Deep Brain Stimulation (DBS) and Responsive Neurostimulation (RNS)

Disclaimer

Clinical guidelines are developed and adopted to establish evidence-based clinical criteria for utilization management decisions. Clinical guidelines are applicable according to policy and plan type. The Plan may delegate utilization management decisions of certain services to third parties who may develop and adopt their own clinical criteria.

Coverage of services is subject to the terms, conditions, and limitations of a member's policy, as well as applicable state and federal law. Clinical guidelines are also subject to in-force criteria such as the Centers for Medicare & Medicaid Services (CMS) national coverage determination (NCD) or local coverage determination (LCD) for Medicare Advantage plans. Please refer to the member's policy documents (e.g., Certificate/Evidence of Coverage, Schedule of Benefits, Plan Formulary) or contact the Plan to confirm coverage.

Summary

The Plan members with certain movement disorders may be eligible for treatment with a type of neurostimulation known as deep brain stimulation (DBS). Deep brain stimulation starts with a neurosurgical procedure where electrodes are placed into the area of the brain suspected to be causing the abnormal movements. A separate device that creates the electrical pulses (often called a pulse generator) is also implanted. The device can then be adjusted to help with the symptoms of some intractable movement disorders, such as Parkinson's disease, essential tremor, and certain dystonias.

The Plan members with a seizure disorder may benefit from a different type of neurostimulation known as response neurostimulation (RNS). Instead of electrodes being placed in the deep brain regions, they are surgically implanted into an area of the brain cortex that has been determined to be the focus of the seizures. The RNS device then monitors for abnormal brain activity and when detected, delivers an electrical stimulation in an effort to prevent the seizure activity from propagating. This guideline provides criteria and exclusions for both deep brain stimulation and responsive neurostimulation devices.

Definitions

"Deep brain stimulation (DBS)" is a neurosurgical procedure used to treat a variety of movement disorders. An electrode is placed in the target area of the brain, either on both sides (bilateral) or one

side (unilateral), and electrical pulses are generated to decrease the movement symptoms. Deep brain structures that may be implanted include, but are not limited to:

- Ventral intermediate thalamic nucleus (thalamus)
- Globus Pallidus Internus
- Subthalamic Nucleus

"Responsive Neurostimulation (RNS)" is a neurosurgical procedure where an electrode connected to a pulse generator is implanted into an area of the brain suspected to be the focus of seizure activity. The RN stimulator device system monitors for abnormal electrical activity of the brain and then can deliver electrical activity in an effort to disrupt or lessen the seizure activity in patients with refractory disease.

"Parkinson's Disease (PD)" is a neurodegenerative movement disorder that results from a loss of dopaminergic neurons in the regions of the brain controlling motor activity. Symptoms of Parkinson's disease include resting tremor, slow shuffling gait, rigidity, and slow movements. PD is often treated with oral medications, but some patients may benefit more from invasive intervention such as deep brain stimulation when medication fails to improve the symptoms.

"Dystonia" is involuntary muscle contraction that can cause tremors, twisting, and abnormal postures. There are many different types of dystonia, including:

- Generalized dystonia: A more widespread dystonia affecting multiple muscles of the body
- Segmental dystonia: Similar to a focal dystonia, but it affects a segment of the body, such as the upper and lower arm, or the leg and hip
- Hemidystonia: A type of dystonia affecting half of body, such as the arm and leg on the same side
- Cervical dystonia: A type of focal dystonia where spasm of the neck muscles can cause the head to rotate to one side and/or pull towards the chest or back

"Essential Tremor" is a common movement disorder that can cause abnormal shaking of the hands, arms, fingers, or even the vocal cords or head. It usually differs from other movement disorders in that it is an "action tremor", meaning that the shaking only happens during intentional movement of that body part. Essential tremor is most often treated with oral medications, but may require surgical intervention when the symptoms are disabling and not responsive to medication.

"Focal Seizures" (e.g., focal aware seizures, focal impaired awareness seizures, or partial seizures) are seizures that start in and only impact one part of the brain.

