



MASSACHUSETTS

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Medical Policy

Biofeedback for Miscellaneous Indications

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Policy Number: 187

BCBSA Reference Number: 2.01.53

NCD/LCD: National Coverage Determination (NCD) for Biofeedback Therapy (30.1)

Related Policies

- Biofeedback as a treatment of Chronic Pain, [#210](#)
- Biofeedback as a Treatment of Fecal Incontinence or Constipation, [#308](#)
- Biofeedback as a Treatment of Urinary Incontinence, [#173](#)
- Biofeedback for the Treatment of Headache, [#152](#)
- Neurofeedback, [#515](#)
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Policy

Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity

Biofeedback is **INVESTIGATIONAL** as a treatment of the following miscellaneous conditions:

- Anxiety disorders
- Asthma
- Bell's palsy
- Depression
- Hypertension
- Insomnia
- Movement disorders, such as motor function after stroke, injury, or lower-limb surgery
- Multiple sclerosis
- Orthostatic hypotension in patients with spinal cord injury
- Pain management during labor
- Posttraumatic stress disorder
- Prevention of preterm birth
- Raynaud disease
- Sleep bruxism
- Tinnitus.

Medicare HMO BlueSM and Medicare PPO BlueSM Members

Medical necessity criteria and coding guidance can be found through the link below.

[National Coverage Determinations \(NCDs\)](#)

National Coverage Determination (NCD) for Biofeedback Therapy (30.1)

Note: To review the specific NCD, please remember to click “accept” on the CMS licensing agreement at the bottom of the CMS webpage.

Prior Authorization Information

Inpatient

- For services described in this policy, precertification/preauthorization **IS REQUIRED** for all products if the procedure is performed **inpatient**.

Outpatient

- For services described in this policy, see below for products where prior authorization **might be required** if the procedure is performed **outpatient**.

	Outpatient
Commercial Managed Care (HMO and POS)	This is not a covered service.
Commercial PPO and Indemnity	This is not a covered service.
Medicare HMO BlueSM	Prior authorization is not required .
Medicare PPO BlueSM	Prior authorization is not required .

CPT Codes / HCPCS Codes / ICD Codes

Inclusion or exclusion of a code does not constitute or imply member coverage or provider reimbursement. Please refer to the member’s contract benefits in effect at the time of service to determine coverage or non-coverage as it applies to an individual member.

Providers should report all services using the most up-to-date industry-standard procedure, revenue, and diagnosis codes, including modifiers where applicable.

The following codes are included below for informational purposes only; this is not an all-inclusive list.

According to the policy statement above, the following CPT/HCPCS codes are considered investigational for the conditions listed for Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity:

CPT Codes

CPT codes:	Code Description
90875	Individual psychophysiological therapy incorporating biofeedback training by any modality (face-to-face with the patient), with psychotherapy (eg, insight oriented, behavior modifying or supportive psychotherapy); approximately 20-30 minutes
90876	Individual psychophysiological therapy incorporating biofeedback training by any modality (face-to-face with the patient), with psychotherapy (eg, insight oriented, behavior modifying or supportive psychotherapy); approximately 45-50 minutes
90901	Biofeedback training by any modality

HCPCS Codes

HCPCS codes:	Code Description
E0746	Electromyography (EMG), biofeedback device

Description

Biofeedback is a technique intended to teach patients self-regulation of certain unconscious or involuntary physiologic processes. Biofeedback equipment converts physiological signals into outputs given to patients. The technique involves the feedback of a variety of types of information not usually available to the patient, followed by a concerted effort on the part of the patient to use this feedback to help alter the physiologic process in a specific way.

Biofeedback has been proposed as a treatment for a variety of diseases and disorders including anxiety, headaches, hypertension, movement disorders, incontinence, pain, asthma, Raynaud disease, and insomnia. The type of feedback used in an intervention (eg, visual, auditory) depends on the nature of the disease or disorder being treated. This evidence review focuses on the use of biofeedback for the treatment of hypertension, anxiety, insomnia, asthma, movement disorders (eg, motor function after stroke, injury, or lower-limb surgery), and other applications (ie, conditions not addressed in other evidence reviews on biofeedback).

