Polysomnography and Sleep Studies

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Section: Medicine
Place(s) of Service: Hospital; Sleep Laboratory, Home

I. Description

Polysomnography (PSG) includes the continuous monitoring of physiologic activity that occurs during sleep. PSG measures and records brain activity using electroencephalography (EEG), eye movements using electro-oculography (EOG), and musculoskeletal activity using electromyography (EMG). Monitoring differentiates sleep from wakefulness and measures sleep stages. It is medically indicated to diagnose sleep-related disorders.

PSG is usually performed overnight during anticipated hours of sleep. It is the simultaneous recording of ventilation, respiratory effort, electrocardiogram or heart rate, and oxygen saturation, attended or unattended by a technologist.

A home sleep study takes place without the assistance of a sleep technologist; however, the measurements used to diagnose obstructive sleep apnea (OSA) are obtained through proper use of the equipment. After patient evaluation by a physician, a sleep study may be prescribed when OSA is suspected and there are no contraindications as outlined below.

HMSA now requires home/portable sleep studies, as the preferred method of diagnosing OSA in adults. Facility-based studies are reserved for patients who require monitoring by a sleep technician or in whom a home/portable sleep study is contraindicated.

II. Criteria/Guidelines

HMSA now requires home/portable sleep studies as the preferred method of diagnosing OSA. Facility-based studies are reserved for patients who require monitoring by a sleep technician or in whom a home/portable sleep study is contraindicated.

A. A home/portable sleep study is covered when the following criteria are met (subject to Limitations and Administrative Guidelines):

1. Patient is 18 years of age or older
2. The patient has had a face-to-face clinical evaluation by the treating physician prior to the study to assess for sleep related breathing disorders. The evaluation should include, at a minimum, the following:
   a. Signs and symptoms of sleep disordered breathing; and
   b. Comorbid conditions, e.g., hypertension, heart disease, stroke; and
3. The patient has observed apneas during sleep or has at least two of the following indications:
a. Habitual and disruptive snoring
b. Gasping or choking episodes while sleeping
c. Unexplained pathological daytime sleepiness and/or nonrestorative sleep.
d. Obesity with BMI of 30 or more
e. Craniofacial abnormality or upper airway soft tissue abnormalities, e.g., adenotonsillar hypertrophy, lateral peritonsillar narrowing, high arched/narrow hard palate, retrognathia, macroglossia, increased neck circumference (17 inches in men, 16 inches in women), modified Mallampati score of 3 or 4, nasal abnormalities, e.g., polyps, deviation, valve abnormalities, turbinate hypertrophy
f. At least two or more of the following:
   i. Stroke
   ii. Coronary artery disease
   iii. Congestive heart failure
   iv. Unexplained cor pulmonale
   v. Unexplained pulmonary hypertension
   vi. Polycythemia
   vii. Hypertension
   viii. Hypothyroidism

4. There is no evidence by history or physical examination of a health condition that might alter ventilation or require alternative treatment, including the following:
   a. Congestive heart failure Class III or IV; or LVEF less than 45%
   b. Moderate to severe chronic pulmonary disease including, but not limited to, chronic obstructive pulmonary disease or asthma requiring supplemental oxygen use or with documented hypercapnia (i.e., pCO2 > 45 mmHg)
   c. Severe obesity
      i. BMI greater than 45
      ii. BMI greater than 35 plus arterial blood gas with pCO2 > 45 mmHg
      iii. BMI greater than 35 plus inability to lie flat in bed
d. Pulmonary hypertension
e. Neuromuscular/neurodegenerative disorder causing restrictive lung disease, e.g., kyphoscoliosis, Myasthenia Gravis, amyotrophic lateral sclerosis (ALS), polymyositis, Guillain Barre syndrome, Parkinson’s disease, myotonic dystrophy
f. Intellectual disability or severe mental illness (see definition, VII. Appendix 1, 3)
g. A sleep disorder other than suspected obstructive sleep apnea, as suggested by history, physical exam, or prior documentation, e.g., central sleep apnea, obesity hypoventilation syndrome, periodic limb movement disorder, parasomnias, chronic insomnia (see definition, VIII. Appendix 2), narcolepsy, REM behavior sleep disorder; OR

5. Patient has one of the above contraindications for a home/portable study but a facility-based PSG is not possible because of immobility, critical illness, or inability to achieve adequate sleep time during a facility-based PSG

6. At a minimum, the home monitoring device must measure two respiratory variables (i.e., respiratory effort and airflow), a cardiac variable (i.e., heart rate or electrocardiogram), and pulse oximetry.
7. Home/portable sleep study is performed under the supervision (i.e., review of the sleep study request form or see the member in consultation) of a board certified sleep specialist who is associated with the AASM-accredited or JCAHO-accredited sleep center located in the same state where the member is being tested.