"Generalized Seizures" are seizures that affect both cerebral hemispheres and are more likely to cause impaired level of consciousness.

"Unified Parkinson's Disease Rating Scale (UPDRS)" is a scale used to measure the severity of the motor complications of Parkinson's Disease. It ranges from 0-108, with higher scores signifying greater disability.

Clinical Indications

Deep Brain Stimulation (DBS) for Parkinson's Disease

the Plan considers deep brain stimulation for members with medically refractory Parkinson's Disease medically necessary when ALL of the following criteria are met:

1. The member has idiopathic Parkinson's disease (i.e., excludes secondary or medication-induced causes; *and*
2. Unified Parkinson's Disease Rating Scale (UPDRS) score of 30 or greater when without medication for 12 hours; *and*
3. Motor complications that cannot be adequately controlled with standard pharmacologic therapy; *and*
4. The motor impairment affects safety, functional status, or quality of life due to ONE or more of the following symptoms:
    a. Bradykinesia; *or*
    b. Levodopa-induced dyskinesia; *or*
    c. Rigidity; *or*
    d. Tremor.
5. Treatment with levodopa had previously resulted in improvement in symptoms; *and*
6. There is sufficient motor activity in the affected limb(s) such that the procedure can be reasonably expected to demonstrate improvement; *and*
7. The member has NONE of the following contraindications:
    a. Evidence of dementia or cognitive impairment; *or*
    b. Prior intracranial surgery at the target site; *or*
    c. Focal lesion (such as space occupying lesion) that would impair stimulation or implant placement or may be causing the symptoms; *or*
    d. High-risk for surgical complications (e.g., active systemic infection, coagulation disorders, etc.); *or*
    e. Severe depression or suicidal ideation; *or*
    f. Hoehn and Yahr Stage V Parkinson's disease, as defined by the following:
        i. Cachectic state; *or*
        ii. Inability to stand or walk; *or*
        iii. Bedbound; *or*
        iv. Requiring continuous nursing care.
    g. Cerebellar or pyramidal findings or dysautonomia that may be more suggestive of secondary parkinsonism.

Deep Brain Stimulation (DBS) for Essential Tremors

The Plan considers deep brain stimulation for members with medically refractory essential tremor medically necessary when ALL of the following criteria are met:

1. Alternative etiologies of the tremor have been excluded and/or adequately treated*; and*
2. Symptoms are disabling and/or impact ADLs; *and*
3. Symptoms have been continuously present for at least 3 months despite adequate trials of the following treatments, unless there are specific contraindications or adverse effects:
    a. First line medications (e.g. propranolol and/or primidone); *and*
    b. Second line medications (e.g. gabapentin, topiramate, nimodipine, or combinations of multiple agents); *and*
4. Brain imaging shows no evidence of structural abnormality or of another possible etiology; *and*
5. The member has NONE of the following contraindications:
    a. Dementia or significant cognitive impairment (or Mini-Mental State Examination score of less than 24) ; *or*
    b. Prior intracranial surgery at the target site; *or*
    c. Focal lesion (such as space occupying lesion) that would impair stimulation or implant placement or may be causing the symptoms; *or*
    d. High-risk for surgical complications (e.g., active systemic infection, coagulation disorders, etc.).
6. The stimulation target is the thalamus, globus pallidus, or subthalamic nuclei; *and*
7. The stimulation is unilateral in cases of one-sided tremors or bilateral in cases of tremors on both sides.

Deep Brain Stimulation (DBS) for Epilepsy

The Plan considers Deep Brain Stimulation for epilepsy medically necessary when ALL of the following criteria are met:

1. Member is 18 years or older; *and*
2. Treatment by FDA approved Medtronic DBS system for epilepsy; *and*
3. Presence of focal onset (partial) seizures despite trial of 3 or more antiepileptic medications; *and*
4. Presence of 6 or more partial seizures with or without secondary generalized seizures each month during the previous 3 months with no more than 30 days between seizures; *and*
5. The member does not meet criteria for focal resection epilepsy surgery; *and*
6. The member does not meet criteria for vagus nerve stimulation.

