



Clinical Policy Title: Electroconvulsive therapy

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Policy contains:

- Electroconvulsive therapy.

Related policies:

CP# 09.03.01 Laser thermal ablation for epileptic seizures

ABOUT THIS POLICY: AmeriHealth Caritas has developed clinical policies to assist with making coverage determinations. AmeriHealth Caritas' clinical policies are based on guidelines from established industry sources, such as the Centers for Medicare & Medicaid Services (CMS), state regulatory agencies, the American Medical Association (AMA), medical specialty professional societies, and peer-reviewed professional literature. These clinical policies along with other sources, such as plan benefits and state and federal laws and regulatory requirements, including any state- or plan-specific definition of "medically necessary," and the specific facts of the particular situation are considered by AmeriHealth Caritas when making coverage determinations. In the event of conflict between this clinical policy and plan benefits and/or state or federal laws and/or regulatory requirements, the plan benefits and/or state and federal laws and/or regulatory requirements shall control. AmeriHealth Caritas' clinical policies are for informational purposes only and not intended as medical advice or to direct treatment. Physicians and other health care providers are solely responsible for the treatment decisions for their patients. AmeriHealth Caritas' clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, AmeriHealth Caritas will update its clinical policies as necessary. AmeriHealth Caritas' clinical policies are not guarantees of payment.

Coverage policy

AmeriHealth Caritas considers the use of electroconvulsive therapy to be clinically proven and, therefore, medically necessary when the following criteria are met (American Psychiatric Association [APA], 2008; Canadian Network for Mood and Anxiety Treatments [CANMAT], 2016; Coffey, 2016; Fontanelle, 2015; Khan, 2017; Luchini, 2015; Song, 2015; Tor, 2015; Wang, 2015; Zeiler, 2016):

- Diagnosis:
 - Major depressive disorder.
 - Bipolar disorder.
 - Schizophrenia.
 - Schizo-affective disorder.
- Symptoms:
 - Catatonia.
 - Psychosis.
 - Severe suicidality.

- Severe vegetative changes that may lead to significant deterioration of medical or psychiatric condition (e.g., sleep, oral intake, or grave passive neglect).
- Other considerations:
 - Conditions where there is a need for rapid, definitive treatment response on either medical or psychiatric grounds.
 - Clinical circumstances where the risks of other treatments outweigh the risks of electroconvulsive therapy (i.e., co-occurring medical conditions make electroconvulsive therapy the safest treatment alternative).
 - Psychiatric treatment failure (i.e., prior poor response to multiple medication regimens, including antidepressants with adjunctive agents).
 - Intolerable side effects to antidepressant medications (e.g., seizures, hyponatremia, or severe anxiety).
 - Psychiatric illness during pregnancy.
 - Electroconvulsive therapy is expressed as patient preference of therapy with history of positive response.
 - Electroconvulsive therapy is administered at a frequency sufficient to achieve therapeutic effect (e.g., nine to 12 treatments in the acute phase).

Limitations:

AmeriHealth Caritas considers the maintenance use of electroconvulsive therapy to be clinically proven and, therefore, medically necessary when the following criteria are met:

- Concomitant maintenance therapy consisting of psychotropic medications is prescribed.
- Maintenance electroconvulsive therapy is administered at the minimum frequency compatible with sustained remission.
- The need for continued maintenance electroconvulsive therapy is reassessed at least every three months.

AmeriHealth Caritas considers the use of multiple-seizure electroconvulsive therapy (MECT) to be clinically unproven and investigational and, therefore, not medically necessary.

All other uses of electroconvulsive therapy are not medically necessary.

Alternative covered services:

Routine mental health and psychiatric services provided by an in-network provider.

Background

Electroconvulsive therapy is an effective treatment for major depressive disorder, particularly depression that is resistant to pharmaceutical and cognitive behavioral therapies (Song, 2015). Emerging data (Polyakova, 2015) suggests that electroconvulsive therapy may reduce depressive symptoms by increasing

the expression of brain-derived neurotrophic factor; however, conflicting findings have been reported and the presence of excess brain-derived neurotrophic factor is not consistently associated with changes in behavior.

