Clinical Policy Title: Vagus nerve stimulation (VNS)

Clinical Policy Number: 09.02.01

Effective Date: September 1, 2013
Initial Review Date: May 15, 2013
Most Recent Review Date: May 18, 2016
Next Review Date: May 2017

Related policies:

CP# 09.03.01 Laser thermal ablation for epileptic seizures
CP# 07.02.02 Phrenic (diaphragmatic) nerve stimulation

ABOUT THIS POLICY: AmeriHealth Caritas Louisiana has developed clinical policies to assist with making coverage determinations. AmeriHealth Caritas Louisiana’s 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 Louisiana 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 Louisiana’s 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 Louisiana’s clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, AmeriHealth Caritas Louisiana will update its clinical policies as necessary. AmeriHealth Caritas Louisiana’s clinical policies are not guarantees of payment.

Coverage policy

AmeriHealth Caritas Louisiana considers the use of vagus nerve stimulation (VNS) to be clinically proven and, therefore, medically necessary when the following criteria are met:

<table>
<thead>
<tr>
<th>Patient criteria include all of the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The individual is age 12 years or older.</td>
</tr>
<tr>
<td>The individual is diagnosed with severe generalized epilepsy with atonic or tonic-clonic seizures.</td>
</tr>
<tr>
<td>The individual experiences partial onset seizures that are refractory to anti-epileptic (AED) medication therapy, including individuals who are allergic to or suffer debilitating side effects of AEDs.</td>
</tr>
<tr>
<td>Any one of the following is true:</td>
</tr>
<tr>
<td>• The individual has declined intracranial surgery.</td>
</tr>
<tr>
<td>• The individual has failed other surgical intervention.</td>
</tr>
<tr>
<td>• The individual is not a candidate for surgical resection.</td>
</tr>
</tbody>
</table>
Limitations:

All other uses of VNS are not medically necessary. In addition:

- Individuals with a progressive disorder, such as malignant brain neoplasm or a progressive metabolic or degenerative disorder, should not receive VNS.
- The U.S. Food and Drug Administration (FDA) states:
  - A NeuroCybernetic Prosthesis® (NCP) VNS system is contraindicated for individuals with a history of left or bilateral cervical vagotomy.
  - VNS devices are approved for individuals ages 12 years and older.
  - Individuals with an implanted VNS device should avoid diathermy, as this has the potential to cause the generator to heat up and cause tissue damage.
- Transmitter adjustments usually occur in an outpatient setting.

Alternative covered services:

- Pharmacotherapy with anticonvulsant medications.
- Desensitization of nerve receptors.

Background

The vagus nerve is a paired cranial nerve that originates in the brainstem and ends in the abdominal region. It carries both somatic and visceral afferent and efferent signals. The majority of its fibers are visceral afferents with widespread distribution. VNS works on the basis that the vagal visceral afferents provide a diffuse central nervous system projection. The activation of the diffuse pathways has affects neural excitability. Although the exact mechanism of VNS on neuronal excitability is not fully defined, it is known to activate well-defined reflexes and evoke potentials from the cerebellum, cerebral cortex, hippocampus and the thalamus. VNS has been used with success for individuals with epilepsy.

A VNS system is composed of an electrode array, an implantable generator and an external programming device. The programming device is used to make adjustments and changes to the stimulation settings, which are transmitted to the implanted generator. The VNS generator must be surgically implanted in the upper left area of the chest, or under the left arm. The left vagus nerve is selected due to its limited cardiac effects. A thin, platinum-based wire is affixed to the vagus nerve and attached to the electrode array. The flexible electrodes are threaded under the skin and connected to the VNS generator. After implantation is completed the external programmer is coded with instructions to stimulate the vagus nerve at a rate determined by the individual and the physician (Heck, 2002). The programming may be done for specific frequencies, and is designed to reduce the volume of the recipient’s seizure activity. Revisions to the VNS system, such as replacing the battery-powered generator, usually occur every one to five years.