8. Home/portable sleep study is provided by a facility that meets the following requirements:
   a. Hospital-based sleep laboratory falls within the purview of The Joint Commission accreditation for its institution;
   b. Free-standing sleep laboratory is accredited by the American Association of Sleep Medicine (AASM) (http://www.aasmnet.org). With regard to accreditation, HMSA requires the following:
      i. If a provider is in the process of seeking accreditation, HMSA requires a letter of acknowledgement of payment from the AASM written to the sleep laboratory under consideration for accreditation.
      ii. To continue servicing HMSA members, the sleep laboratory must complete the process of accreditation within one year.
      iii. Re-accreditation is required according to the standards of the AASM. Providers are responsible for keeping their accreditation current.

9. Home/portable sleep study is interpreted by a board certified sleep specialist located in the same state where the member is being tested.

10. PAP titration will be done using auto-titrating PAP in the home setting when the diagnostic study demonstrates OSA and there are no contraindications to home titration as noted in II.B.6. a. and b. Home titration using auto-titrating PAP is appropriate when the following criteria are met:
    a. A facility-based polysomnography or home/portable sleep study demonstrates an Apnea Hypopnea Index (AHI) or Respiratory Disturbance Index (RDI) greater than 5 per hour
    b. There is no evidence of central sleep apnea syndrome, or other sleep disorder
    c. There is no evidence of significant nocturnal oxygen desaturations caused by a condition other than OSA e.g., obesity hypoventilation syndrome, as indicated by ANY of the following results of the initial sleep study:
       i. Oxygen saturation less than 80 percent for greater than one percent of recording or sleep time
       ii. Oxygen saturation less than 90 percent for greater than 22 percent of recording or sleep time

B. A facility-based PSG is covered (subject to Limitations and Administrative Guidelines) when the following criteria are met:
   1. Criteria in II.A.2 and 3 are met; and a home/portable sleep study is contraindicated
   2. For children (age less than 18 years old) who do not meet the criteria in II.A.3, one of the following indications is present in addition to criterion II.A.3.a, b, c, or d:
      a. Attention deficit disorder with hyperactivity
      b. Nocturnal enuresis
      c. Hypertrophy of tonsils and/or adenoids
      d. Down syndrome
      e. Prader-Willi syndrome
      f. Neuromuscular disorders
g. Duchenne Muscular Dystrophy  
h. Chiari malformations  
i. Myelomeningocele  
j. Craniofacial abnormality or upper airway, soft tissue abnormalities, e.g., Pierre Robin, Treacher-Collins, Goldenhar

3. PSG is performed in a hospital-based sleep laboratory or free-standing sleep laboratory meeting must meet the following requirements:  
a. Hospital-based sleep laboratory falls within the purview of The Joint Commission accreditation for its institution;  
b. Free-standing sleep laboratory is accredited by the American Association of Sleep Medicine (AASM) (http://www.aasmnet.org). With regard to accreditation, HMSA requires the following:  
i. If a provider is in the process of seeking accreditation, HMSA requires a letter of acknowledgement of payment from the AASM written to the sleep laboratory under consideration for accreditation.  
ii. To continue servicing HMSA members, the sleep laboratory must complete the process of accreditation within one year.  
iii. Re-accreditation is required according to the standards of the AASM. Providers are responsible for keeping their accreditation current.

4. PSG is interpreted by a sleep medicine specialist who is board certified by American Board of Sleep Medicine (ABSM) or the American Board of Medical Specialties (ABMS).

5. PSG is performed with the intent to complete the study with titration of positive airway pressure (PAP), i.e., CPT code 95811. CPT code 95810 is only allowable when the sleep study does not demonstrate events consistent with sleep apnea or PAP titration cannot be completed for unforeseen reasons as documented in the PSG report. Examples include, but are not limited to, the following:  
a. Insufficient total sleep time;  
b. Criteria for obstructive sleep apnea met late in study with insufficient sleep time left for positive airway pressure (PAP) titration;  
c. PAP trial attempted but not tolerated by patient.

6. A facility-based PSG for PAP titration following a home study that is diagnostic for OSA is covered for any of the following indications:  
a. There is significant nocturnal oxygen desaturation during a home diagnostic sleep study as indicated by ANY of the following results of the initial sleep study  
i. Oxygen saturation is less than 80 percent for greater than one percent of recording or sleep time  
ii. Oxygen saturation is less than 90 percent for greater than 22 percent of recording or sleep time  
b. A comorbid or alternative sleep disorder is suspected e.g., central sleep apnea, obesity hypoventilation syndrome (OHS)  
c. Respiratory Disturbance Index (RDI) or Apnea Hypopnea Index (AHI) is great than 30 per hour  
d. There is lack of resolution of sleep-related symptoms after a 12-week trial of auto-titrating CPAP
7. Facility-based PSG should be performed in cases where a home sleep study is technically inadequate or fails to establish the diagnosis of OSA in patients for whom a suspicion for OSA persists.

