MEDICAL POLICY

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MEDICAL POLICY DETAILS	
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Category	**Technology Assessment**
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Product Disclaimer	• *Services are contract dependent; if a product excludes coverage for a service, it is not covered, and medical policy criteria do not apply.* • *If a commercial product (including an Essential Plan or Child Health Plus product), medical policy criteria apply to the benefit.* • *If a Medicaid product covers a specific service, and there are no New York State Medicaid guidelines (eMedNY) criteria, medical policy criteria apply to the benefit.* • *If a Medicare product (including Medicare HMO-Dual Special Needs Program (DSNP) product) covers a specific service, and there is no national or local Medicare coverage decision for the service, medical policy criteria apply to the benefit.* • *If a Medicare HMO-Dual Special Needs Program (DSNP) product DOES NOT cover a specific service, please refer to the Medicaid Product coverage line.*

POLICY STATEMENT

I. Based upon our criteria and assessment of the peer-reviewed literature, an initial course of transcranial magnetic stimulation (TMS) has been medically proven to be effective and, therefore, is considered **medically appropriate** as a treatment for major depressive disorder in adults aged 18 years and older when **ALL** of the following have been met:
   A. The member has a confirmed diagnosis of severe major depressive disorder (single or recurrent), documented by standardized rating scales that reliably measure depressive symptoms, with the failure of at least one antidepressant medication in the current treatment episode; **AND**
   B. The member meets any **ONE** of the following:
      1. Failure of four trials of psychopharmacologic agents, including two different antidepressant agent classes and two augmentation trials (*see Policy Guidelines I and II*);
      2. Inability to tolerate a therapeutic dose of medications, as evidenced by four trials of psychopharmacologic agents with distinct side effects; **OR**
      3. Is a candidate for electroconvulsive therapy (ECT), and ECT would not be clinically superior to repetitive TMS (rTMS) (e.g., in cases involving psychosis, acute suicidal risk, catatonia or life-threatening inanition, rTMS should NOT be utilized); **AND**
   C. Failure of a trial, of adequate frequency and duration, of a psychotherapy known to be effective in the treatment of major depressive disorder, without significant improvement in depressive symptoms, as documented by standardized rating scales that reliably measure depressive symptoms; **AND**
   D. The member has no absolute contraindication to TMS, and relative contraindications (if applicable) were assessed and deemed safe for administering TMS (*refer to Policy Guideline III*).

II. Based upon our criteria and assessment of the peer-reviewed literature, re-treatment with TMS has been medically proven to be effective and, therefore, is considered **medically appropriate** in adults aged 18 years and older when **ALL** of the following criteria are met:
   A. All criteria for initial course of TMS treatment were met (*see Policy Statement I*);
   B. The member subsequently experienced a relapse/recurrence in depressive symptoms;
   C. The member responded to prior treatments, as evidenced by a greater than 50% improvement in standard rating scale measurements for depressive symptoms; **AND**
   D. The member has not received a separate acute phase rTMS treatment within the last three (3) months.

III. Based upon our criteria and assessment of the peer-reviewed literature, a request for TMS as a treatment for major depressive disorder that does not meet all the above criteria is considered **not medically necessary.**

IV. Based upon our criteria and assessment of the peer-reviewed literature, continued treatment with TMS as continuation or maintenance therapy (less than three months between treatment courses) has not been medically proven to be effective and, therefore, is considered **investigational**.

V. Based upon our criteria and assessment of the peer-reviewed literature, TMS has not been medically proven to be effective, and therefore, is considered **investigational** as a treatment for all other psychiatric and/or neurological disorders, including, but not limited to, bipolar disorder, borderline personality disorder, schizophrenia, obsessive-compulsive disorder (OCD), substance-related and addictive disorders (e.g., alcohol, caffeine, cannabis, tobacco, gambling). migraine headaches, or stroke.