Deep Brain Stimulation (DBS) for Dystonia

The Plan considers deep brain stimulation for members with dystonia medically necessary when ALL of the following criteria are met:

1. The member is 7 years of age or older; *and*
2. The member has been diagnosed with any ONE of the following:
    a. Primary dystonia, including:

i. Generalized dystonia; *or*
ii. Segmental dystonia; *or*
iii. Hemidystonia; *or*
iv. Cervical dystonia; *or*

b. Secondary tardive dyskinesia/dystonia from ONE of the following:
i. Chronic levodopa treatment for Parkinson's Disease; *or*
ii. Chronic antidopaminergic effects from psychiatric disease treatment with motor response complications not controlled by medication; *and*

3. Dystonia is NOT caused by ANY of the following:
a. Stroke; *or*
b. Cerebral Palsy; *or*
c. Tumor; *or*
d. Trauma; *or*
e. Infection; *or*
f. Multiple sclerosis or other neurodegenerative disease; *or*
g. Medication(s); *and*
4. Motor complications are refractory to optimal medical management, including but not limited to botulinum toxin injections when applicable; *and*
5. Symptoms are disabling and/or impact ADLs; *and*
6. The member has NONE of the following contraindications:
a. Evidence of dementia or cognitive impairment; *or*
b. Prior intracranial surgery at the target site; *or*
c. Focal lesion (such as space occupying lesion) that would impair stimulation or implant placement or may be causing the symptoms; *or*
d. High-risk for surgical complications (e.g. active systemic infection, coagulation disorders, etc).

Responsive Neurostimulation (RNS)

The Plan considers responsive neurostimulation using an FDA approved device (e.g., NeuroPace RNS System) medically necessary when ALL of the following criteria are met:

1. The member is 18 years of age or older; *and*
2. Documented diagnosis of intractable focal seizures (simple or complex partial seizures; may also be documented as focal aware or focal impaired awareness seizures); *and*
3. Presence of only 1-2 epileptogenic foci with confirmed location; *and*
4. Condition is refractory to at least two appropriate antiepileptic drugs at therapeutic doses; *and*
5. At least three or more disabling seizures per month averaged over the immediately preceding three month period; where disabling is defined as:
a. Significant impairment of ADLs; *or*
b. Causing injury; *and*

6. The member is NOT a candidate for focal resective epilepsy surgery, such as for ANY of the following reasons:
    a. Bitemporal foci, where resection would place the member at risk for memory and/or language deficits; *or*
    b. Left-sided temporal lobe focus, where diagnostic testing suggests that removal of the target region may result in memory and/or language deficits; *or*
    c. A focus with overlap of important anatomical regions, where removal may result in functional deficits pertaining to the specific region; *and*
7. Non-epileptic etiologies have been addressed and/or ruled out (e.g. cardiogenic syncope, psychogenic seizures); *and*
8. The member has NONE of the following contraindications:
    a. Primary generalized epilepsy; *or*
    b. Rapidly progressive neurologic disorder or evidence of cognitive impairment; *or*
    c. 3 or more epileptogenic foci; *or*
    d. Other implanted device(s) delivering electric energy to the brain; *or*
    e. High-risk for surgical complications (e.g., active systemic infection, coagulation disorder); *or*
    f. Focal lesion (such as space occupying lesion) that would impair stimulation or implant placement or may be causing the symptoms; *or*
    g. Epileptogenic foci located inferior to the level of the subthalamic nucleus.

DBS or RNS Device Replacement

Replacement of deep brain stimulation or responsive neurostimulation devices is considered medically necessary when ALL of the following criteria are met:

1. Device is no longer functioning properly and cannot be safely repaired; *and*
2. Physician documents need for replacement; *and*
3. Device is no longer under the original warranty; *and*
4. Original placement was considered medically necessary per the above criteria; *and*
5. There are no contraindications to device replacement.