In addition, this evidence review focuses on biofeedback devices that measure and provide information on physiologic processes such as heart rate, muscle tension, skin temperature, and blood flow. Electroencephalographic biofeedback, also called neurofeedback, which measures brainwave activity, is addressed in Neurofeedback, [#515](#)

Summary

Biofeedback is a technique intended to teach patients self-regulation of certain physiologic processes that are otherwise impossible or extremely difficult to control. This review focuses on the use of biofeedback for treating miscellaneous indications—specifically, indications other than urinary and fecal incontinence, headache, and chronic pain.

For individuals with anxiety disorders who receive biofeedback, the evidence includes 2 systematic reviews and a randomized controlled trial (RCT) published after the review. Relevant outcomes are symptoms, functional outcomes, and quality of life. The systematic reviews and observational trial on heart rate variability biofeedback and the RCT on diaphragmatic breathing relaxation reported the positive effects of these treatments on anxiety. However, the trials had small sample sizes (median, 14 participants) and study quality was generally poor. Additional limitations included improper randomization, allocation concealment, and inadequate descriptions of randomization or missing data. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals with asthma who receive biofeedback, the evidence includes 4 RCTs. Relevant outcomes are symptoms, functional outcomes, and quality of life. Each RCT used a different biofeedback technique, which provided patients with information on carbon dioxide, heart rate, and respiratory sinus arrhythmia. While the trials reported improvements in each parameter for which the patients received biofeedback, the improvements did not impact clinical outcomes such as medication use and forced expiratory volume. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals with Bell palsy who receive biofeedback, the evidence includes 4 RCTs. Relevant outcomes are symptoms, functional outcomes, and quality of life. The RCTs evaluated the efficacy of adding a mirror and/or electromyography biofeedback to facial exercises. Sample sizes were small, and there was heterogeneity across techniques used and length of treatments. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals with depression who receive biofeedback, the evidence includes a systematic review. Relevant outcomes are symptoms, functional outcomes, and quality of life. The review only identified 2 dissertations assessing the use of biofeedback for depression. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals with hypertension who receive biofeedback, the evidence includes a systematic review and an RCT published after the review. Relevant outcomes are symptoms, functional outcomes, and

quality of life. The systematic review identified 36 RCTs, though sample sizes were small and overall study quality poor. Various biofeedback techniques were used: thermal, galvanized skin response, pulse wave velocity, and heart rate variability. Results across trials did not consistently show a benefit of biofeedback. Conclusions were limited due to the heterogeneity across interventions and the generally poor quality of the trials. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals with motor dysfunction after stroke who receive biofeedback, the evidence includes systematic reviews, RCTs published after the systematic reviews, and a case series. Relevant outcomes are symptoms, functional outcomes, and quality of life. One systematic review identified 18 high-quality trials using the following biofeedback techniques: weight distribution on a platform sensor, muscle activity from electromyography, linear gait parameters, and joint angle from a goniometer. Feedback was visual, auditory, or both. Outcome measures primarily assessed motor activity in research settings, rather than clinical outcomes such as rates of falls or the ability to perform activities of daily living. Pooled effects showed improvements in motor function in the short term. The evidence is limited due to the variability in type, duration, and intensity of the interventions and lack of long-term outcomes. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals with motor dysfunction after lower-limb injury or surgery who receive biofeedback, the evidence includes a systematic review. Relevant outcomes are symptoms, functional outcomes, and quality of life. The systematic review identified 4 RCTs evaluating the use of electromyography biofeedback. Sample sizes were small, with half of the trials reporting significant benefits of biofeedback and the other half reporting no difference between study groups. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals with multiple sclerosis who receive biofeedback, the evidence includes 2 RCTs. Relevant outcomes are symptoms, functional outcomes, and quality of life. One trial used vibrotactile biofeedback and the other provided patients with heart rate and muscle tension biofeedback. Sample sizes were small, and trialists reported marginally significant differences between study groups. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals with orthostatic hypotension due to spinal cord injury who receive biofeedback, the evidence includes a case series and a case report. Relevant outcomes are symptoms, functional outcomes, and quality of life. The case series and a case report collectively provided information on 3 patients given visual and auditory feedback. Patients were able to raise their systolic blood pressure by an average of 39%. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who need pain management during labor who receive biofeedback, the evidence includes 4 RCTs. Relevant outcomes are symptoms, functional outcomes, and quality of life. A Cochrane review graded the 4 trials as having a high risk of bias due to unclear descriptions of blinding and randomization methods. Due to the heterogeneity in biofeedback methods and outcomes measured, pooled analyses could not be performed. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals with posttraumatic stress disorder who receive biofeedback, the evidence includes an RCT, a nonrandomized study, and 2 case series. Relevant outcomes are symptoms, functional outcomes, and quality of life. The studies had small sample sizes and inconsistent results. A systematic review of the 4 studies rated the evidence a grade C for conflicting scientific evidence. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who are susceptible to preterm birth who receive biofeedback, the evidence includes an RCT. Relevant outcomes are symptoms, functional outcomes, and quality of life. In the RCT, women in the treatment group received heart rate variability biofeedback. Patients receiving the treatment experienced a decrease in perceived chronic stress, but there was no significant difference in the number

