos TA, Ip S, Raman G, et al. Home diagnosis of obstructive sleep apnea-hypopnea syndrome. AHRQ Technology Assessment Program. Agency for Healthcare Research and Quality (AHRQ), Rockville, MD; August 8, 2007.

Websites for Additional Information

1. American Academy of Sleep Medicine. Sleep education. Sleep Apnea. Available at:https://aasm.org/aasm-introduces-new-patient-education-website-sleepeducation-com/. Accessed on November 13, 2023.

Index

Static Charge Sensitive Beds
Topographic EEG Mapping

The use of specific product names is illustrative only. It is not intended to be a recommendation of one product over another, and is not intended to represent a complete listing of all products available.

Document History

Status	Date	Action
Reviewed	11/09/2023	Medical Policy & Technology Assessment Committee (MPTAC) review. Reformatted the Description/Scope. Revised Rationale, Definitions, References, Websites for Additional Information, and Index sections.
Reviewed	11/10/2022	MPTAC review. References were updated.
Reviewed	11/11/2021	MPTAC review. The Definitions and References were updated.
Reviewed	11/05/2020	MPTAC review. References were updated.
Reviewed	11/07/2019	MPTAC review. References were updated.
Reviewed	01/24/2019	MPTAC review. References were updated.
Reviewed	01/25/2018	MPTAC review. The document header wording was updated from “Current Effective Date” to “Publish Date.” References were updated.
Reviewed	02/02/2017	MPTAC review. Updated the formatting of the Position Statement section. References were updated.
Reviewed	02/04/2016	MPTAC review. References were updated. Removed ICD-9 codes from Coding section.
Reviewed	02/05/2015	MPTAC review. References were updated.
Reviewed	02/13/2014	MPTAC review. References were updated.
Revised	02/14/2013	MPTAC review. Document was revised to remove statements about MSLT and MWT which are now addressed in separate CG-MED-43. No other changes were made to statements or criteria. Title was revised to remove MSLT and retitle: Selected Sleep Testing Services. Coding section was updated.
Reviewed	11/08/2012	MPTAC review. References were updated.
Revised	11/17/2011	MPTAC review. The criteria for home portable monitors/sleep testing have been removed from this document and placed in CG-MED-01 Polysomnography and Home Portable Monitors. Other criteria are unchanged for MSLT and other services. The title was changed from: Diagnosis of Sleep Disorders to: Multiple Sleep Latency Testing and other Sleep Testing Services. The Rationale, Definitions and References were updated.
Revised	11/18/2010	MPTAC review. No change to criteria except for the addition of “**or**” to the medically necessary indications for MSLT in place of the “and” for clarification. The medically necessary indications for home portable sleep testing were reordered placing the last criterion for OSA as the first criterion. References were updated. Updated Coding section with 01/01/2011 CPT changes; removed 0203T, 0204T deleted 12/31/2010.
Reviewed	11/19/2009	MPTAC review. The Rationale, Definitions and References have been updated. Updated Coding section with 01/01/2010 CPT changes.
Revised	11/20/2008	MPTAC review. Medically necessary criteria regarding Type III home portable devices were updated with information about newer models of the SNAP devices that are considered Type III devices. The Rationale, Definitions and Reference sections have also been updated. Updated Coding section with 01/01/2009 CPT changes; removed 0089T deleted 12/31/2008.
Revised	05/15/2008	MPTAC review. Addition of medically necessary criteria for home/portable sleep studies to confirm diagnosis of obstructive sleep apnea. References and Coding were updated.
	02/21/2008	The phrase "investigational/not medically necessary" was clarified to read "investigational and not medically necessary." This change was approved at the November 29, 2007 MPTAC meeting.
Revised	08/23/2007	MPTAC review. Addition of acoustic pharyngometry to the testing considered investigational/not medically necessary. Rationale section was updated with information about acoustic pharyngometry® and SNAP™ testing. References and Coding sections were also updated.
Reviewed	09/14/2006	MPTAC review. A clarification was made within the ‘Definitions’ section regarding severe OSA as being defined as an RDI/AHI of greater than 30 (not 40). The term RDI was also corrected to be Respiratory Disturbance Index (not Distress index) and the measure known as RERAS was also added to this definition.
Revised	03/23/2006	MPTAC review. A position statement regarding MWT was added. Information was added to the ‘Rationale’ section regarding MWT, taken from the 2005 updated guideline on Practice Parameters for Clinical Use of MSLT and MWT from the American Academy of Sleep Medicine. Revisions also made to Coding section for clarification of MWT coding.
	11/17/2005	Added reference for Centers for Medicare and Medicaid Services (CMS) – National Coverage Determination (NCD).
Revised	09/22/2005	MPTAC review.
Revised	04/28/2005	MPTAC review. Revision based on Harmonization: Pre-merger Anthem and Pre-merger WellPoint. Updated coding: Added CPT code 95806 and 0089T; removed CPT codes 21193, 21194, 21195, 21196, 21198, 21199, 21206, 21685, 42145, 95806, 95808, 95810, 95811, 99508; removed ICD-9 Procedure codes 76.62, 76.63, 76.64, 76.65, 76.66, 89.17; removed HCPCS codes E0561, E0562, E0601, K0183, K0189, K0268, K0531, K0532, K0533, S8260, D7940, D7944, D7946, D7947, D7948, D7949, D7950, D7950, D7995, D7996, S2080, 0088T.

Pre-Merger Organizations	Last Review Date	Document Number	Title

Anthem, Inc.	07/28/2004	MED.00002	Diagnosis of Sleep Disorders and Treatment of Obstructive Sleep Apnea
WellPoint Health Networks, Inc.	06/24/2004	2.03.10	Polysomnography and Other Sleep Studies in Adults
	09/23/2004	2.03.18	Polysomnography and Other Sleep Studies in Children
	06/24/2004	Clinical Guideline	Multiple Sleep Latency Test

Applicable to Commercial HMO members in California: When a medical policy states a procedure or treatment is investigational, PMGs should not approve or deny the request. Instead, please fax the request to Anthem Blue Cross Grievance and Appeals at fax # 818-234-2767 or 818-234-3824. For questions, call G&A at 1-800-365-0609 and ask to speak with the Investigational Review Nurse.

Federal and State law, as well as contract language, including definitions and specific contract provisions/exclusions, take precedence over Medical Policy and must be considered first in determining eligibility for coverage. The member's contract benefits in effect on the date that services are rendered must be used. Medical Policy, which addresses medical efficacy, should be considered before utilizing medical opinion in adjudication. Medical technology is constantly evolving, and we reserve the right to review and update Medical Policy periodically.