Experimental or Investigational / Not Medically Necessary

Deep brain stimulation for any other indication is considered experimental, investigational, or unproven. Non-covered indications include, but are not limited to, the following:

- Addiction
- Alzheimer's disease
- Eating disorders, e.g. Anorexia nervosa
- Autism spectrum disorder
- Bipolar Disorder
- Blepharospasm
- Cerebral palsy

- Chronic cluster headache
- Chronic pain syndrome including complex regional pain syndrome/reflex sympathetic dystrophy, cancer-related pain, and post-stroke pain.
- Chronic vegetative state
- Depression
- Degenerative, metabolic and infectious disorders
- Dravet Syndrome
- Drug-induced movement disorders
- Explosive aggressive behavior
- Head or voice tremor, except when symptoms are due to covered essential tremor meeting the above criteria
- Huntington's disease or other choreiform disorders
- Minimally conscious state
- Multiple sclerosis
- Obesity
- Obsessive-compulsive disorder
- Orthostatic tremor
- Parkinson's disease-related camptocormia, dysarthria/speech deficits, and gait disorders (e.g., gait instability and freezing of gait)
- Post-traumatic tremor
- Secondary dystonias
- Self-injurious behavior
- Substance use disorders
- SUNCT syndrome
- Tourette syndrome
- Traumatic brain injury

Evidence for Experimental or Investigational / Not Medically Necessary

Addiction

The evidence for DBS in addiction is limited and the existing studies have yet to clearly define the optimal target for neurostimulation in patients with addiction.

Alzheimer's Disease

The existing literature for DBS in AD is limited to small, retrospective studies and case reports. Furthermore, the results have yet to show clear clinical efficacy and safety in this population. Further evidence is needed to define the role of DBS in patients with Alzheimer's disease.

Bipolar disorder

The evidence for DBS in bipolar disorder is limited to small studies and a review paper covering only 12 patients. An UpToDate review on the topic states that "It is not known if DBS is efficacious as an adjunctive treatment for bipolar disorder due to the limited and low quality data that are available".

There has been some concern in the literature for the possibility of DBS causing treatment-related mania or hypomania, which may worsen in patients with underlying bipolar disorder. A study by Holtzheimer et al (2012) found no episodes of mania/hypomania in the 7 patients treated with DBS. Another review on 5 case reports found 1 patient with hypomanic symptoms. Other studies of DBS for other indications have suggested higher rates of the side effect, however. Further evidence is needed in the form of larger, preferably randomized studies, to determine the potential benefit and safety of DBS for this indication.

Chronic Pain

The existing evidence is limited to anecdotal reports and case studies. An older publication of the EFNS guidelines in 2007 reported that neurostimulation for neuropathic pain may be efficacious but should only be performed at experienced centers. Further evidence is needed to determine the potential efficacy and safety for DBS in this indication.

Cluster Headache

Deep brain stimulation has been considered for the use of medically refractory cluster headaches. UpToDate considers DBS for this indication "investigational and [requiring] further study to confirm long-term benefit and safety". Fontaine et al (2010) looked at 11 patients randomized to periods of DBS for their cluster headache vs. sham treatment periods. They found that "during the randomized phase, no significant change in primary and secondary outcome measures was observed between active and sham stimulation". They also found three serious adverse events, and concluded "Randomized phase findings of this study did not support the efficacy of DBS in refractory CCH". Further evidence is needed to confirm any potential benefit with DBS for this indication.

Depression

The existing evidence for DBS in depression is limited. UpToDate reports that "Deep brain stimulation (DBS) is an investigational procedure for treatment resistant depression".

Dravet Syndrome

The evidence for DBS in Dravet Syndrome is limited to case reports without any significant large studies. An UpToDate review concluded that "It is therefore not yet possible to draw conclusions on the effectiveness of DBS in these patients."