Electroconvulsive therapy has found use in the treatment of schizophrenia, bipolar disorder, catatonia, epilepsy, obsessive-compulsive disorder, and various other mental health disorders worldwide (Leiknes, 2012; Lesage, 2016; Luchini, 2015; Wang, 2015; Zeiler, 2016). One useful application of electroconvulsive therapy is during and after pregnancy, when it may be undesirable to administer systemic neuroleptic agents that might find their way to the developing fetus or the breast-feeding newborn (Calaway, 2016; Webb, 2004).

Concerns persist that electroconvulsive therapy may be associated with adverse cognitive side effects, a limitation that potentially complicates its use in older patients. Attempts to segmentally limit electroconvulsive therapy to spare critical brain areas have had mixed results (Tor, 2015). There is also, unfortunately, a social stigma associated with electroconvulsive therapy within the public and a negative bias toward electroconvulsive therapy among some health care providers (Aoki, 2016).

Searches

AmeriHealth Caritas searched PubMed and the databases of:

- UK National Health Services Centre for Reviews and Dissemination.
- Agency for Healthcare Research and Quality's National Guideline Clearinghouse and other evidence-based practice centers.
- The Centers for Medicare & Medicaid Services (CMS).

We conducted searches on December 20, 2017. Search terms were: "electroconvulsive therapy."

We included:

- **Systematic reviews**, which pool results from multiple studies to achieve larger sample sizes and greater precision of effect estimation than in smaller primary studies. Systematic reviews use predetermined transparent methods to minimize bias, effectively treating the review as a scientific endeavor, and are thus rated highest in evidence-grading hierarchies.
- **Guidelines based on systematic reviews.**
- **Economic analyses**, such as cost-effectiveness, and benefit or utility studies (but not simple cost studies), reporting both costs and outcomes — sometimes referred to as efficiency studies — which also rank near the top of evidence hierarchies.

Findings

A comprehensive worldwide systematic review of electroconvulsive therapy over the last 40 years (Lesage, 2016) generated a crude rate of usage at 27 per 100,000 inhabitants in the United States, a rate similar to that of Australia and approximately twice that of the United Kingdom. Electroconvulsive therapy use has

diminished over time, probably due to the emergence of effective pharmaceuticals over the period of study, and is now indicated primarily in treatment-resistant situations. Its most common indication is clinical depression, with a 10-fold rate of usage compared with that of the second-most used diagnosis of schizophrenia. Lesage, et al., indicated that electroconvulsive therapy is probably underused in the treatment of suicidality, and that as many as a fifth of suicides could have been positively impacted by its administration.

This review was preceded by a systematic review encompassing worldwide electroconvulsive therapy since 1990 (Leiknes, 2012). A clinical profile emerged during this period of treatment administered to older women with depression in Western countries and younger men with schizophrenia in Asian countries, with an average of eight treatments of bilateral application.

The Veterans Administration (VA, 2016); Department of Defense (DoD); and CANMAT (2016) have promulgated clinical practice guidelines for the management of major depressive disorder that include the use of electroconvulsive therapy. These recommendations of electroconvulsive therapy as a modality of therapy for selected indications and conditions are based on a moderate quality of medical evidence and on consensus judgment of practice patterns in North America.

The APA (2008) addresses the frequency, duration, and number of treatments appropriate for use of electroconvulsive therapy:

“ECT is most commonly performed at a schedule of three times per week. Some practitioners may use increased frequencies of ECT to speed the recovery, particularly in cases of severe symptom presentation; however, prolonged use of daily treatments is usually associated with increased cognitive impairments. There is no evidence that repeated courses of ECT lead to permanent structural damage, or that a maximum limit on lifetime number of treatments with ECT is appropriate. Continuation therapy, typically consisting of psychotropic medications or ECT, is indicated for virtually all patients. Maintenance ECT should be administered at the minimum frequency compatible with sustained remission, often at 1 – 3 week intervals. The need for continued maintenance ECT should be reassessed at least every three months.”