8. A facility-based PSG is covered for patients who meet criteria for a home sleep study, but whose occupation is “mission-critical” (e.g., commercial truck driver, mass transit operator).

C. One facility-based PSG or home/portable sleep study will be covered every five years. A repeat PSG before five years will be covered for one or more of the following indications:
   1. Weight loss of at least ten percent of body weight when there is a clinical indication for a repeat study, e.g., to ascertain whether PAP is still needed at the previously titrated pressure.
   2. Weight gain of at least ten percent of body weight when there is a clinical indication for a repeat study, e.g., patient is again symptomatic despite continued use of PAP to ascertain whether pressure adjustments are needed.
   3. To confirm therapeutic benefit after upper airway surgery
   4. To confirm therapeutic benefit after a trial of oral appliance
   5. When clinical response is insufficient or when symptoms return despite a good initial response to treatment with PAP device.
   6. Follow-up PAP titration study is indicated and split-night sleep study could not be completed as noted in II.B.5.
      a. If PAP titration was not tolerated, any problems related to use of the device and interface must be resolved prior to repeat testing.
      b. If there are no contraindications, PAP titration in the home setting with auto-titrating PAP is an option.

D. A facility-based PSG (95811; or if OSA has already been ruled out, 98510) is covered when performed in conjunction with multiple sleep latency test (MSLT) (95805) for the evaluation of patients with a suspected diagnosis of narcolepsy to confirm the diagnosis. Clear documentation of the following must be submitted:
   1. The member experiences daily periods of irrepresible need to sleep or daytime lapses into sleep occurring for at least three months; and/or
   2. Signs and symptoms consistent with cataplexy

III. Limitations
   A. A home/portable sleep study is not covered for children under the age of 18.
   B. A home/portable study is considered to be one study, whether performed during a single night or during two or more consecutive nights.
   C. Polysomnography and daytime multiple sleep latency testing (MSLT) are not indicated in the routine evaluation of chronic insomnia as it is not known to be effective in improving health outcomes.
   D. The use of SleepStrip or actigraphy for the diagnosis of OSA or other sleep disorders in an adult or child is not covered as it is not known to be effective in improving health outcomes.
   E. A split-night study (CPT 95811), in which obstructive sleep apnea (OSA) is diagnosed and followed by PAP eliminates the need for a second PSG to titrate PAP. A split-night study would be appropriate for patients with a baseline apnea index or AHI of at least 15 events per hour or from 5 to 14 events per hour with documented symptoms of excessive daytime sleepiness,
impaired cognition, mood disorders, or insomnia; or hypertension, ischemic heart disease, or history of stroke. Because CPT code 95811 includes the initiation of CPAP therapy, CPT code 94660 will not be paid separately.

F. The Epworth sleepiness scale is considered medically appropriate as part of the evaluation of OSA, but is performed as part of the evaluation and management of the patient and will not be paid separately.

G. HMSA’s global payment for facility-based PSG includes payment for the EEG, EOG and EMG. These services will not be paid separately.

H. Other measurements performed during a facility-based PSG (e.g., vital signs, muscular activity, oximetry, airflow, blood gases, penile tumescence) are also integral to the service and will not be paid separately.

I. CPT code 95805 is only covered as noted in II.D. 95805 is not covered for maintenance of wakefulness testing (MWT) to assess response to therapy for employment purposes as its use is not for the purpose of diagnosing or treating a medical condition.

J. Facility-based PSG and home sleep studies are covered only once every five years except as noted in II.C.

K. Facility-based PSG or home sleep studies performed as part of the routine evaluation of patients prior to bariatric surgery is not covered as it is not known to be effective in improving health outcomes. A facility-based PSG or home sleep study is covered when criteria in II.A or II.B are met.

L. PAP-NAP (daytime session for patients who are resistant to PAP therapy) is not covered as it is not known to be effective in improving health outcomes.

IV. Administrative Guidelines

A. Precertification is not required for an initial study. Documentation, including the physician’s clinical notes that supports medical necessity should be legible, maintained in the patient's medical record and must be made available to HMSA upon request. HMSA reserves the right to perform retrospective review using the above criteria to validate if services rendered met payment determination criteria.

B. Precertification is required for any subsequent study performed within five years of previous study. The following documentation must be submitted:
   1. Previous study report;
   2. Documentation supporting the reason why another study is needed.