Eating Disorders

The existing evidence for DBS in eating disorders is very limited. One study by Lipsman et al (2013) looked at six females with severe, refractory anorexia treated with DBS, with 50% of the patients showing weight gain and 4 out of 6 with improvement in their mood symptoms. That same research group later added 10 more patients to the study. That same year, Wu et al (2013) looked at four more patients with anorexia undergoing DBS. As of the present time, the literature regarding the safety and efficacy of DBS for this indication is limited to these very small, single institution series. Per UpToDate, DBS is experimental and investigational for the treatment of eating disorders.

Huntington's Disease
Per UpToDate, "The utility of deep brain stimulation in HD is unknown. Data are limited to case studies and small case series, which suggest some benefit in chorea...However, this may be at the expense of cognition." Further prospective evidence is needed to determine any potential benefit.

Other Choreiform disorders
The existing data for the use of DBS for choreiform disorders is limited to small, conflicting studies. One study by Edwards et al in 2012 looked at 16 case reports on patients treated with DBS for chorea. Further evidence in the form of randomized, prospective data is needed to define the clinical role and potential benefit of DBS for this indication.

Obsessive Compulsive Disorder
In Aug. 2022, Hayes rated D2 Deep Brain Stimulation (DBS) for the Treatment of Refractory Obsessive-Compulsive Disorder as an add-on therapy for obsessive-compulsive disorder (OCD) in adult patients with inadequate responses to ≥ 3 prior treatments and no contraindications to DBS. DBS has been inadequately studied for this indication. An UpToDate review on the topic concludes that "Deep brain stimulation is an investigational treatment for incapacitating, treatment-refractory OCD." A 2015 meta-analysis of several small randomized trials on the subject suggested that DBS may reduce the symptoms of OCD, but concluded that larger trials would be needed to confirm the findings. The study looked at 31 studies involving 116 subjects, finding an average symptom reduction on the Y-BOCS scale of 45.1% and an overall response rate of 60%. Despite these findings, larger, randomized evidence is needed to determine the optimal implant location, safety, and efficacy of DBS for this indication.

SUNCT Syndrome
The data on DBS for SUNCT syndrome is currently limited to very small, uncontrolled studies and case reports. Furthermore, the optimal location in the brain for DBS for SUNCT has not yet been fully determined. One study by Leone et al (2016) looked at 11 patients with refractory SUNCT treated with ipsilateral DBS. They reported a 78% median reduction in daily attack frequency. An UpToDate review of this study and topic reports that "Although these results are promising, further study is needed to evaluate the utility of DBS for patients with SUNCT and SUNA."

Tourette Syndrome
The existing evidence for DBS in Tourette syndrome is limited. A randomized, double blinded crossover trial published in The Lancet in 2015 looked at 15 patients with severe, medically refractory Tourette syndrome. The patients received surgery for DBS in the globus pallidus followed by 3 months of stimulation vs. 3 months of no stimulation, and then a cross over to the other group. Only 13 patients completed the randomization and crossover. The authors concluded that there was a significant improvement in tic severity, and that "Future research should concentrate on identifying the most effective target for DBS to control both tics and associated comorbidities, and further clarify factors that predict individual patient response". Given the limitation in the number of patients and available

evidence, further data is needed to determine the efficacy and safety of DBS for this indication. An UpToDate review on the topic concluded that "However, the available evidence is preliminary, and larger clinical trials are needed to determine whether DBS is beneficial for controlling tics in patients with TS."

For indications not specifically listed above, the existing evidence is limited and/or insufficient to determine the potential efficacy and safety of DBS.

Applicable Billing Codes (HCPCS/CPT Codes)