There are very few high-quality randomized controlled clinical trials about the combination of antipsychotic medications and electroconvulsive therapy in the treatment of refractory schizophrenia. A single systematic review and meta-analysis (Wang, 2015) found that the combination of antipsychotic medications and electroconvulsive therapy could improve psychiatric symptoms in patients with refractory schizophrenia; however, there were problems with methodology (e.g., publication bias) and poor quality of evidence that cast a shadow on the validity of the work.

Although little is known about the long-term treatment outcomes following electroconvulsive therapy for catatonia, its use is encouraged to avoid undue deterioration of the patient's physical and mental condition (Luchini, 2015).

The authors of UpToDate describe the indications and technical aspects, including the frequency and duration of treatment, of treating the catatonic patient with electroconvulsive therapy:

“ECT is generally safe, even in patients whose general medical status is compromised, as well as patients who are pregnant or elderly. However, the success of ECT depends upon an appropriate pre-ECT evaluation, the goals of which are to optimize treatment efficacy and minimize the risk of cognitive and other side effects associated with ECT. ECT is typically administered with the same technique used for other indications. Catatonic patients with motor immobility and muscle damage are at increased risk for transient hyperkalemia associated with the muscle relaxant succinylcholine. Bitemporal electrode placement and brief pulse current are generally preferred. ECT is generally given three times per week on alternating days. However, for patients with malignant catatonia, we suggest daily treatments until the patient is physiologically stable, which often occurs within two to five treatments. At least six treatments are given regardless of the catatonia subtype to reduce the risk of sudden relapse. Most patients receiving ECT regardless of the indication remit with 6 to 12 treatments, but some patients may require 20 or more.”

Electroconvulsive therapy is usually terminated after the acute catatonic episode has remitted, but one case report from the University of Chicago (Pontikes, 2010) described maintenance electroconvulsive therapy for a patient with recurrent catatonia:

“Catatonia is a rare complication of multiple sclerosis (MS). We present a case of a 28-year-old inpatient with MS successfully treated with electroconvulsive therapy (ECT) after developing a catatonic syndrome. A subsequent relapse also responded to ECT, after which the patient received maintenance ECT for 13 months without complications. Follow-up 18 months later did not reveal any evidence of neurological deterioration. We conclude that ECT was a safe and effective treatment in this MS patient.”

CMS has issued a National Coverage Determination with regard to MECT (2003):

“The clinical effectiveness of the multiple-seizure electroconvulsive therapy has not been verified by scientifically controlled studies. In addition, studies have demonstrated an increased risk of adverse effects with multiple seizures. Accordingly, MECT cannot be considered reasonable and necessary and is not covered by the Medicare program.”

A single systematic review (Fontanelle, 2015) found that 60 percent of patients with obsessive-compulsive disorder reported or exhibited some form of a positive response to electroconvulsive therapy; however, it cannot be stated that the evidence is persuasive that electroconvulsive therapy is indeed effective for obsessive-compulsive disorder.

Electroconvulsive therapy for refractory status epilepticus (Song, 2015) cannot on the basis of available medical evidence be recommended at this time. Further prospective study of this therapy is required in order to determine its efficacy.

Finally, even though brief pulse electroconvulsive therapy compared with ultra-brief pulse unilateral electroconvulsive therapy (Zeiler, 2016) is an increasingly used treatment option that can potentially combine efficacy with lesser cognitive side effects, current trials are sufficiently underpowered or have conflicting results, so it cannot be routinely recommended.

Policy updates:

In the 2018 update, 16 publications were added to the peer-reviewed reference list, two of which were added to the summary of clinical evidence.

