ELECTROCONVULSIVE THERAPY (ECT)

Policy Number: BH727ECTBCP_042018

Effective Date: March 14, 2018

Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENEFIT CONSIDERATIONS</td>
<td>1</td>
</tr>
<tr>
<td>COVERAGE RATIONALE</td>
<td>1</td>
</tr>
<tr>
<td>UTILIZATION MANAGEMENT CRITERIA</td>
<td>2</td>
</tr>
<tr>
<td>DESCRIPTION OF SERVICES</td>
<td>4</td>
</tr>
<tr>
<td>CLINICAL EVIDENCE</td>
<td>4</td>
</tr>
<tr>
<td>U.S. FOOD AND DRUG ADMINISTRATION</td>
<td>7</td>
</tr>
<tr>
<td>CENTERS FOR MEDICARE AND MEDICAID SERVICES</td>
<td>7</td>
</tr>
<tr>
<td>APPLICABLE CODES</td>
<td>7</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>7</td>
</tr>
<tr>
<td>HISTORY/REVISION INFORMATION</td>
<td>8</td>
</tr>
</tbody>
</table>

Related Clinical Policies & Guidelines:

- Depressive Disorders
- Cranial Electrotherapy Stimulation
- Transcranial Magnetic Stimulation

BENEFIT CONSIDERATIONS

Before using this policy, please check the member-specific benefit plan document and any federal or state mandates, if applicable.

Prior Authorization and Pre-Service Notification

Outpatient ECT and inpatient admissions require prior authorization or pre-service notification, depending on the member-specific benefit plan. Notification of scheduled treatment must occur at least five (5) business days before admission. Notification of unscheduled treatment (including Emergency admissions) should occur as soon as is reasonably possible. In the event that Optum is not notified of outpatient ECT or an inpatient admission, benefits may be reduced. Check the member’s specific benefit plan document for the applicable penalty and allowance of a grace period before applying a penalty for failure to notify Optum as required.

COVERAGE RATIONALE

Electroconvulsive therapy (ECT) is proven and medically necessary when the following conditions apply:

The member is diagnosed with one of the following:

- Major depressive disorder
- Bipolar disorder
- Schizophrenia spectrum and other psychotic disorders

AND

The following medical contraindications do not preclude treatment:

- An unstable or severe cardiovascular condition;
- An aneurysm or vascular malformation that might be susceptible to rupture with increase blood pressure;
- Increased intracranial blood pressure, such as may result from a brain tumor or lesion;
- A recent cerebral infarction;
- Pulmonary conditions, such as COPD, asthma, or pneumonia.

AND

ECT as a primary treatment:

- There is a need for a rapid, definitive response due to the severity of the member’s condition;
- The risks of other treatments outweigh the risk of ECT;
- There is a history of poor response to medications, or a history of good response to ECT;
- The member prefers ECT, consents to ECT, and is capable, with the assistance of others, of complying with the treatment plan.

OR
ECT as a secondary treatment:
- The member’s signs and symptoms have not responded to at least one adequate medication trial;
- ECT is less likely to result in intolerance or adverse side effects;
- The member’s psychiatric or medical condition has deteriorated to the extent that a rapid, definitive response to treatment is needed.

Electroconvulsive therapy (ECT) is unproven and not medically necessary for any of the following:
- Multiple-seizure electroconvulsive therapy (MECT);
- Other diagnoses in the absence of major depressive disorder, bipolar disorder, or schizophrenia spectrum and other psychotic disorders, including any of the following:
  - Addictive disorders;
  - Autism spectrum disorders;
  - Obsessive-compulsive disorder
  - Posttraumatic stress disorder
The efficacy of ECT for these indications has not been verified by in well-designed controlled trials. In addition, studies have demonstrated an increased risk of adverse effects with multiple seizures (CMS NCD, 2003).

The requested service or procedure must be reviewed against the language in the member’s benefit document. When the requested service or procedure is limited or excluded from the member’s benefit document, or is otherwise defined differently, it is the terms of the member’s benefit document that prevails.

Per the specific requirements of the plan, health care services or supplies may not be covered when inconsistent with Level of Care Guidelines and/or evidence-based clinical guidelines.

Utilization Management Criteria

All services must be provided by or under the direction of a properly qualified behavioral health provider.

