



**TRANSCRANIAL MAGNETIC  
STIMULATION  
HS-067**



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## **Transcranial Magnetic Stimulation**

**Policy Number: HS-067**

**Original Effective Date: 12/4/2008**

**Revised Date(s): 12/14/2009;  
12/28/2010; 12/1/2011**

### **DISCLAIMER**

The Clinical Coverage Guideline is intended to supplement certain standard WellCare benefit plans. The terms of a member's particular Benefit Plan, Evidence of Coverage, Certificate of Coverage, etc., may differ significantly from this Coverage Position. For example, a member's benefit plan may contain specific exclusions related to the topic addressed in this Clinical Coverage Guideline. When a conflict exists between the two documents, the Member's Benefit Plan always supersedes the information contained in the Clinical Coverage Guideline. Additionally, Clinical Coverage Guidelines relate exclusively to the administration of health benefit plans and are NOT recommendations for treatment, nor should they be used as treatment guidelines. The application of the Clinical Coverage Guideline is subject to the benefit determinations set forth by the Centers for Medicare and Medicaid Services (CMS) National and Local Coverage Determinations and state-specific Medicaid mandates, if any.

### **APPLICATION STATEMENT**

The application of the Clinical Coverage Guideline is subject to the benefit determinations set forth by the Centers for Medicare and Medicaid Services (CMS) National and Local Coverage Determinations and state-specific Medicaid mandates, if any.

## BACKGROUND

Transcranial magnetic stimulation was first introduced in 1985 as a new method of noninvasive stimulation of the brain. Transcranial magnetic stimulation (TMS) is a non-invasive method of induction of a focal current in the brain and transient modulation of the function of the targeted cerebral cortex. This procedure entails placement of an electromagnetic coil on the scalp; high-intensity electrical current is rapidly turned on and off in the coil through the discharge of capacitors. Depending on stimulation parameters (frequency, intensity, pulse duration, stimulation site), repetitive TMS (rTMS) to specific cortical regions can either increase or decrease the excitability of the affected brain structures.

## POSITION STATEMENT

Transcranial Magnetic Stimulation **is considered experimental and investigational for the treatment of refractory depression and NOT a covered benefit.**

Transcranial Magnetic Stimulation **is also considered experimental and investigational** for all other psychiatric and non-psychiatric indications.

## CLINICAL EVIDENCE

A total of 23 studies involving 1774 patients met criteria for review. These studies evaluated a variety of TMS approaches, including high-frequency ( $\geq 1$  Hz) left-sided TMS (HFL-TMS), high-frequency rightsided TMS (HFR-TMS), low-frequency ( $\leq 1$  Hz) rightsided TMS (LFR-TMS), low-frequency left-sided TMS (LFLTMS), and bilateral TMS involving LFR-TMS followed by HFL-TMS or HFL-TMS followed by LFR-TMS. Study populations consisted of adult patients diagnosed with major depression, major depressive episode (MDE), or major depressive disorder (MDD) based on criteria set forth in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) and/or the Structured Clinical Interview for the DSM-IV (SCID). Several studies included some patients with bipolar depression (Klein et al., 1999; Fitzgerald et al., 2003; Rossini et al., 2005a; Fitzgerald et al., 2006; McDonald et al., 2006; Eranti et al., 2007; Herwig et al., 2007; Mogg et al., 2008). Most studies specified that patients had treatment-resistant depression (TRD), failed  $\geq 1$  trials of antidepressant medication, or had a prolonged current MDE that suggested treatment resistance. However, one study excluded patients with TRD (Klein et al., 1999) and two provided no data about treatment resistance or prolonged MDE (Fregni et al., 2004; Koerselman et al., 2004).

### *Cochrane Review*

In a meta-analysis of 16 published clinical trials, a 2002 Cochrane Review concluded there was no strong evidence of benefit from using TMS for the treatment of depression. A major conclusion of this report was the finding that there was no difference between TMS and sham TMS based on patient results of the Beck Depression Inventory (BDI, BDI II) or Hamilton Depression Rating Scale (HAM-D). In addition, this review found electroconvulsive therapy (ECT) was more effective than TMS.

### *American Psychiatric Association*

Based on the results of a multisite randomized sham-controlled clinical trial of high-frequency TMS over the left dorsolateral prefrontal cortex, TMS was cleared by the FDA in 2008 for use in individuals with major depressive disorder who have not had a satisfactory response to at least one antidepressant trial in the current episode of illness. However, another large randomized sham-controlled trial of TMS added to antidepressant pharmacotherapy showed no significant benefit of left dorsolateral prefrontal cortex TMS. In comparisons of actual TMS versus sham TMS, most but not all recent meta-analyses have found relatively small to moderate benefits of TMS in terms of

clinical response. Although the primary studies used in these meta-analyses are highly overlapping and the variability in TMS stimulus parameters and treatment paradigms complicates the interpretation of research findings, these meta-analyses also support the use of high-frequency TMS over the left dorsolateral prefrontal cortex. Lesser degrees of treatment resistance may be associated with a better acute response to TMS. Across all studies, TMS was well tolerated and was associated with low rates of treatment dropout. Transient scalp discomfort and headaches were the most commonly reported side effects. In clinical practice, the need for daily TMS could produce logistical barriers for some patients.

### Conclusion

The published literature regarding the use of transcranial magnetic stimulation (TMS), also known as repetitive transcranial magnetic stimulation (rTMS), for the treatment of depression and other mood disorders is comprised of small controlled trials of limited follow-up, consisting of differing patient populations and parameters. Additional research is needed to determine the roles of various stimulation parameters of TMS for its optimal outcome as well as its long-term effectiveness in the treatment of depression and other neuropsychiatric disorders. Given the paucity of evidence supporting the safety and efficacy of transcranial magnetic stimulation this procedure is considered experimental and investigational pending further data from properly controlled and populated trials.

## CODING

### Non Covered CPT®\* Codes

- 90867\*** Therapeutic repetitive transcranial magnetic stimulation treatment planning  
**90868\*** Therapeutic repetitive transcranial magnetic stimulation treatment delivery and management, per session  
(\*New CPT Codes for 2011)

**Non-Covered CPT Category III Codes** No applicable Category III Codes for 2011 (0160T & 0161T have been deleted)

**Non-Covered ICD-9-CM Procedure Codes** Not Applicable

**Non-Covered HCPCS Level II ® Codes** No applicable HCPCS codes for 2011

**Non Covered ICD-9-CM Diagnosis Codes** All diagnosis codes are non-covered

\*Current Procedural Terminology (CPT®) ©2011 American Medical Association: Chicago, IL.

## REFERENCES

### Peer Reviewed

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### **Government Agencies, Professional and Medical Organizations**

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### **HISTORY AND REVISIONS**

<b>Date</b>	<b>Action</b>
12/1/2011	<ul style="list-style-type: none"><li>• Approved by MPC.</li><li>• Reformatted references; added 10 new. Added APA 2010 update; includes TMS cleared by FDA in 2008 for use in those with major depressive disorder. No code changes.</li><li>• New template design approved by MPC.</li></ul>