

## Transcranial Magnetic Stimulation (TMS)

**Transcranial Magnetic Stimulation (TMS) is a non-invasive, non-systemic treatment that uses Magnetic Resonance Imaging (MRI)-strength, pulsed, magnetic fields to induce an electric current in a localized region of the cerebral cortex. An electromagnetic coil is placed on the scalp that induces a focal current in the brain and temporary modulation of cerebral cortical function. Capacitor discharge provides electrical current in alternating on/off pulses. Depending on stimulation parameters, repetitive TMS to specific cortical regions can either decrease or increase the excitability of the targeted structures (Centers for Medicare and Medicaid Services, Local Coverage Determinations (CMS), 2016).**

### Coverage Criteria

Left prefrontal TMS is considered reasonable and necessary for members diagnosed with Major Depressive Disorder in addition to at least **ONE** of the following:

Resistance to treatment as evidenced by a lack of clinically significant response to four trials of pharmacologic agents in the current depressive episode, from at least two different agent classes, following algorithm driven treatment as defined by either Sequenced Treatment Alternatives to Relieve Depression (STAR\*D) or the Texas Medication Algorithms Project (TMAP); and

1. A trial of an evidence-based psychotherapy known to be effective in the treatment of MDD of an adequate frequency and duration without significant improvement in depressive symptoms as documented by standardized rating scales that reliably measure depressive symptoms.

#### **AND at least ONE of the Following**

2. At least one of the treatment trials was administered at an adequate course of mono- or poly-drug therapy.
3. Inability to tolerate four agents from two different agent classes of with distinct side effects. A history of good response to TMS in a previous episode.
4. Response history is evidence of a greater than 50% improvement in symptoms on a standardized rating scale such as:
  - a. The Geriatric Depression Scale (GDS)
  - b. Personal Health Questionnaire Depression Scale (PHQ-9)
  - c. Beck Depression Scale (BDI)
  - d. Hamilton Rating Scale for Depression (HAM-D)
  - e. Montgomery Asberg Depression Rating Scale (MADRS)
  - f. Quick Inventory of Depressive Symptomatology (QIDS)
  - g. Inventory for Depressive Symptomatology Systems Review (IDS-SR)

### **TMS as a less invasive treatment option to Electroconvulsive Therapy (ECT):**

1. The member is currently receiving ECT and TMS is desired as a less invasive treatment option.

### **Limit and/or Exclusion Criteria**

TMS is not covered in the following circumstances and is considered Not Reasonable and Necessary:

1. There is a presence of psychotic symptoms in the current depressive episode.
2. There is a presence of conductive, ferromagnetic or other magnetic-sensitive metals implanted in their head which are non-removable and within 30cm of the TMS magnetic coil.
  - a. Examples include: cochlear implants, implanted electrodes/stimulators, aneurysm clips or coil, stents, and bullet fragments.
3. The member has been diagnosed with Schizophrenia, Schizophreniform Disorder, or Schizoaffective Disorder.
4. There are neurological conditions that include Epilepsy, Parkinson's disease, Multiple Sclerosis, Cerebrovascular disease, Dementia, increased intracranial pressure, having a history of repetitive or severe head trauma, primary or secondary tumors in the central nervous system, or any other degenerative neurologic condition.
5. Used as a maintenance therapy. TMS as a maintenance therapy is not supported by controlled clinical trials at this time and is not considered reasonable and necessary.

#### **Administration and Documentation**

1. If there is active suicidality, additional review may be warranted to evaluate whether TMS is the most appropriate treatment, or whether a more intensive treatment is indicated.
2. TMS is reasonable and necessary for up to 20 visits (up to five times per week) over a 4-week period. If there is at least 50 % improvement in symptoms, additional 10 visits over two week period with a two to three week taper (6 taper treatments).
3. Repeat acute treatment for relapse of depressive symptoms is considered medically necessary if the patient responded to prior treatments, specifically > 50% improvement in a standard rating scale for depressive symptoms with the use of standard rating scales such as:
  - a. The Geriatric Depression Scale (GDS), the Personal Health Questionnaire Depression Scale (PHQ-9), the Beck Depression Scale (BDI) Hamilton Rating Scale for Depression (HAM-D), the Montgomery Asberg Depression Rating Scale (MADRS), the Quick Inventory of Depressive Symptomatology (QIDS) or the Inventory for Depressive Symptomatology Systems Review (IDS-SR) to monitor treatment response and the achievement of remission of symptoms.
4. If patient meets the relapse criteria, up to 30 visits for the acute phase treatment followed by an additional 6 visits for tapering is considered reasonable and necessary.
5. The attending physician must monitor and document the patient's clinical progress during treatment with the use of the above evidence-based rating scales.
6. The medical record documentation must support the medical necessity of the services.

#### **References**

1. Centers for Medicare and Medicaid Services, Benefit Policy Manual, 2014.
2. Centers for Medicare and Medicaid, Local Coverage Determination.