

Medical Policy



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Title: Deep Brain Stimulation of the Thalamus

Professional

Original Effective Date: March 1, 1985
Revision Date(s): June 1, 1986; October 1, 1994; June 1, 1997; July 1, 1998; June 1, 2006; November 1, 2006
Current Effective Date: November 1, 2006

Institutional

Original Effective Date: April 1, 2007
Revision Date(s):
Current Effective Date: April 1, 2007

DESCRIPTION

Deep brain stimulation has been investigated for treatment of essential tremor, Parkinson's disease (tremor, rigidity, brady kinesias and motor fluctuation) and primary dystonias.

DBS involves the stereotactic placement of an electrode into the brain (i.e., thalamus, globus pallidus, or subthalamic nucleus). The electrode is initially attached to a temporary transcutaneous cable for short-term stimulation to validate treatment effectiveness. Several days later, the patient returns to surgery for permanent subcutaneous implantation of the cable and a radiofrequency-coupled or battery-powered programmable stimulator.

At the present time, only 1 device has been approved by the U.S. Food and Drug Administration (FDA) for deep brain stimulation: the Activa Tremor Control System, manufactured by Medtronic Corp, MN.

The Activa Tremor Control System consists of the following components: the implantable pulse generator, the deep brain stimulator lead, an extension that connects the lead to the power source, a console programmer, a software cartridge to set electrical parameters for simulation, and a patient control magnet, which allows the patient to turn the pulse generator on and off, or change between high and low settings.

Disabling, medically unresponsive tremor is defined as all of the following:

- tremor causing significant limitation in daily activities
- inadequate control by maximal dosage of medication for at least 3 months before implant

Contraindications to deep brain stimulation include:

- patients who are not good surgical risks because of unstable medical problems or because of the presence of a cardiac pacemaker
- patients who have medical conditions that require repeated magnetic resonance imaging (MRI)
- patients who have dementia that may interfere with the ability to cooperate
- patients who have had botulinum toxin injections within the last 6 months

POLICY

Unilateral deep brain stimulation of the thalamus may be considered medically necessary in patient with disabling, medically unresponsive tremor due to essential tremor or Parkinson's disease.

Unilateral or bilateral deep brain stimulation of the globus pallidus or subthalamic nucleus may be considered **medically necessary** in the following patients:

- Those with Parkinson's disease with ALL of the following:
 - a good response to levodopa; AND
 - a minimal score of 30 points on the Unified Parkinson Disease Rating Scale when the patient has been without medication for approximately 12 hours; AND
 - motor complications not controlled by pharmacologic therapy.
- Patients aged greater than 7 years with chronic, intractable (drug refractory) primary dystonia, including generalized and/or segmental dystonia, hemidystonia, and cervical dystonia (torticollis).

Deep brain stimulation is considered experimental/investigational for:

- other movement disorders, including but not limited to multiple sclerosis and post-traumatic dyskinesia,
- the treatment of chronic cluster headaches,
- obsessive compulsive disorder

CODING

CPT/HCPCS

61567	Craniotomy with elevation of bone flap; for multiple subpial transections, with electrocorticography during surgery
61850	Twist drill or burr hole for implantation of neurostimulator electrodes, 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 (e.g., thalamus, globus pallidus, subthalamic nucleus, periventricular, periaqueductal gray), without use of intraoperative microelectrode recording; each additional array
Twist drill, burr hole, craniotomy, or craniectomy with stereotactic
- 61867 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
Twist drill, burr hole, craniotomy, or craniectomy with stereotactic
- 61868 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
- 61885 Insertion or replacement of cranial neurostimulator pulse generator or receiver, direct or inductive coupling; with connection to a single electrode array
- 61886 Incision and subcutaneous placement of cranial neurostimulator pulse generator or receiver, direct or inductive coupling; with connection to two or more electrode arrays
- 95971 Electronic analysis of implanted neurostimulator pulse generator system; simple, with intraoperative or subsequent programming
- 95978 Electronic analysis of implanted neurostimulator pulse generator system (e.g., rate, pulse amplitude and duration, battery status, electrode selectability and polarity, impedance, and patient compliance measurements), complex deep brain neurostimulator pulse generator/transmitter, with initial or subsequent programming; first hour
- 95979 Electronic analysis of implanted neurostimulator pulse generator system (e.g., rate, pulse amplitude and duration, battery status, electrode selectability and polarity, impedance, and patient compliance measurements), complex deep brain neurostimulator pulse generator/transmitter, with initial or subsequent programming; each additional 30 minutes after first hour
- L8680 Implantable neurostimulator electrode, each
- L8681 Patient programmer (external) for use with implantable programmable neurostimulator pulse generator
- 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, non rechargeable, includes extension
- L8687 Implantable neurostimulator pulse generator, dual array, rechargeable, includes extension

L8688 Implantable neurostimulator pulse generator, dual array, non rechargeable, includes extension

DIAGNOSIS

These diagnoses are otherwise subject to medical policy as stated above

- 332.0 Paralysis agitans (Parkinson's disease)
- 332.1 Secondary parkinsonism
- 333.1 Essential and other specified forms of tremor
- 333.6 Idiopathic torsion dystonia
- 333.7 Symptomatic torsion dystonia
- 333.83 Spasmodic torticollis

REFERENCES

1. Franzini A, Ferroli P, Leone M et al. Hypothalamic deep brain stimulation for the treatment of chronic cluster headaches: a series report. *Neuromodulation* 2004; 7(1):1-8.
2. Franzini A, Ferroli P, Leone M et al. Stimulation of the posterior hypothalamus for treatment of chronic intractable cluster headaches: first reported series. *Neurosurgery* 2003; 52(5):1095-101.
3. Halbig TD, Gruber D, Kopp UA et al. Pallidal stimulation in dystonia: effects on cognition, mood, and quality of life. *J Neurol Neurosurg Psychiatry* 2005; 76(12):1713-6.
4. Leone M, May A, Franzini A et al. Deep brain stimulation for intractable chronic cluster headache: proposals for patient selection. *Cephalalgia* 2004; 24(11):934-7.
5. Vidailhet M, Vercueil L, Houeto JL et al. Bilateral deep-brain stimulation of the globus pallidus in primary generalized dystonia. *N Engl J Med* 2005; 352(5):459-67.

Government Agency; Medical Society; and Other Authoritative Publications

1. 1997 TEC Assessment; Tab 20
2. 2001 TEC Assessment. Bilateral deep brain stimulation of the subthalamic nucleus or the globus pallidus interna for treatment of advanced Parkinson's disease.
3. Blue Cross and Blue Shield of Kansas Behavioral Health Liaison Committee, June 6, 2006 (see Blue Cross and Blue Shield of Kansas Newsletter, Blue Shield Report. MAC-02-06).
4. Blue Cross and Blue Shield of Kansas Medical Advisory Committee meeting, August 6, 2006 (see Blue Cross and Blue Shield of Kansas Newsletter, Blue Shield Report. MAC-02-06).

5. Blue Cross and Blue Shield Association, Deep Brain Stimulation, policy number 7.01.63, pages 1-6, 1:2006.
6. FDA Summary of Safety and Probable Benefit. Medtronic Activa Dystonia Therapy