

## Medical Coverage Policy | Transcranial Magnetic Stimulation



**EFFECTIVE DATE:** 03|07|2012

**POLICY LAST UPDATED:** 12|1|2015

### OVERVIEW

Transcranial magnetic stimulation (TMS), also called repetitive transcranial magnetic stimulation, is a non-invasive method of delivering electrical stimulation to the brain. TMS involves placement of a small coil over the scalp; passing a rapidly alternating current through the coil wire, which produces a magnetic field that passes unimpeded through the scalp and bone, resulting in electrical stimulation of the cortex. Repetitive TMS is used as a treatment of depression and other psychiatric/neurologic brain disorders. This policy documents the medical criteria for when the service is medically necessary.

### MEDICAL CRITERIA

As documented by Blue Cross & Blue Shield of Rhode Island (BCBSRI) Behavioral Health Vendor.

### PRIOR AUTHORIZATION

Preauthorization is required for BlueCHiP for Medicare and recommended for all other Commercial products. Contact BCBSRI Behavioral Health Vendor at 1-800-274-2958

### POLICY STATEMENT

#### BlueCHiP for Medicare and Commercial Products

Repetitive transcranial magnetic stimulation is medically necessary as a treatment for depression and other psychiatric/neurologic disorders when the criteria below are met.

All other indications are not medically necessary as the use of TMS as there is insufficient peer-reviewed scientific literature that demonstrates that the procedure is effective.

TMS should not be used in patients who have conductive, ferromagnetic, or other magnetic-sensitive metals implanted in their head that are non-removable and within 30cm of the TMS magnetic coil. Examples include cochlear implants, implanted electrodes/stimulators, aneurysm clips or coil, stents, and bullet fragments.

Note: Dental amalgam fillings are not affected by the magnetic field and are acceptable for use with TMS.

### BACKGROUND

Transcranial magnetic stimulation (TMS), also called repetitive transcranial magnetic stimulation, is a non-invasive method of delivering electrical stimulation to the brain. A magnetic field is delivered through the skull where it induces electric currents that affect neuronal function. Repetitive TMS is being evaluated as a treatment of depression and other psychiatric/neurologic brain disorders. The use of TMS is typically recommended for up to 30 visits over a 7-week period followed by 6 taper treatments.

Transcranial magnetic stimulation was first introduced in 1985 as a new method of non-invasive stimulation of the brain. The technique involves placement of a small coil over the scalp; passing a rapidly alternating current through the coil wire, which produces a magnetic field that passes unimpeded through the scalp and bone, resulting in electrical stimulation of the cortex. TMS was initially used to investigate nerve conduction; for example, TMS over the motor cortex will produce a contralateral muscular-evoked potential. The motor threshold, which is the minimum intensity of stimulation required to induce a motor response, is empirically determined for each individual by localizing the site on the scalp for optimal stimulation of a hand muscle,

then gradually increasing the intensity of stimulation. The stimulation site for treatment is usually 5 cm anterior to the motor stimulation site.

TMS is also being tested as a treatment for a variety of other disorders including alcohol dependence, Alzheimer's disease, neuropathic pain, obsessive-compulsive disorder (OCD), postpartum depression, depression associated with Parkinson's disease, Tourette's syndrome, schizophrenia, migraine, spinal cord injury, fibromyalgia, and tinnitus. For other psychiatric/neurologic conditions, the evidence is insufficient to determine whether TMS leads to improved outcomes. The available clinical trials are small and report mixed results for a variety of conditions other than depression. There are no large, high-quality trials for any of these other conditions. Therefore, TMS is considered investigational for other psychiatric/neurologic conditions.

According to Centers for Medicare and Medicaid Services (CMS), when used as an antidepressant therapy, TMS may produce a clinical benefit without the systemic side effects typical with oral medications, has no adverse effects on cognition, and unlike electroconvulsant therapy does not induce amnesia or seizures. TMS offers a well-tolerated, non-pharmacologic alternative that does not require attendant anesthesia services and can be administered in an outpatient setting for patients with DSM-IV defined Major Depressive Disorder who have failed to benefit from initial treatment of their depression. When effective, TMS may prevent the need to utilize more complex pharmaceutical augmentation strategies (e.g., atypical antipsychotic medication), electroconvulsive therapy (ECT), and inpatient hospitalization at later stages of the illness. The use of TMS as a maintenance therapy is not supported by controlled clinical trial at this time and is therefore, considered not reasonable and necessary.