Deep Brain Stimulation and Responsive Neurostimulation	
CPT/HCPCS Codes considered medically necessary if criteria are met:	
Code	*Description*
61850	Twist drill or burr hole(s) for implantation of neurostimulator electrodes, cortical
61860	Craniectomy or craniotomy for implantation of neurostimulator electrodes, cerebral, cortical
61863	Twist drill, burr hole, craniotomy, or craniectomy with stereotactic implantation of neurostimulator electrode array in subcortical site (e.g., thalamus, globus pallidus, subthalamic nucleus, periventricular, periaqueductal gray), without use of intraoperative microelectrode recording; first array
61864	Twist drill, burr hole, craniotomy, or craniectomy with stereotactic implantation of neurostimulator electrode array in subcortical site (eg, thalamus, globus pallidus, subthalamic nucleus, periventricular, periaqueductal gray), without use of intraoperative microelectrode recording; each additional array (List separately in addition to primary procedure)
61867	Twist drill, burr hole, craniotomy, or craniectomy with stereotactic implantation of neurostimulator electrode array in subcortical site (e.g., thalamus, globus pallidus, subthalamic nucleus, periventricular, periaqueductal gray), with use of intraoperative microelectrode recording; first array
61868	Twist drill, burr hole, craniotomy, or craniectomy with stereotactic implantation of neurostimulator electrode array in subcortical site (eg, thalamus, globus pallidus, subthalamic nucleus, periventricular, periaqueductal gray), with use of intraoperative microelectrode recording; each additional array (List separately in addition to primary procedure)
61880	Revision or removal of intracranial neurostimulator electrodes
61885	Insertion or replacement of cranial neurostimulator pulse generator or receiver, direct or inductive coupling; with connection to a single electrode array
61886	Insertion or replacement of cranial neurostimulator pulse generator or receiver, direct or inductive coupling; with connection to 2 or more electrode arrays
61888	Revision or removal of cranial neurostimulator pulse generator

	or receiver
95836	Electrocorticogram from an implanted brain neurostimulator pulse generator/transmitter, including recording, with interpretation and written report, up to 30 days
95970	Electronic analysis of implanted neurostimulator pulse generator/transmitter (eg, contact group[s], interleaving, amplitude, pulse width, frequency [Hz], on/off cycling, burst, magnet mode, dose lockout, patient selectable parameters, responsive neurostimulation, detection algorithms, closed loop parameters, and passive parameters) by physician or other qualified health care professional; with brain, cranial nerve, spinal cord, peripheral nerve, or sacral nerve, neurostimulator pulse generator/transmitter, without programming
95976	Electronic analysis of implanted neurostimulator pulse generator/transmitter (eg, contact group[s], interleaving, amplitude, pulse width, frequency [Hz], on/off cycling, burst, magnet mode, dose lockout, patient selectable parameters, responsive neurostimulation, detection algorithms, closed loop parameters, and passive parameters) by physician or other qualified health care professional; with simple cranial nerve neurostimulator pulse generator/transmitter programming by physician or other qualified health care professional
95977	Electronic analysis of implanted neurostimulator pulse generator/transmitter (eg, contact group[s], interleaving, amplitude, pulse width, frequency [Hz], on/off cycling, burst, magnet mode, dose lockout, patient selectable parameters, responsive neurostimulation, detection algorithms, closed loop parameters, and passive parameters) by physician or other qualified health care professional; with complex cranial nerve neurostimulator pulse generator/transmitter programming by physician or other qualified health care professional
95983	Electronic analysis of implanted neurostimulator pulse generator/transmitter (eg, contact group[s], interleaving, amplitude, pulse width, frequency [Hz], on/off cycling, burst, magnet mode, dose lockout, patient selectable parameters, responsive neurostimulation, detection algorithms, closed loop parameters, and passive parameters) by physician or other qualified health care professional; with brain neurostimulator pulse generator/transmitter programming, first 15 minutes face-to-face time with physician or other qualified health care professional
95984	Electronic analysis of implanted neurostimulator pulse generator/transmitter (eg, contact group[s], interleaving, amplitude, pulse width, frequency [Hz], on/off cycling, burst, magnet mode, dose lockout, patient selectable parameters, responsive neurostimulation, detection algorithms, closed loop parameters, and passive parameters) by physician or other qualified health care professional; with brain neurostimulator pulse generator/transmitter programming, each additional 15 minutes face-to-face time with physician or other qualified health care professional (List separately in addition to code for primary procedure)
C1767	Generator, neurostimulator (implantable), nonrechargeable
C1778	Lead, neurostimulator (implantable)
C1816	Receiver and/or transmitter, neurostimulator (implantable)