Refer to Corporate Medical Policy #8.01.07 Tinnitus Treatment

Refer to Corporate Medical Policy #11.01.03 Experimental or Investigational Services

POLICY GUIDELINES

I. Providers are required to document medication trials, including the duration, dosing, and side effects, when submitting requests for TMS. An adequate trial of medication is based on a combination of duration, dosage, tolerance, and efficacy of medication. Duration is usually four to six weeks (as evidenced by the STAR*D trial); dosing is dependent on the medication, as some medications have a single strength only, while others have a minimally effective to maximum effective range. Patients may have more side effect issues or poor tolerance when medications are given at the higher dose ranges. The severity of initial depression and/or the amount of co-morbid illness can slow the time for improvement utilizing medication.

II. The medication regimen can also include use of evidenced-based augmenters or adjunct medications that are not antidepressants, themselves; or use of combination therapy (two antidepressants used together). Examples include fluoxetine with bupropion added, as a combination therapy, or citalopram and buspirone as an adjunctive augmentation.

III. Contraindications of rTMS include the following:
   A. Absolute:
      1. presence of ferromagnetic or magnetic sensitive metal in the head or neck areas in close proximity to the TMS coil magnetic fields (e.g., metal/bullet fragments, cochlear implants, brain stimulators or electrodes, aneurysm clips or coils, vagus nerve stimulator); **AND**
      2. presence of acute or chronic psychotic symptoms or disorders (e.g., schizophrenia, schizophreniform or schizoaffective disorder) in the current depressive episode.
   B. Relative:
      1. implanted cardiac pacemaker or implantable cardiac defibrillator (ICD);
      2. history of seizures with increased risk of seizure);
      3. neurologic conditions (e.g., epilepsy, cerebrovascular disease, dementia, increased intracranial pressure, history of repetitive head trauma or with primary or secondary tumors in the central nervous system; **AND**
      4. presence of a brain lesion (vascular, traumatic, neoplastic, infectious, or metabolic.

IV. TMS should be performed using a Food and Drug Administration (FDA)-cleared device and modality, which can include but is not limited to, conventional TMS, deep TMS and theta burst stimulation (TBS), by physicians who are

adequately trained and experienced in the specific techniques used. The order for treatment (or re-treatment) should be written by a physician (MD or DO) who has examined the patient and reviewed the record. The treatment must be given under the direct supervision of the ordering physician, i.e., the physician must be in the area and be immediately available.

V. The recommended, standard TMS treatment course for patients who meet the criteria specified in Policy Statement I is between 20 to 30 treatment sessions. An rTMS treatment course should not exceed five days per week for six weeks (a total of 30 sessions), followed by a three-week taper of three TMS treatments in week one, two TMS treatments in week two, and one TMS treatment in week three. The taper phase is appropriate for patients demonstrating a clinical response to TMS treatment, to improve durability of effect. For patients who do not demonstrate improvement or who experience severe side effects, treatment may be stopped without a taper phase.

VI. Theta burst stimulation (TBS) may be administered using an accelerated protocol, of which, many exist. One example of an accelerated TBS protocol is the Stanford Neuromodulation therapy (SNT) (previously referred to as Stanford Accelerated Intelligent Neuromodulation Therapy [SAINT] protocol), consisting of 10 daily sessions over 5 consecutive days.

VII. Continued, acute-phase TMS sessions during the standard course of TMS treatment should be based on the risk-benefit ratio for clinical response and remission, considering side effects and the patient's response to treatment as measured by standardized rating scales. A clinically significant positive response is considered to be a decrease in a standardized rating scale score of 50% or more from baseline. Standardized rating scales considered reliable in rating depressive symptoms include validated depression monitoring scales such as: Geriatric Depression Scale (GDS); Personal Health Questionnaire Depression Scale (PHQ-9); Beck Depression Scale (BDI); Hamilton Rating Scale for Depression (HAM-D); Montgomery Asberg Depression Rating Scale (MADRS); Quick Inventory of Depressive Symptomatology (QIDS); and Inventory for Depressive Symptomatology Systems Review (IDS-SR).

VIII. There are many complementary/ancillary therapies that are not evidence-based or that have only low-quality evidence that they help in the treatment of depression. There is no evidence that vitamins, supplements, hypnosis, genetic testing, and/or massage are required to make a course of TMS more effective. If there is a particular activity that a provider is adding to TMS, please refer to the member contract or specific medical policy to determine coverage requirements.

