Deep Brain Stimulation Program

Deep brain stimulation is designed to help patients maintain quality of life and avoid debilitating symptoms through use of a surgically implanted, adjustable brain pacemaker.

**Deep brain stimulation**

Deep brain stimulation (DBS) addresses certain neurological symptoms that result in movement disorders – mostly commonly symptoms of Parkinson’s Disease, such as:

- Tremor
- Rigidity/stiffness
- Slowed movement

A neurostimulator – a battery-operated device similar to a heart pacemaker – delivers constant electrical stimulation to specific targets in the brain. Impulses from the device block electrical signals that cause abnormal movements, giving patients the benefit of treatment without the fluctuating symptoms and adverse side effects of medication.

Depending on symptoms, patients may have the stimulator implanted on one or both sides of the brain to help maintain motor function and improve quality of life. It is important to note that DBS suppresses symptoms; it does not alter the disease path.

**Approved conditions and use**

DBS is currently FDA-approved to treat symptoms of Parkinson’s Disease and essential tremor. Dystonia and obsessive compulsive disorder (OCD) are also approved under an FDA Humanitarian Device Exemption. Studies on the effectiveness of DBS in minimizing symptoms of other neurological and psychiatric disorders are underway.

DBS is not suitable for patients with dementia or unresolved psychotic symptoms, as it may produce a worsening of cognitive symptoms. Patients with uncontrolled high blood pressure, bleeding tendencies, severe brain atrophy or MRI evidence of large vessel ischemia are not candidates for DBS as these conditions may increase the risk of stroke or other cerebrovascular accident.

**Minimally invasive procedure**

Surgery for DBS uses the latest minimally invasive techniques, which can reduce the risk of complications, facilitate faster recovery times and result in less discomfort compared to traditional open surgery.

The three-part DBS system includes:

- One or two leads (electrodes), implanted in the brain
- One or two neurostimulators, implanted beneath the collarbone
- Connectors, or extensions, threaded under the skin to connect the leads to the neurostimulators

Patients are awake during placement of the leads, while battery implantation occurs under general anesthesia as an outpatient procedure.

**Precautions**

Though patient pre-screening helps minimize risks, it is important to note that there are some risks and side effects associated with DBS. These include:

- Surgical risks, such as pain, bleeding or infection
- Neurobehavioral side effects, such as depression, anxiety and confusion
- Device-related complications

Many stimulation-related side effects can be successfully managed by adjusting the stimulation settings.

**Nationally recognized expertise**


The Departments of Neurology and Neurological Surgery at UC Davis Health System are home to internationally recognized experts in neurological disorders – including a highly experienced, multidisciplinary team of physicians, nurses and researchers – who utilize state-of-the-art technologies combined with compassionate care to provide the most current and effective treatments for patients.
Deep Brain Stimulation Program

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For more information

PROVIDERS
To refer a patient for consultation, please contact our physician referral center at 800-4-UCDAVIS (800-482-3284) or submit online at healthsystem.ucdavis.edu/referrals.

PATIENTS
For more information, please have your neurologist or primary care provider submit a referral through the number or website above, or you may call 916-734-6797 for assistance. You can also visit our website at deepbrainstimulation.ucdavis.edu.