MEDICAL POLICY – 2.01.73

Actigraphy

BCBSA Ref. Policy: 2.01.73
Effective Date: Nov. 1, 2017
Last Revised: Jan. 1, 2018
Replaces: N/A

RELATED MEDICAL POLICIES:
None

Introduction

Actigraphy is the recording of how a body moves. It has been used to look at a person’s sleep-wake cycles. Actigraphy uses a small device that is usually placed on the wrist or ankle. In some cases the device is placed on a leg to assess restless legs syndrome. High quality medical studies do not show that actigraphy works as well as or better than the usual ways of determining sleep-wake cycles. For this reason, actigraphy is considered investigational (unproven).

Note: The Introduction section is for your general knowledge and is not to be taken as policy coverage criteria. The rest of the policy uses specific words and concepts familiar to medical professionals. It is intended for providers. A provider can be a person, such as a doctor, nurse, psychologist, or dentist. A provider also can be a place where medical care is given, like a hospital, clinic, or lab. This policy informs them about when a service may be covered.

Policy Coverage Criteria

<table>
<thead>
<tr>
<th>Service</th>
<th>Investigational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actigraphy</td>
<td>Actigraphy is considered investigational when used as the sole technique to record and analyze body movement, including but not limited to its use to evaluate sleep disorders.</td>
</tr>
</tbody>
</table>
Note: This does not include the use of actigraphy as a component of portable sleep monitoring.

### Coding

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tr>
<td>CPT</td>
<td>Actigraphy testing, recording, analysis, interpretation and report (minimum of 72 hours to 14 consecutive days of recording)</td>
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</table>

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### Related Information

N/A

### Evidence Review

### Background

Actigraphy refers to the use of devices to assess activity patterns (body movement). The devices are typically placed on the wrist or ankle, and the results are interpreted by computer algorithms to determine periods of sleep (absence of activity) and wake (activity). Actigraphic devices are typically placed on the nondominant wrist with a wristband and are worn continuously for at least 24 hours. Activity is usually recorded for a period of 3 days to 2 weeks but can be collected continuously over extended time periods with regular downloading of data onto a computer. The activity monitors may also be placed on the ankle to assess restless legs syndrome or on the trunk to record movement in infants.
Data on patient bed times (lights out) and rise times (lights on) are usually entered into the computer from daily patient sleep logs or by patient-activated event markers. Proprietary software is then used to calculate periods of sleep based on the absence of detectable movement, along with movement-related level of activity and periods of wake. In addition to providing graphic depiction of the activity pattern, device-specific software can then analyze and report a variety of sleep parameters including sleep onset, sleep offset, sleep latency, total sleep duration, and wake after sleep onset. Actigraphy could also be used to measure the level of a person’s physical activity.

Actigraphy has been used for more than 2 decades as an outcome measure in sleep disorders research. For clinical applications, actigraphy is being evaluated as a measure of sleep-wake cycles in sleep disorders, including insomnia and circadian rhythm sleep disorders. In addition, actigraphy is being investigated as a measure of sleep-wake disturbances associated with numerous other diseases and disorders.

**Summary of Evidence**

For individuals who have circadian sleep-wake rhythm disorders, central disorders of hypersomnolence, or insomnia who receive actigraphy, the evidence includes prospective and retrospective validation studies. Relevant outcomes are test accuracy and validity. The clinical validity of actigraphy depends on the modality to which it is being compared. Comparisons with sleep diaries have shown reasonable correlations for measures of bedtime, sleep onset, and wake time in adults but not in adolescents. The relative and unique contributions of actigraphy and sleep logs in the diagnosis of sleep disorders and measuring the effects of treatment remain to be demonstrated. Comparisons with the more resource-intensive polysomnography or behavioral scoring have indicated that, with the appropriate sensitivity threshold, actigraphy has sufficient sensitivity to detect sleep but has poor specificity distinguishing between wake and sleep. The literature has also revealed that the accuracy of actigraphy for differentiating between wake and sleep decreases as the level of sleep disturbance increases. Overall, progress has been made, especially since 2007 when the American Academy of Sleep Medicine made research recommendations that compared the reliability and validity of different algorithms with the reference standard. Although actigraphy appears to provide reliable measures of sleep onset and wake time in some patient populations, its clinical utility over sleep diaries has not been demonstrated. Moreover, evidence has shown that actigraphy does not provide a reliable measure of sleep efficiency in clinical populations. The evidence is insufficient to determine the effects of the technology on health outcomes.
Ongoing and Unpublished Clinical Trials

A search of ClinicalTrials.gov in December 2016 did not identify any ongoing or unpublished trials that would likely influence this review.