Utilization Management Criteria

Admission Criteria

The criteria from the coverage rationale section of this document are met

AND

See Common Criteria for All Levels of Care

AND

ECT is delivered by a treatment team comprised of at least the following:
- A psychiatrist privileged to administer ECT;
- An anesthesiologist;
- A treatment nurse or assistant;
- A recovery nurse.

AND

The psychiatrist privileged to administer ECT ensures that an evaluation is completed prior to beginning treatment. This includes documentation of the following:
- Psychiatry history and examination, including an assessment of the effects of prior ECT, to determine if ECT is indicated and to establish baseline psychiatric and cognitive status to serve as reference points for evaluating the treatment effect;
- A full medical evaluation to determine the member’s current medical status and identification of potential risk factors (e.g., Kellner et al 2012);
- An evaluation of indications for ECT and potential risk(s) to determine if further evaluation is needed and to inform the treatment plan. Examples requiring further evaluation may include:
  - ECT being considered for a child – concurrence with the recommendation to treat is provided by two consultants experienced in the treatment of children;
  - ECT being considered for an adolescent – concurrence provided by one consultant;
  - ECT being considered for a pregnant woman – consultation from an obstetrician is sought.
- An anesthetic evaluation to determine the plan for administering anesthesia and recommendations for ongoing medication(s).

AND

Prior to initiating a course of treatment, the psychiatrist ensures that the member is provided with information about his or her condition, ECT, and any treatment alternative(s). Following this, member consent is obtained.
- Both medical and cognitive risk factors should be outlined, and electrode placement and stimulus dosing should be discussed (Kellner et al 2012).

AND
Prior to initiating a course of treatment, the psychiatrist considers decreasing or withholding medications that may interfere with ECT or cause adverse effects, or continuing medications that may augment ECT, or otherwise do not need to be withheld.

**AND**
Choice of electrode placement (right unilateral vs. bilateral) and stimulus intensity is driven by risk of cognitive side effects and potential therapeutic benefit.

- Evidence supports that right unilateral placement may be associated with less severe and persistent cognitive side effects, when compared to bilateral or bifrontal placement (e.g., Kellner et al 2012; Sackeim et al 2000).

**AND**

For **inpatient ECT:**
The member cannot be safely, efficiently, and effectively assessed and/or treated in a less intensive setting due to factors such as the following:

- American Society of Anesthesiologists (ASA) physical status classification system score of 4 or higher;
- Acute impairment of behavior or cognition that is interfering with activities of daily living (ADLs) to the extent that the welfare of the member or others is endangered;
- Psychosocial and environmental problems threaten the member’s safety or undermine engagement in a less intensive level of care;

**OR**
- The member’s admitting factors to Crisis Stabilization & Assessment or 23-Hour Observation cannot be addressed, and the member must be admitted to an inpatient level of care

**For outpatient ECT:**
- The member is not in imminent or current risk of harm to self, others, and/or property;

**AND**
- The member is willing and able to comply with the requirements of outpatient ECT.

*The clinical literature (e.g., Kellner 2012) suggests that acute phase ECT is typically delivered three times per week on non-consecutive days, and lasts until the member’s signs and symptoms remit, their response to treatment plateaus, or the member develops adverse effects.*

- While there is no standard number of sessions, remission during the acute phase is typically achieved in up to 10-12 sessions (e.g., Kellner et al 2005; Husain et al 2004). A course of ECT treatment rarely exceeds 20 treatments (Bauer et al 2013).

### Continued Service Criteria

**See Common Criteria for All Levels of Care**

**AND**

**For acute phase, inpatient ECT:**
Treatment is not primarily for the purpose of providing custodial care. Services are custodial when they are any of the following:

- Non-health-related services, such as assistance with Activities of Daily Living (e.g., feeding, dressing, bathing, transferring, and ambulating).
- Health-related services that are provided for the primary purpose of meeting the personal needs of the member or maintaining a level of function (even if specific services are considered to be skilled services), as opposed to improving that function to an extent that might allow for a more independent existence.
- Services that do not require continued administration by trained medical personnel in order to be delivered safely and effectively.

**OR**

**For Continuation Phase ECT:**
There is continued indication for ECT, such as the following:

- Pharmacotherapy alone has not been effective.
- Pharmacotherapy cannot be safely administered.