IX. Motor threshold is initially assessed during the first treatment session. Measurement of the motor threshold varies from individual to individual and determines the amount of energy required to stimulate brain cells. This allows for individualization of the intensity of stimulation. It is not medically necessary to check motor threshold at every treatment, but motor threshold may be reassessed if there is concern that it may have changed (for example, because of a change in medication). The psychiatric provider should be encouraged to keep medications stable during the rTMS course of treatment and to inform the rTMS clinical staff of any changes in medication use. Requests for multiple motor thresholds during the course of rTMS treatment will require documentation to prove medical necessity.

DESCRIPTION

Transcranial magnetic stimulation (TMS), introduced in 1985, is a noninvasive method of delivering electrical stimulation to the brain. The technique involves the placement of a small coil over the scalp and passing a rapidly alternating current through the coil wire. The electrical current produces a magnetic field that passes unimpeded through the scalp and bone and stimulates neuronal function. Repetitive TMS (rTMS) involves delivery repeated magnetic pulses for the treatment of treatment-resistant depression (TRD), other psychiatric and neurologic disorders.

Since the development of rTMS, a variety of other TMS modalities have been developed, which differ on parameters including stimulation intensity, frequency, pattern, and site of brain stimulation. Deep TMS employs an H-coil helmet design to encompass a broader surface area and stimulate deeper brain structures than conventional TMS. Theta burst stimulation (TBS) is administered at lower intensities and even shorter intervals than conventional rTMS.

In contrast to ECT, TMS can be performed in an office setting, as it does not require anesthesia and does not induce a convulsion. Repetitive TMS (rTMS) is also being investigated as a treatment for other disorders, including, but not limited

to, schizophrenia, obsessive-compulsive disorder, bulimia, epilepsy, Parkinson's disease, Tourette's syndrome, migraines, chronic pain syndromes, and fibromyalgia.

RATIONALE

Devices for TMS have been cleared for marketing by the U.S. Food and Drug Administration (FDA) for the treatment of major depressive disorder in adults who have failed to achieve satisfactory improvement from prior antidepressant medication in the current episode. Some of these devices use deep TMS or theta burst stimulation (TBS) protocols. TBS treatment protocol was FDA cleared in 2018 for severe major depressive disorder and use is supported by the Clinical TMS Society (2023).

FDA cleared TMS Devices for Adults with Major Depression:

Device	Manufacturer	FDA Clearance No.	FDA Clearance Date
Neurostar – "de novo"	Neuronetics	K083538	12/16/08
ALTMS Magnetic Stimulation Therapy System	REMED Co., Ltd	K220625	04/06/22
Brainsway H-Coil Deep TMS System	Brainsway	K122288	01/07/13
Rapid Therapy System	Magstim	K143531	05/08/15
Magvita	Tonica Elektronik	K150641	07/31/15
Mag Vita TMS Therapy System w/Theta Burst Stimulation	Tonica Elektronik	K173620	8/14/18
Neurosoft	TeleEMG	K160309	12/22/16
Horizon	Magstim	K171051	09/13/17
Horizon TMS Therapy System (Theta Burst Protocol)	Magstim	K182853	03/15/19
Nexstim	Magstim	K171902	11/10/17
Apollo	Magstim	K180313	05/04/18

FDA cleared TMS Devices for Adults with Obsessive-Compulsive Disorder (OCD):

Device	Manufacturer	FDA Clearance No.	FDA Clearance Date
Neurostar	Neuronetics	K212289	05/06/22
Brainsway H-Coil Deep TMS System	Brainsway	K183303	03/08/19
Rapid Therapy System	Magstim	K143531	05/08/15

FDA cleared TMS Devices for Adults with Migraine Headache with an Aura:

Device	Manufacturer	FDA Clearance No.	FDA Clearance Date
Brainsway H-Coil Deep TMS System	Brainsway	K183303	03/08/19