C1822	Generator, neurostimulator (implantable), high frequency, with rechargeable battery and charging system
C1883	Adaptor/ extension, pacing lead or neurostimulator lead (implantable)
C1897	Lead, neurostimulator test kit (implantable)
E0745	Neuromuscular stimulator, electronic shock unit
L8679	Implantable neurostimulator, pulse generator, any type
L8680	Implantable neurostimulator electrode, each
L8681	Patient programmer (external) for use with implantable programmable neurostimulator pulse generator, replacement only
L8682	Implantable neurostimulator radiofrequency receiver
L8683	Radiofrequency transmitter (external) for use with implantable neurostimulator radiofrequency receiver
L8685	Implantable neurostimulator pulse generator, single array, rechargeable, includes extension
L8686	Implantable neurostimulator pulse generator, single array, nonrechargeable, includes extension
L8687	Implantable neurostimulator pulse generator, dual array, rechargeable, includes extension
L8688	Implantable neurostimulator pulse generator, dual array, nonrechargeable, includes extension
L8689	External recharging system for battery (internal) for use with implantable neurostimulator, replacement only
L8695	External recharging system for battery (external) for use with implantable neurostimulator, replacement only
ICD-10 codes considered medically necessary if criteria are met:	
Code	*Description*
G20.A1 - G20.C	Parkinson's disease
G21.0 - G21.9	Secondary Parkinsonism
G24.1	Genetic torsion dystonia
G24.2	Idiopathic nonfamilial dystonia
G24.3	Spasmodic torticollis
G24.4	Idiopathic orofacial dystonia

G24.8	Other dystonia
G24.9	Dystonia, unspecified
G25.0	Essential tremor
G25.2	Other specified forms of tremor
G40.001 - G40.919	Epilepsy and recurrent seizures [Deep Brain Stimulation and Responsive Neurostimulation]
R56.9	Unspecified convulsions
ICD-10 codes *not* considered medical necessary or considered experimental or investigational:	
Code	*Description*
A00.0 - B99.9	Certain infectious and parasitic diseases
E66.01 - E66.9	Overweight and obesity
E70.0 - E88.A	Metabolic disorders
F10.10 - F19.99	Alcohol related disorders
F31.0 - F31.9	Bipolar disorder
F32.0 - F32.A	Depressive episode
F33.0 - F33.9	Major depressive disorder, recurrent
F34.0 - F34.9	Persistent mood [affective] disorders
F42.8	Other obsessive-compulsive disorder
F42.9	Obsessive-compulsive disorder, unspecified
F44.4	Conversion disorder with motor symptom or deficit
F50.00 - F50.9	Eating disorders
F63.81	Intermittent explosive disorder
F84.0	Autism disorder
F95.2	Tourette's disorder
G10	Huntington’s disease
G23.0 - G23.9	Other degenerative diseases of the basal ganglia
G24.01 - G24.09	Drug induced dystonia
G24.5	Blepharospasm

G30.0 - G30.9	Alzheimer's disease
G35	Multiple sclerosis
G44.021 - G44.029	Chronic cluster headache
G44.059	Short lasting unilateral neuralgiform headache with conjunctival injection and tearing (SUNCT), not intractable
G80.0 - G80.9	Cerebral palsy
G89.3	Neoplasm related pain (acute) (chronic)
G89.4	Chronic pain syndrome
G90.3	Multi-system degeneration of the autonomic nervous system
G90.50 - G90.59	Complex regional pain syndrome
I69.398	Other sequelae of cerebral infarction
R40.0 - R40.4	Somnolence, stupor and coma [alteration of consciousness]
S06.0x0A - S06.A1xSS	Intracranial injury
X71.0xxA - X83.8xxS	Intentional self-harm

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Clinical Guideline Revision / History Information

Original Date: 7/31/2018
Reviewed/Revised: 7/23/2019, 7/21/2020, 08/04/2021, 12/01/2021, 07/26/2022, 07/19/2023, 07/29/2024