The FDA has approved several VNS systems. None is approved for children less than 12 years of age. The implantation of a VNS device in children less than 12 years of age is considered an off-label use. The National Institute for Health and Clinical Excellence (NICE) guidelines support the use of VNS for refractory epilepsy in children when all of the following criteria are met (NICE, 2004):
The VNS implantation procedure is performed by a specialized pediatric epilepsy team. The VNS implantation procedure is directed by developmentally appropriate pre- and post-device implantation. There is quality-of-life monitoring after VNS implantation.

Epilepsy is diagnosed by the occurrence and type of recurrent, unprovoked seizure activity, and electroencephalography (EEG) readings. Seizures occur when there are errant electrical discharges within the brain. They manifest with different physical symptoms relating to the area of brain where the errant electrical activity is located. Seizures are classified and subtyped by EEG. They are classified as general onset, complex partial or simple partial, and are distinguished by level of consciousness. Partial seizures affect only one hemisphere of the brain. Generalized seizures have errant electrical activity in large areas, and may affect both sides of the brain. Even with the advent of new medications and surgical techniques for the treatment of epilepsy, 20 percent to 50 percent of individuals with epilepsy have breakthrough seizures or experience adverse effects of anti-seizure medications.

Current peer-reviewed medical literature and accepted evidence support the efficacy of VNS as a useful palliative alternative to reduce the frequency of seizures for individuals who have severe generalized epilepsy with atonic or tonic-clonic seizures. Peer-reviewed literature also supports the use of VNS as an effective treatment for medically refractory partial-onset seizures, as well as in individuals who have failed surgery, are not candidates for surgery and are not able to benefit from AEDS. Some of the benefits of using VNS may include a reduction in seizure frequency, improved recovery periods after seizures, and a lessening of seizure clusters. Although VNS may reduce the frequency and magnitude of seizure activity, individuals still need to remain on an anti-seizure medicinal regimen. In addition, individuals need to be apprised of the possible adverse effects of VNS therapy, including cough, headache, neck and incisional pain, and voice alterations (Schlaepfer, 2008).

A meta-analysis of VNS identified 74 clinical trials with 3,321 individuals with intractable epilepsy (Englot, 2011). Participants of studies showed an average 36 percent to 45 percent reduction in seizure frequency at three to 12 months after implantation, and a 51 percent reduction after more than one year of using the therapy. Post-traumatic epilepsy and tuberous sclerosis were positive predictors of a favorable outcome. Complete seizure abatement occurred in rare instances, and at least 25 percent of individuals did not respond to the VNS systems. An additional study by Englot (2011) suggests that children age 12 – 18 years old and individuals with generalized epilepsy benefited significantly from VNS in contrast to their exclusion from the initial approval of the device. Children younger than 12 years of age had responses similar to older counterparts with no increase in complications. Klinkenberg (2012) found similar results in 41 children with intractable epilepsy. However, the small size of the population samples limits the applicability of these conclusions to clinical practice.

In July 2005, the FDA approved a VNS therapy system called NCP System (Cybertronics Inc., Houston, Texas) for use as an adjunctive treatment in individuals age 18 and older with chronic or recurrent depression who have experienced a major depressive episode and have not adequately responded to four or more antidepressant treatments. VNS has been studied as a treatment for depression. Early available studies for VNS use in depression were subsidized by the leading manufacturer of the device and were significantly flawed, particularly with regard to the lack of randomized controlled trials (RCTs) and statistical analysis.