TMS for Adults with Major Depression

A study published by Blumberger (2018), a multi-center, randomized, non-inferiority trial (THREE-D) that compared 10-Hz rTMS with iTBS. Between 2013 and 2016, 414 patients with treatment-resistant major depressive disorder were enrolled and randomized to four to six weeks of rTMS (n=205) or iTBS (n=209). Treatment resistance was defined as failure to tolerate two or more antidepressant trials of inadequate dose and duration or no clinical response to one antidepressant trial of an adequate dose and duration. Patients who failed more than three antidepressant trials of adequate

dosage were excluded from the trials. Patients could alter their medication during this trial. Treatment with rTMS (37 minutes) and iTBS (three minutes) was delivered five times per week for four to six weeks. The primary outcome measure was the 17-item HAM-D, for which scores for patients treated with rTMS improved by 10.1 points and scores for patients treated with iTBS improved by 10.2 points (adjusted difference, 0.103; lower 95% CI, -1.16; p=0.001). Treatment with iTBS resulted in a higher self-rated intensity of pain (mean score, 3.8) than treatment with rTMS (mean score, 3.4; p=0.011). Headache was the most common treatment-related adverse event for both groups (rTMS=64% [131/204]; iTBS=65% [136/208]). Serious adverse events were noted in patients treated with rTMS (one case of myocardial infarction) and iTBS (one case each of agitation, worsening suicidal ideation, worsening depression); there was no significant difference in the number of adverse events in the two groups. The trial lacked a treatment group with placebo.

In 2021, a systematic review and meta-analysis by Voigt, et al comprised of ten RCTs comparing TBS to sham treatment, and the Blumberger study comparing TBS to conventional rTMS. The studies accounted for 667 patients with a diagnosis of major depressive disorder. The authors compared the HAM-D response rates and found that TBS was superior to sham on response and that there was no statistically significant difference between TBS and conventional rTMS including the incidence of adverse events. The authors concluded that the positive outcomes and the noninferiority of TBS vs standard rTMS, support the continued development of TBS for the treatment of depression.

The SAINT open-label clinical trial (Cole et al. 2020) evaluated the use of iTBS treatment in 21 participants utilizing 60 cycles of ten bursts of three pulses at 50 HZ. Ten sessions were applied per day (18,000 pulses/day) for five consecutive days with the overall pulse dose being 5 times that of FDA-approved iTBS protocol (18,000 pulses in six weeks). On average, the participants met the standard response criteria in 2.30 days of SAINT (equivalent to ~23 ten-minute sessions). Even though the sample size was small, significant reductions in suicidality were noted using the Columbia Suicide Severity Rating Scale, suicidal ideation subscale (C-SSRS) (x^2=16.40, df=l, p<0.001), and 80-100% of participants remained in remission (score <11 on MADRS, score <8 on HAM-D, <13 on BDI-II) one month after treatment completion. 70% continued to meet the response criteria. It was identified that participants with a history of conventional rTMS nonresponse did take more time to reach a response, but 83% did by the end of the 5-day protocol. There were no adverse events or negative cognitive effects on any neuropsychological batteries following treatment with the SAINT protocol.

Ontario Health conducted a technology assessment published in May of 2021 to evaluate the effectiveness, safety, cost-effectiveness, and the budgetary impact if rTMS was to be publicly funded. The study included ten systematic reviews which incorporated 58 primary studies and one network meta-analysis. Inclusion criteria were adults 18 years of age and older with treatment resistant depression who had received any of seven rTMS modalities: low-frequency (1Hz) stimulation, high-frequency (10-20 Hz), unilateral stimulation, bilateral stimulation, iTBS, and deep TMS and then measured changes from baseline in depression scores using HAM-D or BD-II, remission rate, response rate (defined as ≥50% reduction in depression score), relapse rate, and adverse events. Most rTMS modalities were more effective than sham treatment for all outcomes, and all rTMS modalities were similar to one another in response and remission rates (which are similar to ECT response and remission rates). Additionally, the authors highlighted that rTMS or iTBS, followed by ECT for patients who did not respond to initial pharmacological treatment were less expensive and more effective than ECT alone.