of preterm births, gestational duration, or birth weight. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals with Raynaud disease who receive biofeedback, the evidence includes a systematic review. Relevant outcomes are symptoms, functional outcomes, and quality of life. The systematic review identified 5 RCTs using biofeedback techniques. Pooled analysis was performed on four of these trials. Reduction in frequency of attacks was significantly lower in the sham-control group. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals with sleep bruxism who receive biofeedback, the evidence includes 2 systematic reviews and an RCT published after the review. Relevant outcomes are symptoms, functional outcomes, and quality of life. One systematic review identified 7 randomized and nonrandomized studies using biofeedback techniques, and the most recent systematic review identified 6 additional studies. Studies were generally small, used different techniques, measured different outcomes, and were assessed as having either moderate or high risk of bias. Two studies reported the number of bruxism episodes per hour and a pooled analysis of these studies showed no significant differences between biofeedback groups and control groups. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals with tinnitus who receive biofeedback, the evidence includes a single RCT. Relevant outcomes are symptoms, functional outcomes, and quality of life. Treatment consisted of a biofeedback-based behavioral intervention over a 3-month period. The treatment group experienced improvements in tinnitus annoyance, loudness ratings, controllability, coping cognitions, and depressive symptoms. Additional studies are needed to confirm the results of this single trial. The evidence is insufficient to determine the effects of the technology on health outcomes.

Policy History

Date	Action
1/2019	BCBSA National medical policy review. Description, summary and references updated. Policy statements unchanged.
10/2017	BCBSA National medical policy review. Minor edits to the Policy section; statement otherwise unchanged. 10/1/2017
1/2016	BCBSA National medical policy review. New investigational indications described. Autism removed from investigational statement. Effective 1/1/2016.
10/2014	BCBSA National medical policy review. Investigational indications clarified. Effective 10/1/2014.
10/2013	New references from BCBSA National medical policy.
3/2013	BCBSA National medical policy review. Changes to policy statement. Effective 3/1/2013.
11/2011-4/2012	Medical policy ICD 10 remediation: Formatting, editing and coding updates. No changes to policy statements.
6/2011	Reviewed - Medical Policy Group - Orthopedics, Rehabilitation and Rheumatology. No changes to policy statements.
7/2010	Reviewed - Medical Policy Group - Orthopedics, Rehabilitation Medicine and Rheumatology. No changes to policy statements.
5/2010	Medical policy 187 describing covered and non-covered indications. Effective 5/1/2010.
11/2009	National policy reviewed 11/2009. Revisions to coverage statement made, effective 11/2009
3/2009	Reviewed - Medical Policy Group - Pulmonology, Allergy/Asthma/Immunology and ENT/ Otolaryngology. No changes to policy statements.
3/2008	Reviewed - Medical Policy Group - Pulmonology, Allergy and ENT/Otolaryngology.

	No changes to policy statements.
11/2007	National policy reviewed 11/2007. No changes to commercial policy statement. LCD indications describing covered and non-covered indications for Medicare. Effective 11/2007.
3/2007	Reviewed - Medical Policy Group - Pulmonology, Allergy and ENT/Otolaryngology. No changes to policy statements.
10/2006	National policy reviewed 10/2006; no changes to policy statement.

Information Pertaining to All Blue Cross Blue Shield Medical Policies

Click on any of the following terms to access the relevant information:

[Medical Policy Terms of Use](#)

[Managed Care Guidelines](#)

[Indemnity/PPO Guidelines](#)

[Clinical Exception Process](#)

[Medical Technology Assessment Guidelines](#)

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