Several systematic reviews have examined the effectiveness of VNS for use in treatment-resistant depression (TRD) (Mark, 2006; Daban, 2008; Gaynes, 2011; Martin, 2012; Mitchell, 2013). However, only one double-blind, randomized study was identified with inconclusive results. There have been no studies to date that have demonstrated improved health outcomes with the use of VNS when compared to other
treatment modalities for TRD. A systematic review by Martin (2012) identified a study with 235 participants that revealed no statistical differences between the control and the placebo groups, citing insufficient data were available to confirm that VNS was or was not effective in the treatment of depression. Though FDA approved, current peer-reviewed published literature does not at this time support the use of VNS devices for the treatment of depression. Clinical trials for the use of VNS for TRD do not demonstrate the effectiveness of VNS therapy on health outcomes in an investigational setting. Data from studies lacking a control group are of limited value (Bajbouj, 2010).

The American Psychiatric Association (APA) practice guideline for the treatment of major depressive disorders states that electroconvulsive therapy remains the best established efficacy above other stimulation therapies (Gelenberg, 2010). In addition, there are no Class I evidence statements from any professional health care societies for the use of VNS in acute or chronic depression, and there is insufficient evidence to recommend the use of VNS for other neuropsychiatric disorders. (Fisher, 1999; Kennedy, 2009; NICE, 2009; Bauer, 2013).

**Searches**

AmeriHealth Caritas Louisiana searched PubMed and the databases of:
- UK National Health Services Centre for Reviews and Dissemination.
- The Centers for Medicare & Medicaid Services (CMS).

We conducted searches on April 20, 2016, using the terms "vagus nerve stimulation" [MeSH].

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**

There is evidence that VNS can reduce seizure frequency, with 14 percent – 79 percent of patients experiencing at least a 50 percent mean reduction; however, a portion of this treatment benefit can be attributed to a placebo response (Hayes, 2015). The treatment benefit is maintained for up to 13 years. Adults and children aged > 12 years seem to benefit equally from the treatment. Most studies to date have included patients with a broad range of epilepsy syndromes associated with intractable partial seizures classified as simple, complex or secondarily generalized.

Some evidence was available specifically investigating VNS for generalized seizures and other epileptic syndromes. While the results from these studies suggest that VNS therapy may also be effective for these types of seizures, the quality of the evidence was poor, and none of the studies was sufficiently powered to estimate the treatment benefit and to draw conclusions regarding seizure type and responsiveness to VNS.
The results of these initial studies will need to be confirmed in RCTs before any definitive conclusions can be drawn.

Data from nonrandomized controlled trials suggest that VNS may effectively treat epilepsy in other patient populations, including those with brain tumors and posttraumatic epilepsy. However, the quality of these studies is poor and additional data from RCTs are necessary to determine whether VNS is better than alternative treatments for these populations.

Several nonrandomized controlled studies have compared the effectiveness of VNS with other interventions, including intracranial surgery. Evidence suggests that VNS may be more effective in some cases, although the quality of the studies was poor and additional data from RCTs are needed.

A number of studies have evaluated the effect of VNS on quality of life (QOL), mood and cognition in patients with epileptic syndromes. The results showed that VNS may improve these outcomes in some patients, but the specific number and type of improvements were inconsistent among studies. While VNS improved QOL in several studies, in others, especially in studies with very small sample size, improvements were not significant or were noted in only one or two domains; however, insufficient power to detect a significant effect makes interpretation of these results difficult.

Safety data for VNS are available for up to 11 years. The most common complications associated with VNS therapy were voice alterations, hoarseness, cough, pain, dyspnea, infection, paresthesia, headache and pharyngitis. These problems were generally mild, occurred only during stimulation, and decreased over time or could be resolved by changing device parameters. In some cases, the NCP had to be repositioned or removed, due to infection or device malfunction, but in most cases, the device was successfully exchanged or re-implanted. A study that compared the incidence of definite/probable seizure with the expected baseline rate for epilepsy revealed no increased risk of mortality that could be attributed to the use of VNS devices. Preliminary evidence suggests that patients with generalized and other types of seizures may experience similar complications and are not at a higher risk for negative side effects than patients with partial seizures.