Longer intervals of treatment are used during the continuation phase. Weekly treatment, extending out to monthly is common. The continuation phase typically lasts up to 6 months past the onset of remission during the acute phase.

**OR**

**For Maintenance Phase ECT:**
There is continued indication for ECT, such as the following:

- The member’s signs and symptoms have returned during attempts to stop or taper off continuation treatment.
- The member has completed continuation treatment, but the history of response to treatment indicates that recurrence is likely.
Maintenance ECT is administered frequently enough to sustain remission, sometime on a schedule of a single treatment every 3-6 weeks, though some will require more frequent treatment (Kellner et al 2012).

- The duration of maintenance ECT is driven by the risk and benefit of continued treatment, and takes a number of factors into account, such as:
  - The member's history of treatment;
  - The member's tolerance of treatment;
  - The member's preference for treatment;
  - The member's ability to comply with treatment.

**Discharge Criteria**

See [Common Criteria for All Levels of Care](#)

Recurrence of signs and symptoms is controlled by gradually discontinuing ECT.

For members being discharged from inpatient, the first treatment appointment and medication management visits are scheduled to occur no later than 7 days from discharge.

**DESCRIPTION OF SERVICES**

An electroconvulsive therapy (ECT) device is an electrical device used for treating severe psychiatric disturbances by applying a brief intense electrical current to the patient's head to induce a major motor seizure. ECT is delivered in inpatient or outpatient settings and typically administered by a psychiatrist privileged to perform ECT along with an anesthesiologist.

**CLINICAL EVIDENCE**

**Summary of Clinical Evidence**

The efficacy of electroconvulsive therapy (ECT) has been demonstrated in well-designed controlled trials for the treatment of major depressive disorder, bipolar disorder, and schizophrenia spectrum and other psychotic disorders.

**Clinical Trials**

Husain and colleagues (2008) examined the characteristics and outcomes of patients with major depressive disorder (MDD), with or without atypical features, who were treated with acute bilateral electroconvulsive therapy (ECT). The study was conducted as part of the larger Consortium for Research in ECT (CORE) Continuation ECT (C-ECT) versus Continuation Pharmacotherapy (C-Pharm) trial - a randomized controlled trial performed from 1997 to 2004. For this study, an analysis was conducted of 489 patients were categorized into typical (n = 453) and atypical (n = 36) groups. Primary outcome was remission, defined as at least a 60% decrease from baseline in HAM-D$_{24}$ score and a total score of 10 or below on the last 2 consecutive HAM-D$_{24}$ ratings. Results found that after an acute bilateral ECT course, 67% of the typical and 81% of the atypical groups reached remission. The authors conclude that acute ECT is an efficacious treatment for depressed patients with typical or atypical symptom features.

Kellner and colleagues (2005) assessed the incidence, severity, and course of expressed suicidal intent in depressed patients treated with electroconvulsive therapy (ECT). A total of 444 patients with unipolar depression were included, and were scored at baseline and before each ECT session for suicidal intent. Results found that of the 444 patients, a total of 131 (29.5%) reported suicidal thoughts and acts (defined by a score of 3 or 4 on item 3 on the 24-item Hamilton Depression Rating Scale). After 1 week of ECT (three sessions), scores decreased to 0 in 38% of the patients; at 2 weeks of ECT (six sessions), scores decreased to 0 in 61% of the patients; and at the end of the course of treatment, scores decreased to 0 in 81% of the patients. The authors conclude that expressed suicidal intent in depressed patients was rapidly relieved with ECT. The authors note that the study encourages earlier consideration of ECT in the course of the treatment of severely depressed patients that is presently offered in the professional literature.

Husain and colleagues (2004) reported on speed of response and remission rates in a cohort of patients with depression who received a course of acute phase ECT. This study was part of the initial phase of a larger multicenter randomized trial of continuation ECT versus pharmacotherapy (Consortium for Research in ECT - CORE). A total of 253 patients participated in the study with 86% completing the acute course of TMS (3 times weekly). Sustained response was defined by a ≥ 50% reduction in baseline HAM-D$_{24}$ score for at least 2 and all subsequent measurement occasions. Remission was defined as HAM-D$_{24}$ scores of ≤ 10 for at least two consecutive assessments. Results found sustained response to occur in 79% of the sample, and remission in 75%. A total of 34% achieved remission at or before the sixth session, with 65% achieving remission by the tenth session. The authors conclude that ECT was...
associated with rapid response and remission in a high percentage of the patients. They recommend ECT for early consideration in treatment algorithms for patients with major depression.