Lam and colleagues (2008) conducted a meta-analysis of 24 randomized, controlled trials (RCTs) comparing active versus sham rTMS in patients with treatment-resistant depression, although there were varying definitions of treatment-resistant depression. This analysis calculated a number needed to treat of six, with a clinical response in 25% of active rTMS and 9% of sham rTMS patients. Remission was reported for 17% of active rTMS and 6% of sham rTMS patients. The largest study (23 study sites) included in the meta-analysis was a double-blind, multi-center trial with 325 treatment-resistant depression patients randomized to daily sessions (Monday through Friday for six weeks) of high-frequency active or sham rTMS of the left dorsolateral prefrontal cortex. Treatment-resistant depression was defined as failure of at least one adequate course of antidepressant treatment. Patients had failed an average of 1.6 treatments in the current episode, with about half of the study population failing to benefit from at least two treatments. Loss to follow-up was similar in the two groups, with 301 (92.6%) patients completing at least one post-baseline assessment and an additional 8% of patients from both groups dropping out before the four-week assessment. Intent-to-treat analysis showed a trend favoring the active rTMS group in the primary outcome measure (two points on the Montgomery-Asberg Depression Rating Scale; p = 0.057) and a modest (two-point), but significant, improvement over sham treatment on the HAM-D. The authors reported

that, after six weeks of treatment, the subjects in the active rTMS group were more likely to have achieved remission than the sham controls (14% vs. 5%), although this finding is limited by loss to follow-up.

The evidence for rTMS in patients who have treatment-resistant depression includes numerous double-blind, randomized, sham-controlled, short-term trials. Relevant outcomes are symptoms, functional outcomes, and quality of life. Results of these trials show small mean improvements across groups as a whole. The percentage of subjects who show a clinically significant response is reported at approximately two to three times that of sham controls, with approximately 15% to 25% of patients meeting the definition of clinical response. Based on the short-term benefit observed in randomized, controlled trials and the lack of alternative treatments, aside from ECT in patients with treatment-resistant depression, rTMS may be considered a treatment option in patients with treatment-resistant depression who meet specific criteria. The evidence is sufficient to determine, qualitatively, that the technology results in a meaningful improvement in net health outcomes.

A 2015 meta-analysis (Kedzior et al.) examined durability of the antidepressant effect of high frequency rTMS of the left DLPFC in the absence of maintenance treatment. Included were double-blind, randomized, sham-controlled trials with a total of 495 patients. The range of follow-up was one to 16 weeks, but most studies only reported follow-up to two weeks. The overall effect size was small, with a standardized mean difference (SMD; Cohen's *d*) of -.48, and the effect sizes were lower in RCTs with eight- to 16-week follow-up (*d* = -.42) than with 1- to 4-week follow-up (*d* = -0.54). The effect size was higher when antidepressant medication was initiated concurrently with rTMS (5 RCTs, *d* = -.56) than when patients were on a stable dose of medication (9 RCTs, *d* = -.43) or were unmedicated (2 RCTs, *d* = -.26).

Consensus recommendations for the application of rTMS were published in 2018 by the National Network of Depression Centers (NNDC) rTMS Task Group and the American Psychiatric Association Council on Research (APA CoR) Task Force on Novel Biomarkers and Treatments (McClintock et al., 2018). A total of 118 publications, including three multi-center RCTs, from 1990 through 2016 were included in the review by 17 expert clinicians and researchers. The authors stated that rTMS is appropriate for patients with major depressive disorder but found insufficient evidence to support routine clinical rTMS use for other indications. They recommended that patients with co-morbid psychotic symptoms or acute suicidal ideation be considered for other established antidepressant treatments, such as ECT. The recommendation for preferred length of acute TMS treatment depended upon the risk-benefit ratio for clinical response and remission, with consideration for side effects and measurement-based care, with a likely standard acute course of 20 to 30 treatments over six weeks, to achieve results consistent with published trials. Motor threshold (MT) determination should occur at baseline and be rechecked when there have been medication changes that could affect the MT. The patient and psychiatric provider should be encouraged to keep medications stable during the rTMS course of treatment and to inform the rTMS clinical staff of any changes in medication use.