There is currently insufficient evidence to suggest that effectiveness may vary by patient characteristics. Characteristics that may predict VNS success include the age at epilepsy onset, the age at VNS implantation, the duration of epilepsy before VNS implantation, predominant seizure types, and whether a patient has had previous intracranial surgery. Preliminary data from studies of poor quality suggest that young children (aged ≤ 12 years) and older adults (aged > 50 years) are likely to benefit at least as much from VNS as other populations. Furthermore, there is evidence that shorter durations of epilepsy before implantation predict better success. Evidence is conflicting with regard to age at epilepsy onset. Some evidence suggests that a history of previous intracranial surgery does not predict success of VNS treatment. Concrete predictors of a treatment response have not been established, and additional research is required to substantiate these preliminary findings.

Based on a review of abstracts of published literature (Hayes, 2016), there is insufficient evidence to inform evidence-based decisions regarding the AspireSR Model 106 by Cyberonics. In small clinical studies, the device appears to perform as expected by delivering an electrical stimulation in response to the detected increase in heart rate, which may herald a pending seizure. Duration and frequency of seizures were decreased in patients who received automatically delivered stimulation. The AutoStim mode eliminates the need for patient and caregiver interaction with the device, unlike the magnet mode of previous iterations. Larger studies with long-term clinical outcomes are needed to determine the reliability, safety and consistency of this novel device.
There is insufficient evidence to conclude that VNS improves depression, QOL and function in patients with major depressive disorder (MDD) and bipolar disorder. The best level of evidence (Hayes, 2015) was derived from one 12-week, double-blind, randomized controlled study. There was a statistically significant difference in only one secondary outcome measure. The results of a study comparing VNS plus standard treatment with standard treatment alone were also conflicting. While the primary data analysis suggested that VNS plus standard treatment was superior to standard treatment alone, there was significant heterogeneity among patients, and if the analysis was adjusted to account for these differences, significance was lost. The results from the long-term uncontrolled studies suggest that patients who respond to the treatment at three or 12 months are likely to maintain the response for up to 24 months. However, long-term studies lowered the threshold for the definition of responders; therefore, actual long-term response rates might be lower. Furthermore, a large, randomized, dose-finding study failed to demonstrate a dose response relationship for VNS therapy. VNS is associated with severe complications and therefore the risk-benefit ratio does not favor the use of VNS therapy for TRD.

A low-quality body of evidence from three clinical reports (n=28 to 294) assessed the net health benefit of the Maestro Rechargeable System for controlling obesity. One fair-quality double-blind RCT (n=294) compared active and sham treatment with the Maestro device for ≥ nine hours daily (Hayes, 2016). A second fair-quality double-blind RCT (n=239) compared active and sham treatment with the Maestro device for ≥ 12 hours daily. A very poor-quality prospective case series (n=28) involved treatment of obese patients with type 2 diabetes with the Maestro device for 12 to 15 (mean, 14) hours daily.

The overall quality of the evidence was assessed taking into consideration the quality of individual studies; the precision, directness and consistency of data; and the applicability of the data to general practice. Overall, the body of evidence is insufficient to draw conclusions about the efficacy of the Maestro device in that two RCTs failed to reach pre-specified co-primary weight loss endpoints. Comparison and synthesis of results are limited because the studies used slightly different treatment protocols; used different definitions for primary outcome measures; and because one used an inert sham device whereas the other reported delivery of a very low level of electrical charge via the sham implant to the vagus nerve. The investigators reported that this may have confounded the study results. Importantly, neither RCT had sufficient follow-up length to determine the long-term durability of device-induced weight loss or the safety of prolonged device use.