Sackeim and colleagues (2000) conducted a prospective, randomized, double-blind study to compare bilateral and right unilateral electroconvulsive therapy at different stimulus intensities. A total of 80 patients with major depression were randomized to unilateral ECT at low-dosage (n= 20); moderate-dosage (n = 20); high-dosage (n = 20); or to high-dosage bilateral ECT (n = 20). Primary outcomes measures were depression severity and cognitive functioning, assessed before, during, immediately after ECT, and 2 months post-ECT. Responders were monitored for relapse for 1 year post-treatment. Results found high-dosage unilateral and bilateral ECT were similar in response rate (65%), compared to low-dosage or moderate-dosage unilateral ECT (35% and 30%, respectively). After the treatment, bilateral ECT resulted in greatest impairment in several measures of memory, when compared to unilateral ECT. This was also observed at two months post-treatment. Patients were more likely to relapse from treatment if they had not responded to adequate pharmacotherapy prior to ECT, or if they had more severe depressive symptoms post-ECT. The authors conclude that unilateral ECT at high dosage is as effective as bilateral ECT, but produced less severe and persistent cognitive effects.

**Systematic Reviews and Meta-Analyses**

Dierckx and colleagues (2012) conducted a systematic review and meta-analysis to investigate the efficacy of ECT in both unipolar and bipolar major depression. For the analysis, the authors included six studies, with a total of 1106 patients. Five studies were prospective and one consisted of a chart review; among the patients, 790 were diagnosed with unipolar depression and 316 diagnosed with bipolar depression. The primary outcome criterion was remission rate, defined as either a score ≤ 7 on the HAM-D17 or a score ≤ 10 on the HAM-D24. Results found the overall remission rate to be 51.5%. For patients with unipolar depression, the remission rate was 51%, and for bipolar depression patients it was 53%. In four of the studies, bipolar depression patients presented with a more severe course of illness than unipolar depression patients, evidenced by increased number of episodes prior to the current episode or higher number of hospital admissions. The analysis showed similar efficacy of ECT in patients with unipolar and bipolar depression. The authors conclude that ECT appears equally effective for both bipolar and unipolar depression.

Heijnen and colleagues (2010) performed a systematic review and meta-analysis to investigate the effect of previous pharmacotherapy failure on the efficacy of ECT. A total of seven cohort studies were included, including a total of 585 patients with previous pharmacotherapy failure and 373 patients without medication resistance. The selected primary outcome criterion was remission rate, defined as either a score of 7 or less on the HAM-D17, a score of 10 or less on the HAM-D24, or a score of 8 or less on the Montgomery-Asberg Depression Rating Scale. Results found the overall remission rate to 48% for patients with previous pharmacotherapy failure, and 65% for patients without previous pharmacotherapy failure. The authors conclude that ECT is significantly superior in patients without previous pharmacotherapy failure, but may be caused by confounding factors such as the presence of psychotic features or duration of the index episode. They note that ECT seems to be an effective treatment for severely depressed patients, and that optimal administration of ECT is very important.

Pagnin and colleagues (2004) conducted a meta-analytic review to study the efficacy of electroconvulsive therapy in depression. The analysis consisted of randomized controlled trials, with a total n of 2272. The studies compared ECT with simulated ECT, placebo, or antidepressant drugs. Results of the review found a significant superiority of ECT in all comparisons. The authors conclude that ECT is a valid therapeutic tool for the treatment of depression, including severe and resistant forms. Some studies pointed out that high-dose unilateral ECT and bilateral ECT present equivalent response rate, with unilateral ECT producing less anterograde and retrograde memory deficits. They note that future studies are necessary to clarify whether and when ECT can be a first choice treatment for some patients.

Kho and colleagues (2003) conducted a meta-analysis to compare electroconvulsive therapy with other treatments for depression. A total of fifteen controlled trials were included, and from these, 20 effect sizes of ECT were calculated. Results found ECT to be superior after a full course, when compared to medication and simulated ECT. A funnel plot showed absence of publication bias, and there was no evidence of exaggeration of effect size in the lower quality trials. The authors conclude that controlled ECT studies support the view that ECT is superior in the treatment of depression.

