



**EFFECTIVE DATE:** 04/01/1998

**POLICY LAST UPDATED:** 11/04/2014

### OVERVIEW

Actigraphy refers to the assessment of activity patterns by devices typically placed on the wrist or ankle that record body movement, which is interpreted by computer algorithms as periods of sleep (absence of activity) and wake (activity). Sleep/wake cycles may be altered in sleep disorders including insomnia and circadian rhythm sleep disorders. In addition, actigraphy could potentially be used to assess sleep/wake disturbances associated with numerous other diseases or disorders. Actigraphy might also be used to measure the level of physical activity.

### PRIOR AUTHORIZATION

Not applicable

### POLICY STATEMENT

#### Blue CHiP for Medicare and Commercial

Actigraphy is considered not medically necessary when used as the sole technique to record and analyze body movement, including but not limited to its use to evaluate sleep disorders. This does not include the use of actigraphy as a component of portable sleep monitoring

When used as a component of portable sleep monitoring, actigraphy should not be separately reported.

### MEDICAL CRITERIA

None

### BACKGROUND

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 for the assessment of restless legs syndrome, or on the trunk to record movement in infants. The algorithms for detection of movement are variable among devices and may include “time above threshold,” the “zero crossing method,” or “digital integration” method, resulting in different sensitivities. Sensitivity settings (eg, low, medium, high, automatic) can also be adjusted during data analysis. The digital integration method reflects both acceleration and amplitude of movement; this form of data analysis may be most commonly used today. Data on patient bed times (lights out) and rise times (lights on) are usually entered into the computer record 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 may analyze and report a variety of sleep parameters including sleep onset, sleep offset, sleep latency, total sleep duration, and wake after sleep onset. Actigraphy has been used for more than 2 decades as an outcome measure in sleep disorders research.

### Regulatory Status

Numerous actigraphy devices have received U.S. Food and Drug Administration (FDA) clearance for marketing through the 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. The clinical validity of actigraphy, the assessment of activity patterns by devices typically placed on the wrist or ankle that record body movement, depends, to a large extent, on the modality with which it is being compared.

Overall, progress has been made since the 2007 American Academy of Sleep Medicine (AASM) research recommendations in assessing the reliability and validity of different algorithms in comparison with the reference standard. Although actigraphy appears to provide reliable measures of sleep onset and wake time in some patient populations, the clinical utility of actigraphy over the less expensive sleep diary has not been demonstrated. Moreover, evidence indicates that actigraphy does not provide a reliable measure of sleep efficiency in clinical populations. Evidence to date does not indicate that this technology is as beneficial as the established alternatives. Therefore, actigraphy is considered not medically necessary as it is investigational.

## COVERAGE

### BlueCHiP for Medicare and Commercial

Benefits may vary between groups/contracts. Please refer to the Evidence of Coverage or Subscriber Agreement for applicable not medically necessary benefits/coverage

## CODING

### BlueCHiP for Medicare and Commercial

The following code is not medically necessary

95803

## RELATED POLICIES

None

## PUBLISHED

Provider Update      Jan 2015

## REFERENCES

1. Littner M, Kushida CA, Anderson WM et al. Practice parameters for the role of actigraphy in the study of sleep and circadian rhythms: an update for 2002. *Sleep* 2003; 26(3):337-41.
2. Ancoli-Israel S, Cole R, Alessi C et al. The role of actigraphy in the study of sleep and circadian rhythms. *Sleep* 2003; 26(3):342-92.
3. Kushida CA, Littner MR, Morgenthaler T et al. Practice parameters for the indications for polysomnography and related procedures: an update for 2005. *Sleep* 2005; 28(4):499-521.
4. Morgenthaler T, Alessi C, Friedman L et al. Practice parameters for the use of actigraphy in the assessment of sleep and sleep disorders: an update for 2007. *Sleep* 2007; 30(4):519-29.
5. Morgenthaler TI, Lee-Chiong T, Alessi C et al. Practice parameters for the clinical evaluation and treatment of circadian rhythm sleep disorders. An American Academy of Sleep Medicine report. *Sleep* 2007; 30(11):1445-59.
6. Paquet J, Kawinska A, Carrier J. Wake detection capacity of actigraphy during sleep. *Sleep* 2007; 30(10):1362-9.

7. Marino M, Li Y, Rueschman MN et al. Measuring sleep: accuracy, sensitivity, and specificity of wrist actigraphy compared to polysomnography. *Sleep* 2013; 36(11):1747-55.
8. Sivertsen B, Omvik S, Havik OE et al. A comparison of actigraphy and polysomnography in older adults treated for chronic primary insomnia. *Sleep* 2006; 29(10):1353-8.
9. Kaplan KA, Talbot LS, Gruber J et al. Evaluating sleep in bipolar disorder: comparison between actigraphy, polysomnography, and sleep diary. *Bipolar Disord* 2012; 14(8):870-9.
10. Taibi DM, Landis CA, Vitiello MV. Concordance of polysomnographic and actigraphic measurement of sleep and wake in older women with insomnia. *J Clin Sleep Med* 2013; 9(3):217-25.
11. Beecroft JM, Ward M, Younes M et al. Sleep monitoring in the intensive care unit: comparison of nurse assessment, actigraphy and polysomnography. *Intensive Care Med* 2008; 34(11):2076-83.

[CLICK THE ENVELOPE ICON BELOW TO SUBMIT COMMENTS](#)

This medical policy is made available to you for informational purposes only. It is not a guarantee of payment or a substitute for your medical judgment in the treatment of your patients. Benefits and eligibility are determined by the member's subscriber agreement or member certificate and/or the employer agreement, and those documents will supersede the provisions of this medical policy. For information on member-specific benefits, call the provider call center. If you provide services to a member which are determined to not be medically necessary (or in some cases medically necessary services which are non-covered benefits), you may not charge the member for the services unless you have informed the member and they have agreed in writing in advance to continue with the treatment at their own expense. Please refer to your participation agreement(s) for the applicable provisions. This policy is current at the time of publication; however, medical practices, technology, and knowledge are constantly changing. BCBSRI reserves the right to review and revise this policy for any reason and at any time, with or without notice. Blue Cross & Blue Shield of Rhode Island is an independent licensee of the Blue Cross and Blue Shield Association.