Summary of clinical evidence:

Citation	Content, Methods, Recommendations
<p>Ahmed (2017)</p> <p>Combined use of electroconvulsive therapy and antipsychotics (both clozapine and non-clozapine) in treatment-resistant schizophrenia</p>	<p>Key points:</p> <ul style="list-style-type: none"> • This meta-analysis examined data from 1,179 patients in 23 studies in whom electroconvulsive therapy was combined with antipsychotics. Among the participants, 95 patients were tested with clozapine, and electroconvulsive therapy (nine studies) and 1,084 patients were tested with non-clozapine antipsychotics (14 studies) with concurrent electroconvulsive therapy. Among the included studies, 13 studies reported pre- and post-treatment scores included in the meta-analysis. • The comparison demonstrated the superiority of electroconvulsive therapy combined with clozapine as opposed to other antipsychotics. The overall standard mean difference between pre- and post-treatment was 0.891 for non-clozapine studies and 1.504 for clozapine studies, at a 95% confidence interval. The clozapine studies showed no significant heterogeneity, while the non-clozapine studies showed an I² value of 42.19%. This suggests moderate heterogeneity.
<p>Leroy (2017)</p> <p>Is electroconvulsive therapy an evidence-based treatment for catatonia?</p>	<p>Key points:</p> <ul style="list-style-type: none"> • This systematic review and meta-analysis included 564 participants from 28 studies. The studies were heterogeneous and of low quality; therefore, it was not possible to combine their efficacy results. Electroconvulsive therapy was associated with an improvement of catatonic symptoms as shown in 10 studies (standardized mean difference [SMD] = -3.14, 95% confidence interval [CI] [-3.95, -2.34]). • Adverse effects were reported in seven studies. These included mental confusion, memory loss, headache, and adverse effects associated with anesthesia.
<p>Coffey (2016)</p> <p>Catatonia: treatment and prognosis</p>	<p>Key points:</p> <ul style="list-style-type: none"> • Electroconvulsive therapy is generally safe. • Success of electroconvulsive therapy depends on an appropriate pre-electroconvulsive therapy evaluation, the goals of which are to optimize treatment

Citation	Content, Methods, Recommendations
	<p>efficacy and minimize the risk of cognitive and other side effects associated with electroconvulsive therapy.</p> <ul style="list-style-type: none"> • Electroconvulsive therapy is generally given three times per week on alternating days. • For patients with malignant catatonia, the author suggests daily treatments until the patient is physiologically stable, which often occurs within two to five treatments. • At least six treatments are given regardless of the catatonia subtype to reduce the risk of sudden relapse. • Most patients receive electroconvulsive therapy regardless of the indication remit with six to 12 treatments, but some patients may require 20 or more treatments.
<p>Lesage (2016)</p> <p>Prevalence of electroconvulsive therapy use since 1973: a meta-analysis</p>	<p>Key points:</p> <ul style="list-style-type: none"> • A systematic review of 18 studies across 12 countries over the last more than 40 years, inclusive of a total of 1,253,399,220 subjects produced a composite event rate of 16.9 per 100,000 inhabitants, characterized by high heterogeneity (Q = 18440.1; P < 0.0001). • In the United Kingdom, the prevalence was 13.0 per 100,000 inhabitants; in the U.S., it was 27.8 per 100,000 inhabitants; and in Australia, it was 27.2 per 100,000 inhabitants. • Compared to the most recent literature review by Leiknes, et al., this is situated midway between the lowest and highest figures they found across 29 studies after 1990. • The more recent years of publication were a predictor of lower electroconvulsive therapy rates, suggesting a decrease in electroconvulsive therapy use over time. • The authors noted that electroconvulsive therapy is rare as a specialist treatment for mental disorders probably because of its indication for treatment-resistant mental disorders. • From a diagnostic point of view or following electroconvulsive therapy treatment guidelines, an annual event rate of 17 per 100,000 inhabitants can be compared with an estimated annual prevalence of 5% for depression (or 5,000 per 100,000 inhabitants); approximately 0.4% for schizophrenia (or 400 per 100,000 inhabitants); and a hospitalization rate estimated at about 600 per 100,000 inhabitants. • Electroconvulsive therapy remains very rare for people with depression and schizophrenia. • An audit of a five-year history of suicides in different hospitals and one Canadian province representing just 5% of all suicides at the end of the 1980s indicated that 17% of the hospitals' suicides could have benefited from electroconvulsive therapy, but it was not administered. • There was a rate-limiting influence rooted in resources across the countries (i.e., adequate psychiatrist manpower in operating rooms with adequate anesthesia procedures and electroconvulsive therapy apparatuses).
<p>Leiknes (2012)</p> <p>Contemporary use and practice of electroconvulsive therapy worldwide</p>	<p>Key points:</p> <ul style="list-style-type: none"> • A systematic review explored contemporary (from 1990) use and practice of electroconvulsive therapy. • Seventy studies were included: seven from Australia and New Zealand, three from Africa, 12 from North and Latin America, 33 from Europe, and 15 from Asia. • Worldwide electroconvulsive therapy differences and trends were evident.