<u>Maintenance TMS for Adults with Major Depression</u>

A variety of maintenance schedules are currently being studied, with the role of maintenance TMS not been fully established and high heterogeneity in administration between studies. The Clinical TMS Society (2021) indicates that for patients who demonstrate a late response to TMS, subsequent treatment extensions in ten (10) treatment increments are allowed based on clinical need.

In 2014, Dunner and colleagues reported one-year follow-up with maintenance therapy from a large, multi-center observational study (42 sites) of rTMS for patients with treatment-resistant depression. A total of 257 of the 307 patients initially studied who were treated with rTMS agreed to participate in the follow-up study. Of these, 205 patients completed the 12-month follow-up, and 120 patients met the Inventory of Depressive Symptoms-Self Report response or remission criteria at the end of treatment. Ninety-three of the 257 patients (36.2%) who enrolled in the follow-up study received additional rTMS (mean, 16.2 sessions). Seventy-five of the 120 patients (62.5%) who met response or remission criteria at the end of the initial treatment phase (including a two-month taper phase) continued to meet response criteria through follow-up.

Fitzgerald et al. (2013) reported a prospective, open-label trial of clustered maintenance rTMS for patients with treatment-resistant depression. All patients had received a second successful course of rTMS following relapse and were then treated with monthly maintenance therapy consisting of five rTMS treatments over a 2.5-day period (Friday evening, Saturday, and Sunday). Of 35 patients, 25 (71%) relapsed at a mean of 10.2 months (range, 2- 48 months).

Consensus recommendations for the application of rTMS were published in 2018 by the National Network of Depression Centers (NNDC) rTMS Task Group and the American Psychiatric Association Council on Research (APA CoR) Task Force on Novel Biomarkers and Treatments (McClintock et al., 2018). The authors found limited evidence regarding maintenance strategies following response or remission with acute rTMS. One RCT compared a once-monthly scheduled approach with a re-introduction approach and found that both approaches were approximately equivalent in prolonging clinical benefits. The study also found that "rescue therapy" (re-introduction of daily rTMS triggered by symptom relapse) was effective in 69% of instances.

Overall, the outcome data related to maintenance therapy is insufficient to determine the overall benefit on health outcomes. Additional data are needed related to durability of effect and maintenance therapy.

TMS for Adults with Obsessive-Compulsive Disorder (OCD):

In 2018, Carmi et al. published a small pilot study comparing low-frequency deep TMS (LF-DTMS; 1 Hz) to high-frequency deep TMS (HF-DTMS; 20 Hz) and to sham deep TMS in patients with OCD. A total of 41 adults with a score of 20 or more on the Yale Brown Obsessive Compulsive Scale (YBOCS) were recruited at the Chaim Sheba Medical Center in Israel. Participants were randomly assigned to receive one Hz stimulation (LF), 20 Hz stimulation (HF), or a sham stimulation, using a computer program. All groups were treated five times per week for five weeks (for a total of 25 sessions). Final analysis included only the 16 participants in the HF group and 14 participants in the sham group, based on a lack of response in the LF group. A higher proportion of participants from the HF group (n=7; 43.75%) compared to the sham group (n=1; 7.14%) reached the pre-defined response criteria after five weeks of treatment. However, at the one-month follow-up, significance was lost, with four participants in the HF group and none from the sham group defined as responders. The authors concluded that HF DTMS is safe, tolerable, and effective in reducing OCD symptoms, but larger studies are needed. Limitations included a small sample size, single center, and short follow-up period.

TMS for Adults with Migraine Headaches:

The available evidence on the use of TMS devices to treat migraine include a systematic review (Saltychev and Juhola, 2022) and a pivotal double blind RCT performed with the Cerena TMS device (Short et al., 2011). The systematic review found that rTMS reduced migraine pain and intensity compared to sham. The results of the pivotal trial were limited by the 46% dropout rate and post hoc analysis. According to the FDA labeling, the device has not been demonstrated as safe or effective when treating cluster headache, chronic migraine headache, or migraine headache during the aura phase. The device has not been demonstrated to be as effective in relieving the associated symptoms of migraine (photophobia, phonophobia, nausea).