### **Cautionary Uses**

The benefits of TMS use must be carefully considered against the risk of potential side effects in patients with any of the following:

- Seizure disorder or any history of seizure (except those induced by ECT or isolated febrile seizures in infancy without subsequent treatment or recurrence).
- The presence of vagus nerve stimulator leads in the carotid sheath.
- The presence of an implanted medical device located > 30 cm from the TMS magnetic coil, including but not limited to pacemakers, implanted defibrillators, or vagus nerve stimulators.

### **COVERAGE**

Benefits may vary between groups and contracts. Please refer to the appropriate Evidence of Coverage, Subscriber Agreement for applicable medical benefits/coverage.

### **CODING**

**The following codes are covered for all BlueCHiP for Medicare and Commercial products with preauthorization:**

**90867** Therapeutic repetitive transcranial magnetic stimulation treatment planning

**90868** Therapeutic repetitive transcranial magnetic stimulation treatment delivery and management, per session

**90869** Therapeutic repetitive transcranial magnetic stimulation (TMS) treatment; subsequent motor threshold re-determination with delivery and management

### **RELATED POLICIES**

None

### **PUBLISHED**

Provider Update, February 2016

Provider Update, July 2014

Provider Update, August 2013

Provider Update, July 2012

Provider Update, May 2012

Provider Update, February 2011  
Provider Update, October 2010  
Provider Update, August 2009

## REFERENCES

1. Schutter DJ. Antidepressant efficacy of high-frequency transcranial magnetic stimulation over the left dorsolateral prefrontal cortex in double-blind sham-controlled designs: a meta-analysis. *Psychol Med* 2009; 39(1):65-75.
2. Gross M, Nakamura L, Pascual-Leone A et al. Has repetitive transcranial magnetic stimulation (TMS) treatment for depression improved? A systematic review and meta-analysis comparing the recent vs. the earlier TMS studies. *Acta Psychiatr Scand* 2007; 116(3):165-73.
3. Lam RW, Chan P, Wilkins-Ho M et al. Repetitive transcranial magnetic stimulation for treatment-resistant depression: a systematic review and metaanalysis. *Can J Psychiatry* 2008; 53(9):621-31.
4. O'Reardon JP, Solvason HB, Janicak PG et al. Efficacy and safety of transcranial magnetic stimulation in the acute treatment of major depression: a multisite randomized controlled trial. *Biol Psychiatry* 2007; 62(11):1208-16.
5. George MS, Lisanby SH, Avery D et al. Daily left prefrontal transcranial magnetic stimulation therapy for major depressive disorder: a sham-controlled randomized trial. *Arch Gen Psychiatry* 2010; 67(5):507-16.
6. Avery DH, Holtzheimer PE, 3rd, Fawaz W et al. A controlled study of repetitive transcranial magnetic stimulation in medication-resistant major depression. *Biol Psychiatry* 2006; 59(2):187-94.
7. Rossini D, Lucca A, Zanardi R et al. Transcranial magnetic stimulation in treatment-resistant depressed patients: a double-blind, placebo-controlled trial. *Psychiatry Res* 2005; 137(1-2):1-10.
8. Mogg A, Pluck G, Eranti SV et al. A randomized controlled trial with 4-month follow-up of adjunctive repetitive transcranial magnetic stimulation of the left prefrontal cortex for depression. *Psychol Med* 2008; 38(3):323-33.
9. Fitzgerald PB, Hoy K, McQueen S et al. A randomized trial of TMS targeted with MRI based neuro-navigation in treatment-resistant depression. *Neuropsychopharmacology* 2009; 34(5):1255-62.
10. Grunhaus L, Schreiber S, Dolberg OT et al. A randomized controlled comparison of electroconvulsive therapy and repetitive transcranial magnetic stimulation in severe and resistant nonpsychotic major depression. *Biol Psychiatry* 2003; 53(4):324-31.
11. McLoughlin DM, Mogg A, Eranti S et al. The clinical effectiveness and cost of repetitive transcranial magnetic stimulation versus electroconvulsive therapy in severe depression: a multicentre pragmatic randomised controlled trial and economic analysis. *Health Technol Assess* 2007; 11(24):1-54.
12. Centers for Medicare and Medicaid Services. Local Coverage Determination (LCD) for Repetitive Transcranial Magnetic Stimulation (TMS) (LCD32228)

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