Citation	Content, Methods, Recommendations
	<ul style="list-style-type: none"> • The majority of electroconvulsive therapy-treated persons were older women with depression in Western countries, and younger men with schizophrenia in Asian countries. • An average of eight electroconvulsive sessions were administered per patient. • The preferred electrode placement was bilateral. • Persistent aberrations of inadequate training and failures to follow guidelines were troubling.
<p>Management of Major Depressive Disorder Working Group (2016)</p> <p>VA/DoD clinical practice guideline for the management of major depressive disorder</p>	<p>Key points:</p> <ul style="list-style-type: none"> • The VA/DoD clinical practice guidelines for the management of major depressive disorder recommend offering electroconvulsive therapy with or without psychotherapy in patients with severe major depressive disorder and any of the following conditions: <ul style="list-style-type: none"> – Catatonia. – Psychotic depression. – Severe suicidality. – A history of a good response to electroconvulsive therapy. – Need for rapid, definitive treatment response on either medical or psychiatric grounds. – Risks of other treatments outweigh the risks of electroconvulsive therapy (i.e., co-occurring medical conditions make electroconvulsive therapy the safest treatment alternative). – A history of a poor response to multiple antidepressants. – Intolerable side effects to all classes of antidepressant medications (e.g., seizures, hyponatremia, or severe anxiety). – Patient preference. – Pregnancy.
<p>CANMAT (2016)</p> <p>Clinical guidelines for the management of adults with major depressive disorder: section 4, neurostimulation treatments</p>	<p>Key points:</p> <ul style="list-style-type: none"> • The CANMAT guidelines on the management of major depressive disorder found evidence for efficacy, tolerability, and safety of electroconvulsive therapy as a second-line treatment for patients with treatment-resistant depression, although in some situations it may be considered first line.
<p>Song (2015)</p> <p>Treatment of adults with treatment-resistant depression: electroconvulsive therapy plus antidepressant or electroconvulsive therapy alone? Evidence from an indirect comparison meta-analysis</p>	<p>Key points:</p> <ul style="list-style-type: none"> • A systematic review (n = 1,098) looked at therapeutic response in electroconvulsive therapy plus antidepressant versus electroconvulsive therapy alone and antidepressant alone • Evidence suggested that response rate can be improved in the electroconvulsive therapy plus antidepressant (relative risk [RR] = 1.82; 95% CI, 1.55, 2.14) and electroconvulsive therapy alone group (RR = 2.24, 95% CI, 1.51, 3.33) compared with antidepressant alone. • Electroconvulsive therapy plus antidepressant increased the incidence of memory deterioration relative to electroconvulsive therapy alone. • Adverse complications (e.g., memory deterioration and somatization) were noted in the fourth week after treatment (RR = 0.09, 95% CI, 0.02, 0.49).
<p>Polyakova (2015)</p>	<p>Key points:</p>