Summary of clinical evidence:

<table>
<thead>
<tr>
<th>Citation</th>
<th>Content</th>
</tr>
</thead>
</table>
| Hayes (2015) Vagus Nerve Stimulation for Epilepsy | **Key points:**  
- VNS can reduce seizure frequency, with 14 percent – 79 percent of patients experiencing at least a 50 percent mean reduction.  
- A portion of this treatment benefit can be attributed to a placebo response.  
- The treatment benefit is maintained for up to 13 years.  
- Indicated for intractable partial seizures classified as simple, complex or secondarily generalized. |
| Hayes (2016) AspireSR Model 106 (Cyberonics) for Vagus Nerve Stimulation | **Key points:**  
- Insufficient evidence exists regarding the AspireSR Model 106 VNS by Cyberonics.  
- In small clinical studies, the device appears to perform as expected in patients who received automatically delivered stimulation.  
- Larger outcome studies are needed. |
| Hayes (2016) Maestro Rechargeable System (EnteroMedics Inc.) for Vagal Blocking for Obesity Control | **Key points:**  
- Insufficient evidence exists regarding the Maestro Rechargeable System for controlling obesity:  
  - One fair-quality double-blind RCT (n=294) compared active and sham treatment with the Maestro device for ≥ nine hours daily.  
  - A second fair-quality double-blind RCT (n=239) compared active and sham treatment with the Maestro device for ≥ 12 hours daily.  
  - A very-poor-quality prospective case series (n=28) involved treatment of obese patients with type 2 diabetes with the Maestro device for 12 to 15 (mean, 14) hours daily. |
| --- | --- |
| Hayes (2016) Vagus Nerve Stimulation for Depression | **Key points:**  
- There have been no studies to date that have demonstrated improved health outcomes with the use of VNS when compared to other treatment modalities for depression.  
- A systematic review with 235 participants revealed no statistical differences between the control and the placebo groups, citing insufficient data to confirm that VNS was or was not effective in the treatment of depression.  
- The APA practice guideline for the treatment of major depressive disorders state that electroconvulsive therapy remains the best established efficacy above other stimulation therapies. |

**Glossary**

**Medically refractory seizures** — Seizures that are not controlled by medication, or cannot be treated with therapeutic levels of AEDs because of intolerable side effects of these drugs.

**Seizure** — Uncontrolled electrical activity in the brain that causes abnormal muscle movements, changes in behavior or loss of consciousness.

**Vagus nerve** — The 10th cranial nerve; a pair of nerves that originate in the brainstem and extend through the base of the skull, through the neck, down into the abdominal region.

**References**

**Professional society guidelines/other:**


Peer-reviewed references:


George MS, Aston-Jones G. Noninvasive techniques for probing neurocircuitry and treating illness: vagus nerve stimulation (VNS), transcranial magnetic stimulation (TMS) and transcranial direct current stimulation (tDCS). *Neuropsychopharmacology*. 2010 Jan; 35(1):301-16.


Mark D. *Vagus nerve stimulation for treatment-resistant depression*. Chicago, IL, USA: Blue Cross and Blue Shield Association, Technology Evaluation Center. TEC Assessment Program; 21(7). 2006.


Tecoma ES, Iragui VJ. Vagus nerve stimulation use and effect in epilepsy: what have we learned? Epilepsy Behavior. 2006; 8(1);127-36.


Clinical trials:

Searched clinicaltrials.gov on April 22, 2016, using term “vagus nerve stimulation” | Open Studies. 31 studies found, five relevant.


CMS National Coverage Determinations (NCDs):

160.18 VAGUS NERVE STIMULATION (VNS)

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.