The UK ECT Review Group (2003) conducted a systematic review and meta-analysis to assess the benefits and harms of ECT in patients with depressive disorders. The analysis compared ECT with simulated ECT, pharmacotherapy, and different forms of ECT. A total of seventy-three randomized controlled trials were included, as well as four cohort studies and three observational studies. Real ECT was found to be significantly more effective than simulated ECT or pharmacotherapy in reducing depressive symptoms. Bilateral ECT was found to be more effective than unilateral ECT, but time to orientation was longer for patients treated with bilateral ECT as well. High-dose ECT was found to be more effective than low-dose ECT.
American Academy of Child & Adolescent Psychiatry (AACP): In their 2013 practice parameter for the assessment and treatment of schizophrenia, the AACP recommends that electroconvulsive therapy may be used with severely impaired adolescents if medications are not beneficial or cannot be tolerated. It is noted that the clinician must balance the risks and benefits of ECT against the morbidity of the disorder, as well as with the attitudes of both the patient and family, and with the availability of other options for treatment.

In their 2007 practice parameter for the assessment and treatment of bipolar disorder, the AACP recommends that for severely impaired adolescents with manic or depressive episodes in Bipolar I Disorder, ECT may be use if medications are not helpful or cannot be tolerated.

In their 2004 practice parameter for use of electroconvulsive therapy with adolescents, the AACP recommends that ECT be considered when there is a lack of response to two or more trials of pharmacotherapy, or when the severity of symptoms precludes waiting for a response to pharmacological treatment. They further note that consent of the adolescent’s legal guardian is mandatory, and patient consent or assent should be attained. State legal guidelines and institutional guidelines must also be followed. Every patient being considered for ECT should receive an independent evaluation from a psychiatrist with knowledge of ECT and not directly responsible for the treatment of the patient.

American Psychiatric Association (APA): In 2010, the APA published practice guidelines for the treatment of major depressive disorder (MDD). The guidelines state ETC has the highest rates of response and remission of any form of antidepressant treatment. They further state that ECT should be considered as a potential option for all patients with MDD when psychotic features or catatonia are present, or for those where an urgent response is needed, such as suicidality. It may also be a treatment of choice for patients with MDD who have a high degree of symptom severity. ECT is reported as a very safe treatment with no absolute contraindications. However, the presence of some medical conditions may require modifications in anesthesia and/or ECT administration.

In 2007, the APA published practice guidelines for the treatment of schizophrenia. The guidelines state that ECT in combination with antipsychotic medications may be considered for patients with schizophrenia or schizoaffective disorder with severe psychotic symptoms that have not responded to treatment with antipsychotic agents.

In 2003, the APA published practice guidelines for the treatment of suicidal behaviors. The guidelines state that the efficacy of ECT is best established in those with severe depression, but may also be used in treating manic or mixed episodes of bipolar disorder, schizoaffective disorder, or schizophrenia, under certain circumstances. They also note that ECT is especially likely to be considered for those where a delay in treatment response is considered life-threatening. Additionally, in the absence of another indication for use, ECT is not indicated for the treatment of suicidality in borderline personality disorder.

In 2002, the APA published practice guidelines for the treatment of bipolar disorder. The guidelines state that ECT may be considered for patients with severe or treatment-resistant mania or if preferred by the patient in consultation with the psychiatrist.

The APA published recommendations for the practice of electroconvulsive therapy in 2001. The recommendations note that the clinical literature establishing the efficacy of ECT in specific disorders (major depression, mania, schizophrenia) is among the most substantial for any medical treatment, and that the indications for ECT have been defined by randomized, controlled trials. In major depression and acute mania, substantial clinical improvement often occurs soon after the start of ECT. It is recommended that primary use of ECT should be considered when a rapid or higher probability of response is needed. Severe major depression with psychotic features, mania with psychotic features, and catatonia are conditions for which there is a clear consensus favoring early reliance on ECT. During the course of pharmacotherapy, reasons to consider using ECT include a lack of clinical response, intolerance of side effects, deterioration in psychiatric condition, or appearance of suicidality.