Citation	Content, Methods, Recommendations
Brain-derived neurotrophic factor and antidepressive effect of electroconvulsive therapy: systematic review and meta-analyses of the preclinical and clinical literature	<ul style="list-style-type: none"> • A systematic review and meta-analysis examined the association between electroconvulsive therapy treatment and changes in brain-derived neurotrophic factor concentrations and their effect on behavior. • Plasma but not serum brain-derived neurotrophic factor increased following electroconvulsive therapy ($g = 0.72$ versus $g = 0.14$; 23 effect sizes, $n = 281$). • There were no indications that an increase in brain-derived neurotrophic factor expression was associated with behavioral changes in humans. • The authors concluded that electroconvulsive therapy in humans increases brain-derived neurotrophic factor concentrations, but this is not consistently associated with changes in behavior.
Wang (2015) Efficacy and safety of treating patients with refractory schizophrenia with antipsychotic medication and adjunctive electroconvulsive therapy: a systematic review and meta-analysis	<p>Key points:</p> <ul style="list-style-type: none"> • A systematic review and meta-analysis ($n = 1,394$) assessed the efficacy and safety of the combined treatment of refractory schizophrenia with antipsychotic medications and electroconvulsive therapy. • Combined treatment with antipsychotic medications and electroconvulsive therapy had significantly higher rates of achieving clinical improvement (RR = 1.25, 95% CI 1.14, 1.37). • The proportion of participants who experienced headache during the treatment was significantly higher in the combined treatment group (RR = 9.10, 95% CI 3.97, 20.86, based on a pooled sample of 517 from eight studies) and the proportion who experienced memory impairment was also higher in the combined treatment group (RR = 6.48, 95% CI 3.54, 11.87).
Calaway (2016) Systematic review of the safety of electroconvulsive therapy use during the first trimester of pregnancy	<p>Key points:</p> <ul style="list-style-type: none"> • A systematic review of electroconvulsive therapy during gestation suggested that electroconvulsive therapy is relatively safe when administered during the first trimester of pregnancy. • Adverse outcomes, including miscarriage, vaginal bleeding, self-limited abdominal pain, and self-limited fetal spasms, were observed.
Webb (2004) Postpartum electroconvulsive therapy: a systematic review and case report	<p>Key points:</p> <ul style="list-style-type: none"> • A systematic review of electroconvulsive therapy during the postpartum period reported that electroconvulsive therapy is effective in the postpartum period. • The authors noted electroconvulsive therapy was well tolerated, provided a fast response, and did not interrupt breast feeding.
Fontanelle (2015) Electroconvulsive therapy for obsessive-compulsive disorder: a systematic review	<p>Key points:</p> <ul style="list-style-type: none"> • A systematic review ($n = 279$) compared the characteristics of obsessive-compulsive disorder responders to electroconvulsive therapy versus nonresponders. • A positive response was reported in 60.4% of the 265 cases in which individual responses to electroconvulsive therapy were available. • Electroconvulsive therapy responders exhibited a significantly later onset of obsessive-compulsive disorder symptoms ($P = 0.003$).
Zeiler (2016)	<p>Key points:</p> <ul style="list-style-type: none"> • A systematic review identified 14 original articles with a total of 19 patients receiving electroconvulsive therapy for refractory status epilepticus.