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Description</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>61885</td>
<td>Insertion or replacement of cranial neurostimulator pulse generator or receiver, direct or inductive coupling; with connection to a single electrode array.</td>
<td></td>
</tr>
<tr>
<td>61886</td>
<td>Insertion or replacement of cranial neurostimulator pulse generator or receiver, direct or inductive coupling; with connection to two or more electrode arrays.</td>
<td></td>
</tr>
<tr>
<td>61888</td>
<td>Revision or removal of cranial neurostimulator pulse generator or receiver.</td>
<td>Do not report in conjunction with 61885, or 61886</td>
</tr>
<tr>
<td>64553</td>
<td>Percutaneous implantation of neurostimulator electrode array; cranial nerve.</td>
<td></td>
</tr>
<tr>
<td>64568</td>
<td>Incision for implantation of cranial nerve (e.g., vagus nerve) neurostimulator electrode array and pulse generator</td>
<td></td>
</tr>
<tr>
<td>64569</td>
<td>Revision or replacement of cranial nerve (e.g., vagus nerve) neurostimulator electrode array, including connection to existing pulse generator</td>
<td></td>
</tr>
<tr>
<td>64570</td>
<td>Removal of cranial nerve (e.g., vagus nerve neurostimulator electrode array and pulse generator.</td>
<td></td>
</tr>
<tr>
<td>64585</td>
<td>Revision or removal of peripheral neurostimulator electrode array.</td>
<td></td>
</tr>
<tr>
<td>95970</td>
<td>Electronic analysis of implanted neurostimulator pulse generator system (e.g., rate, pulse amplitude, pulse duration, configuration of wave form, battery status, electrode selectability, output modulation, cycling, impedance and patient compliance measurements); simple or complex brain, spinal cord, or peripheral (i.e., cranial nerve, peripheral nerve, sacral nerve, neuromuscular) neurostimulator pulse generator/transmitter, without reprogramming.</td>
<td></td>
</tr>
<tr>
<td>95974</td>
<td>Complex cranial nerve neurostimulator pulse generator/transmitter, with intraoperative or subsequent programming, with or without nerve interface testing, first hour.</td>
<td></td>
</tr>
<tr>
<td>95975</td>
<td>Complex cranial nerve neurostimulator pulse generator/transmitter, with intraoperative or subsequent programming, each additional 30 minutes after first hour (list separately in addition to code for primary procedure).</td>
<td>Use in conjunction with 95974</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ICD-10 Code</th>
<th>Description</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>G40.311</td>
<td>Generalized idiopathic epilepsy and epileptic syndromes, intractable, with status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.319</td>
<td>Generalized idiopathic epilepsy and epileptic syndromes, intractable, without status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>ICD-10 Code</td>
<td>Description</td>
<td>Comment</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>G40.211</td>
<td>Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, intractable, with status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.219</td>
<td>Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, intractable, without status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.011</td>
<td>Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, intractable, with status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.019</td>
<td>Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, intractable, without status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.111</td>
<td>Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, intractable, with status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.119</td>
<td>Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, intractable, without status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.411</td>
<td>Other generalized epilepsy and epileptic syndromes, intractable, with status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.419</td>
<td>Other generalized epilepsy and epileptic syndromes, intractable, without status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.803</td>
<td>Other epilepsy, intractable, with status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.804</td>
<td>Other epilepsy, intractable, without status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.811</td>
<td>Lennox-Gastaut syndrome, not intractable, with status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.813</td>
<td>Lennox-Gastaut syndrome, intractable, with status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.814</td>
<td>Lennox-Gastaut syndrome, intractable, without status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.823</td>
<td>Epileptic spasms, intractable, with status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.824</td>
<td>Epileptic spasms, intractable, without status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.A11</td>
<td>Absence epileptic syndrome, intractable, with status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.A19</td>
<td>Absence epileptic syndrome, intractable, without status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.B11</td>
<td>Juvenile myoclonic epilepsy, intractable, with status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.B19</td>
<td>Juvenile myoclonic epilepsy, intractable, without status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.911</td>
<td>Epilepsy, unspecified, intractable, with status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>G40.919</td>
<td>Epilepsy, unspecified, intractable, without status epilepticus.</td>
<td></td>
</tr>
<tr>
<td>ICD-10 Code</td>
<td>Description</td>
<td>Comment</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------</td>
<td>---------</td>
</tr>
<tr>
<td>R56.9</td>
<td>Unspecified convulsions.</td>
<td></td>
</tr>
</tbody>
</table>