TMS for Other Indications:

In an updated Cochrane Review, Walton et al. (2021) assessed the evidence for use of TMS in individuals with drug-resistant epilepsy compared with other available treatments in reducing seizure frequency, epileptiform discharges, anti-epileptic medication use and side effects, as well as improving quality of life. Eight RCTs consisted of 241 participants, seven of which were blinded. Two of the studies showed a statistically significant reduction in seizure rate from baseline (72% and 78.9% reduction of seizures per week from the baseline rate). The remaining six studies did not show a significant reduction in seizure frequency with rTMS compared to controls. Three studies did show a statistically significant reduction in epileptic discharges after active rTMS treatment and adverse events were rare, but an increase in seizure frequency did occur in a small number of individuals. No significant change in medication use was reported. The authors concluded that even though there is reasonable evidence that rTMS is effective at reducing epileptiform discharges, the evidence for the efficacy of rTMS for seizure reduction is low, and further research is needed.

Evidence related to the efficacy of rTMS for other disorders, such as ALS, Tourette's, fibromyalgia, Alzheimer's disease, stroke, Parkinson disease, tinnitus, headaches, and chronic pain, is limited (e.g., Fang et al. (2013), Kwon et al. (2011), Salychev and Laimi (2017), Benninger et al. (2012), Yang et al. (2013), Peng et al. (2012), Lan et al. (2017), Ahmed et al. (2011), and O'Connell et al. (2018), respectively). Studies are plagued by methodological limitations, such as small samples sizes and limited follow-up. The role that TMS has in the treatment of these disorders has not been established.

CODES

- *Eligibility for reimbursement is based upon the benefits set forth in the member's subscriber contract.*

- *CODES MAY NOT BE COVERED UNDER ALL CIRCUMSTANCES. PLEASE READ THE POLICY AND GUIDELINES STATEMENTS CAREFULLY.*
- *Codes may not be all inclusive as the AMA and CMS code updates may occur more frequently than policy updates.*
- *Code Key: Experimental/Investigational = (E/I), Not medically necessary/ appropriate = (NMN).*

CPT Codes

Code	Description
90867	Therapeutic repetitive transcranial magnetic stimulation (TMS) treatment; initial, including cortical mapping, motor threshold determination, delivery and management
90868	Therapeutic repetitive transcranial magnetic stimulation (TMS) treatment; subsequent delivery and management, per session
90869	Therapeutic repetitive transcranial magnetic stimulation (TMS) treatment; subsequent motor threshold re-determination with delivery and management
0889T	Personalized target development for accelerated, repetitive high-dose functional connectivity MRI–guided theta-burst stimulation derived from a structural and resting-state functional MRI, including data preparation and transmission, generation of the target, motor threshold–starting location, neuronavigation files and target report, review and interpretation (*effective 07/01/24*)
0890T	Accelerated, repetitive high-dose functional connectivity MRI–guided theta-burst stimulation, including target assessment, initial motor threshold determination, neuronavigation, delivery and management, initial treatment day (*effective 07/01/24*)
0891T	subsequent treatment day (*effective 07/01/24*)
0892T	subsequent motor threshold redetermination with delivery and management, per treatment day (*effective 07/01/24*)

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ICD10 Codes

Code	Description
F32.0-F32.9	Major depressive disorder, single episode (code range)
F33.0-F33.9	Major depressive disorder, recurrent (code range)

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*Key Article

KEY WORDS

Brainsway Deep TMS, MagVita TMS, NeuroStar, rTMS, Transcranial magnetic therapy, TMS, rTMS maintenance therapy.

CMS COVERAGE FOR MEDICARE PRODUCT MEMBERS

There is currently a Local Coverage Determination (LCD) (L33398) for transcranial magnetic stimulation. Please refer to the following LCD website for Medicare Members: [https://www.cms.gov/medicare-coverage-database/view/lcd.aspx?lcdid=33398&ver=32&CntrctrSelected=298*1&Cntrctr=298&name=National+Government+Services%2C+Inc.+(13201%2C+A+and+B+and+HHH+MAC%2C+J+-+K)&s=All&DocType=Active&bc=AggAAAQBIAAA&=] accessed 11/15/23.