United States Department of Veterans Affairs / Department of Defense (VA/DOD): In 2016, the VA/DOD published clinical practice guidelines for the management of major depressive disorder. The guidelines note that electroconvulsive therapy should be considered in patients with severe MDD who cannot tolerate, or have not responded to, several trials of antidepressant treatment, unless the patient has significant co-occurring medical conditions that would increase the risks of ECT (e.g., recent myocardial infarction or intracerebral hemorrhage, currently taking MAOIs, or retinal detachment). While there are some risks associated with using ECT, such as memory loss and anesthesia, there are also risks associated with severe MDD that is otherwise untreated (e.g., suicide). Although there is large variation in preferences for using ECT, we are highly confident that the benefits outweigh the harm/burdens of treatment.

In 2013, the VA/DOD published clinical practice guidelines for the assessment and management of patients at risk for suicide. The guidelines ECT as a treatment option for severe episodes of major depression that are accompanied by
suicidal thoughts or behaviors indicating imminent risk for suicide, considering patient preferences. Additionally, under certain clinical circumstances and, considering patient preference, ECT may also be considered to treat suicidal patients with schizophrenia, schizoaffective disorder, or mixed or manic episodes of bipolar disorder. The decision of whether to initiate ECT treatment should follow evidence-based recommendation for the specific disorder, and be based on documented assessment of the risks and potential benefits to the individual, including: the risks associated with the anesthetic; current co-morbidities; anticipated adverse events; and the risks of not having treatment. Since there is no evidence of a long-term reduction of suicide risk with ECT, continuation or maintenance treatment with pharmacotherapy or with ECT is recommended after an acute ECT course. ECT should be performed by experts in centers that are properly equipped and experienced in the treatment.

**World Federation of Societies of Biological Psychiatry (WFSBP):** In 2013, the WFSBP published guidelines for biological treatment of unipolar depressive disorders. The guidelines note that ECT should be considered as a first-line strategy only when rapid relief from severe depression is indicated, as well as for patients with history of positive response to ECT, and for pregnant women especially during the first trimester. The guidelines add that for patients whose symptoms have not responded adequately to medication, ECT remains the most effective form of therapy (Bauer et al 2013).

**U.S. FOOD AND DRUG ADMINISTRATION**

Electroconvulsive therapy devices were legally marketed in the United States prior to the Medical Devices Amendments of 1976. ECT has been categorized as a Class III device (high risk) by the United States Food and Drug Administration since 1976.

**CENTERS FOR MEDICARE AND MEDICAID SERVICES**

CMS has issued a national coverage determination (NCD) for Multiple Electroconvulsive Therapy (MECT). The NCD states:

*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.*

**APPLICABLE CODES**

The following list(s) of procedure and/or diagnosis codes is provided for reference purposes only and may not be all inclusive. Listing of a code in this policy does not imply that the service described by the code is a covered or non-covered health service. Benefit coverage for health services is determined by the member-specific benefit plan document and applicable laws that may require coverage for a specific service. The inclusion of a code does not imply any right to reimbursement or guarantee claim payment. Other Policies and Coverage Determination Guidelines may apply.

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<td>00104</td>
<td>Anesthesia for electroconvulsive therapy</td>
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<td>90870</td>
<td>Electroconvulsive therapy (includes necessary monitoring)</td>
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**REFERENCES**


Centers for Medicare & Medicaid Services. National coverage determination (NCD) for multiple electroconvulsive therapy (MECT) (160.25). Retrieved from: https://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=278&ncdver=1&CoverageSelection=Both&ArticleType=All&PolicyType=Final&KeyWord=+elecroconvulsive&KeyWordLookUp=Title&KeyWordSearchType=And&generalError=Thank+you+for+your+interest+in+the+Medicare+Coverage+Database.+You+may+only+view+the+page+you+attempted+to+access+via+normal+usage+of+the+Medicare+Coverage+Database.&bc=gAAAACAAAAAAA%3d%3d&

Dierckx B, Heijnen WT, van den Broek WW, & Birkenhager TK. Efficacy of electroconvulsive therapy in bipolar versus unipolar major depression: A meta-analysis. Bipolar Disord 2012; 14:146-150.


**HISTORY/REVISION INFORMATION**

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