Practice Guidelines and Position Statements

American Academy of Sleep Medicine

The most recent practice parameters by the American Academy of Sleep Medicine (AASM) were published in 2007 on the use of actigraphy in the assessment of sleep and sleep disorders (including a separate practice parameter on circadian rhythm sleep disorders) (see Table 1).4,5

Table 1. Recommendations for Actigraphy

<table>
<thead>
<tr>
<th>Condition</th>
<th>Actigraphy for Diagnosis</th>
<th>Actigraphy to Measure Treatment Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shift work disorder</td>
<td>Indicated (option)</td>
<td>Indicated (guideline)</td>
</tr>
<tr>
<td>Jet lag disorder</td>
<td>Not routinely indicated</td>
<td>Indicated (guideline)</td>
</tr>
<tr>
<td>Advanced sleep phase disorder</td>
<td>Indicated (guideline)</td>
<td>Indicated (guideline)</td>
</tr>
<tr>
<td>Delayed sleep phase disorder</td>
<td>Indicated (guideline)</td>
<td>Indicated (guideline)</td>
</tr>
<tr>
<td>Free running disorder</td>
<td>Indicated (option)</td>
<td>Indicated (guideline)</td>
</tr>
<tr>
<td>Irregular sleep-wake rhythm</td>
<td>Indicated (option)</td>
<td>Indicated (guideline)</td>
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</tbody>
</table>

“Standards” describe a generally accepted patient care strategy, which reflects a high degree of clinical certainty. “Guidelines” reflect a moderate degree of clinical certainty. “Options” imply either inconclusive or conflicting evidence or conflicting expert opinion.

AASM: American Academy of Sleep Medicine.

AASM practice parameters from 2008 on the clinical management of chronic insomnia in adults reference the 2007 practice parameters on actigraphy, stating that actigraphy is indicated as a method (option) to characterize circadian rhythm patterns or sleep disturbances in individuals with insomnia, including insomnia associated with depression.27
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.

Regulatory Status

Numerous actigraphy devices have been cleared for marketing by the U.S. Food and Drug Administration 510(k) process. Some actigraphy devices are designed and marketed to measure sleep-wake states while others are designed and marketed to measure levels of physical activity. Food and Drug Administration product code: OLV.

References


**History**

<table>
<thead>
<tr>
<th>Date</th>
<th>Comments</th>
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<tbody>
<tr>
<td>11/11/05</td>
<td>Add policy to Medicine Section - New Policy</td>
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<tr>
<td>Date</td>
<td>Comments</td>
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<td>06/16/06</td>
<td>Update Scope and Disclaimer - No other changes.</td>
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<td>08/08/06</td>
<td>Replace Policy - Policy reviewed with literature search; references added; no change in policy statement.</td>
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<tr>
<td>11/13/07</td>
<td>Replace Policy - Policy reviewed with literature search; references added; no change in policy statement.</td>
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<tr>
<td>01/13/09</td>
<td>Code Update - Code 95803 added, effective 1/1/09.</td>
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<tr>
<td>10/13/09</td>
<td>Replace Policy - Policy reviewed with literature search; references added; no change in policy statement.</td>
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<tr>
<td>05/10/11</td>
<td>Replace Policy - Policy updated with literature review through December 2010; references added and reordered; policy statement unchanged.</td>
</tr>
<tr>
<td>04/10/12</td>
<td>Replace policy. Policy updated with literature review through November 2011; references 10 and 12 added and references reordered; some references removed. Policy statement unchanged.</td>
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<td>12/4/12</td>
<td>Updated Related Policy title, 2.01.503.</td>
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<tr>
<td>04/16/13</td>
<td>Replace policy. Rationale section updated based on a literature review through January 4, 2013. References 8 and 15 added; others renumbered or removed. Policy statement unchanged.</td>
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<td>10/16/13</td>
<td>Update Related Policies. Change title to policy 2.01.503.</td>
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<tr>
<td>05/05/14</td>
<td>Annual Review. Policy updated with literature review through January 6, 2014; references 7, 10, 12, 15, 18, and 25 added; policy statement unchanged. ICD-9 and ICD-10 diagnosis and procedure codes removed; they are not utilized in adjudication.</td>
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<td>01/22/15</td>
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<td>11/20/15</td>
<td>Update Related Policies. Remove 7.01.516.</td>
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<td>12/01/16</td>
<td>Annual Review, approved November 8, 2016. Policy reviewed with literature search; No new studies were identified that compared actigraphy with other diagnostic methods; no change in policy statement.</td>
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<tr>
<td>01/01/18</td>
<td>Minor update; removed 2.01.503 from Related Policies as it was archived.</td>
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</tbody>
</table>

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**Scope:** Medical policies are systematically developed guidelines that serve as a resource for Company staff when determining coverage for specific medical procedures, drugs or devices. Coverage for medical services is subject to the limits and conditions of the member benefit plan. Members and their providers should consult the member benefit booklet or contact a customer service representative to determine whether there are any benefit limitations applicable to this service or supply. This medical policy does not apply to Medicare Advantage.
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PO Box 91102, Seattle, WA 98111
Toll free 855-332-4535, Fax 425-918-5592, TTY 800-842-5357
Email AppealsDepartmentInquiries@Premera.com

You can file a grievance in person or by mail, fax, or email. If you need help filing a grievance, the Civil Rights Coordinator is available to help you.

You can also file a civil rights complaint with the U.S. Department of Health and Human Services, Office for Civil Rights, electronically through the Office for Civil Rights Complaint Portal, available at https://ocrportal.hhs.gov/ocr/portal/lobby.jsf, or by mail or phone at:
U.S. Department of Health and Human Services
200 Independence Avenue SW, Room S09F, HHH Building
Washington, D.C. 20201, 1-800-368-1019, 800-537-7697 (TDD)

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