C. Only CPT code 95811 will be approved. CPT code 95810 will not be approved.
   1. If the study does not demonstrate events consistent with OSA and the study is terminated without PAP titration, a claim for CPT code 95810, with supporting documentation, should be submitted.
   2. If the study demonstrates OSA and PAP titration is not completed, a precertification request should be submitted for a PAP titration study. The following documentation must be submitted:
      a. PSG Initial study report(s);
      b. Documentation supporting the reason why PAP titration could not be performed or completed at the time of initial study.
<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>95800</td>
<td>Sleep study, unattended, simultaneous recording; heart rate, oxygen saturation, respiratory analysis (e.g., by airflow or peripheral arterial tone), and sleep time</td>
</tr>
<tr>
<td>95801</td>
<td>Sleep study, unattended, simultaneous recording; minimum of heart rate, oxygen saturation, and respiratory analysis (e.g., by airflow or peripheral arterial tone)</td>
</tr>
<tr>
<td>95806</td>
<td>Sleep study, simultaneous recording of ventilation, respiratory effort, ECG or heart rate, and oxygen saturation, unattended by a technologist</td>
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<tr>
<td>G0398</td>
<td>Home sleep study test (HST) with type II portable monitor, unattended; minimum of 7 channels: EEG, EOG, EMG, ECG/heart rate, airflow, respiratory effort and oxygen saturation</td>
</tr>
<tr>
<td>G0399</td>
<td>Home sleep test (HST) with type III portable monitor, unattended; minimum of 4 channels: 2 respiratory movement/airflow, 1 ECG/heart rate and 1 oxygen saturation</td>
</tr>
<tr>
<td>G0400</td>
<td>Home sleep test (HST) with type IV portable monitor, unattended; minimum of 3 channels</td>
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<tr>
<td>95805</td>
<td>Multiple sleep latency or maintenance of wakefulness testing, recording, analysis and interpretation of physiological measurements of sleep during multiple trials to assess sleepiness</td>
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<tr>
<td>95810</td>
<td>Polysomnography; sleep staging with 4 or more additional parameters of sleep, attended by a technologist</td>
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<tr>
<td>95811</td>
<td>Polysomnography; sleep staging with 4 or more additional parameters of sleep, with initiation of continuous positive airway pressure therapy or bi-level ventilation, attended by a technologist</td>
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<tr>
<td>95782</td>
<td>Polysomnography; younger than 6 years, sleep staging with 4 or more additional parameters of sleep, attended by a technologist</td>
</tr>
<tr>
<td>95783</td>
<td>Polysomnography; younger than 6 years, sleep staging with 4 or more additional parameters of sleep, with initiation of continuous positive airway pressure therapy or bi-level ventilation, attended by a technologist</td>
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V. Important Reminder

The purpose of this Medical Policy is to provide a guide to coverage. This Medical Policy is not intended to dictate to providers how to practice medicine. Nothing in this Medical Policy is intended to discourage or prohibit providing other medical advice or treatment deemed appropriate by the treating physician.

Benefit determinations are subject to applicable member contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.
This Medical Policy has been developed through consideration of the medical necessity criteria under Hawaii’s Patients’ Bill of Rights and Responsibilities Act (Hawaii Revised Statutes §432E-1.4), generally accepted standards of medical practice and review of medical literature and government approval status. HMSA has determined that services not covered under this Medical Policy will not be medically necessary under Hawaii law in most cases. If a treating physician disagrees with HMSA’s determination as to medical necessity in a given case, the physician may request that HMSA reconsider the application of the medical necessity criteria to the case at issue in light of any supporting documentation.

VI. References
8. CMS National Coverage Determination (NCD) for Continuous positive airway pressure (CPAP) therapy for obstructive sleep apnea (OSA) (240.4). August 4, 2008.


VII. Appendices

Appendix 1
According to The American Psychological Association and American Association on Intellectual and Developmental Disabilities, Intellectual Disability is characterized by significant limitations in both of the following:

1. Adaptive functioning (e.g., home, community, and school).
2. Intellectual functioning (e.g., learning, reasoning, problem solving, and judgment)

Appendix 2
According to the International Classification of Sleep Disorders, Third Edition (ICSD-3), chronic insomnia is confirmed when all five of the following criteria are met:

1. The patient reports difficulty initiating asleep, difficulty maintaining asleep, or waking up too early.
2. Sleep difficulties occur despite adequate opportunity and circumstances for sleep.
3. The patient describes daytime impairment that is attributable to the sleep difficulties. This may include fatigue or malaise; attention, concentration, or memory impairment; social dysfunction, vocational dysfunction, or poor school performance; mood disturbance or irritability; daytime sleepiness; motivation, energy, or initiative reduction; errors or accidents at work or while driving; and concerns or worries about sleep.
4. The sleep-wake difficulty is not better explained by another sleep disorder.
5. The sleep disturbance and the associated daytime dysfunction has existed for three months or longer and occurs at least three nights per week; or repeated occurrence for weeks at a time over several years.

Appendix 3
According to the National Institute of Mental Health, a mental illness is considered severe when the following are present:

1. Severe symptoms and behavioral impairment.
2. Pronounced disability in basic life skills.