Citation	Content, Methods, Recommendations
Electroconvulsive therapy for refractory status epilepticus: a systematic review	<ul style="list-style-type: none"> • Of the 19 patients, 15 were adult and four were pediatric. • All studies were retrospective. • Seizure reduction/control with the application of electroconvulsive therapy occurred in 11 of the 19 patients (57.9%), with four patients (21.0%) and seven patients (36.8%) displaying partial and complete responses, respectively. • Seizure control lasted for variable duration, with the most commonly quoted duration ranging from two weeks to three months. • Data on patient functional outcome was available in 13 patients, with 10 patients falling into the categories of dead or severely disabled.
Luchini (2015) Electroconvulsive therapy in catatonic patients: efficacy and predictors of response	<p>Key points:</p> <ul style="list-style-type: none"> • A narrative review suggested that electroconvulsive therapy is effective in all forms of catatonia, even after pharmacotherapy with benzodiazepines has failed. • The authors cited response rates of catatonia to electroconvulsive therapy from 80% to 100% in evidence to support their assertion. • In summary, the authors opined that electroconvulsive therapy should be considered for first-line treatment in patients with malignant catatonia, neuroleptic malignant syndrome, delirious mania, or severe catatonic excitement, and in general in all catatonic patients who are refractory or partially responsive to benzodiazepines. • They also advocated for early treatment with electroconvulsive therapy prior to patient deterioration that might adversely affect its efficacy.
Tor (2015) Systematic review and meta-analysis of brief versus ultrabrief right unilateral electroconvulsive therapy for depression	<p>Key points:</p> <ul style="list-style-type: none"> • A systematic review examined the potential for avoiding cognitive side effects from electroconvulsive therapy. • Brief pulse unilateral electroconvulsive therapy was significantly more efficacious in treating depression than ultra brief pulse unilateral electroconvulsive therapy (SMD = 0.25; 95% CI, 0.08, 0.41; P = 0.004) but showed significantly more cognitive side effects in all cognitive domains examined (global cognition, anterograde learning and recall, retrograde memory) (P < 0.01). • The mean number of treatment sessions given was 8.7 for brief pulse electroconvulsive therapy and 9.6 for ultra brief pulse electroconvulsive therapy (P < 0.001). • Ultra brief pulse had a lower remission rate (OR = 0.71; 95% CI, 0.51, 0.99; P = 0.045), with a number needed to treat of 12.1.
Aoki (2016) Experience of electroconvulsive therapy and its impact on associated stigma: a meta-analysis	<p>Key points:</p> <ul style="list-style-type: none"> • A meta-analysis of electroconvulsive therapy noted that despite its efficacy and safety, electroconvulsive therapy is underused, in part due to stigma associated with the treatment. • Experience with electroconvulsive therapy may have a positive impact on knowledge of and attitudes toward electroconvulsive therapy.
Pontikes (2010) Electroconvulsive therapy in a patient with multiple sclerosis and recurrent catatonia	<p>Key points:</p> <ul style="list-style-type: none"> • Case report of a 28-year-old inpatient with multiple sclerosis successfully treated with electroconvulsive therapy after developing a catatonic syndrome.

Citation	Content, Methods, Recommendations
	<ul style="list-style-type: none"> • A subsequent relapse also responded to electroconvulsive therapy, after which the patient received maintenance electroconvulsive therapy for 13 months without complications. • Follow-up 18 months later did not reveal any evidence of neurological deterioration.
<p>APA (2008)</p> <p>Practice of electroconvulsive therapy: recommendations for treatment, training, and privileging</p>	<p>Key points:</p> <ul style="list-style-type: none"> • Electroconvulsive therapy is most commonly performed at a schedule of three times per week. • Some practitioners may use increased frequencies of electroconvulsive therapy to speed the recovery, particularly in cases of severe symptom presentation. • Prolonged use of daily treatments is usually associated with increased cognitive impairments. • There is no evidence that repeated courses of electroconvulsive therapy lead to permanent structural damage, or that a maximum limit on lifetime number of treatments with electroconvulsive therapy is appropriate. • Maintenance electroconvulsive therapy should be administered at the minimum frequency compatible with sustained remission, often at one- to three-week intervals. • The need for continued maintenance electroconvulsive therapy should be reassessed at least every three months.

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Professional society guidelines/other:

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CMS National Coverage Determinations (NCDs):

160.25 National Coverage Determination: Multiple Electroconvulsive Therapy (MECT). CMS Medicare Coverage Database Web site. https://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=278&ncdver=1&CoverageSelection=Both&ArticleType=All&PolicyType=Final&s=All&Keyword=Electroconvulsive+therapy&KeywordLookUp=Title&KeywordSearchType=And&list_type=ncd&bc=gAAAACAAAAAAA%3d%3d&. Accessed December 20, 2017.

Local Coverage Determinations (LCDs):

No LCDs identified as of the writing of this policy.

Commonly submitted codes

Below are the most commonly submitted codes for the service(s)/item(s) subject to this policy. This is not an exhaustive list of codes. Providers are expected to consult the appropriate coding manuals and bill accordingly.

CPT Code	Description	Comments
90870	Electroconvulsive therapy (includes necessary monitoring)	

ICD-10 Code	Description	Comments
F20-F20.9	Schizophrenia	
F31-F31.9	Bipolar	
F32-F33.9	Major depressive disorder	

HCPCS Level II Code	Description	Comments
N/A		