WHAT IS DBS?

The goal of DBS is to regulate the electrical activity in certain brain areas in order to improve the symptoms of your movement disorder. DBS is a type of brain surgery where wires are connected from a pacemaker-like battery pack, placed in your chest, to specific areas in your brain.

Currently, DBS is approved by the US Food and Drug Administration (FDA) for the treatment of medically refractory essential tremor (ET), Parkinson's disease (PD), dystonia and obsessive compulsive disorder. DBS is not a cure for your movement disorder, but it is intended to decrease many of the symptoms that have not adequately responded to medications.

HOW IS DBS PERFORMED?

Small electrodes (wires) are placed deep within certain structures in the brain which are then connected to a pacemaker-like battery pack placed in your chest. The entire system is located under your skin.

WHAT ARE THE RISKS OF DBS?

The most serious risk of DBS is bleeding into the brain causing a stroke or death. Stroke occurs in under one percent of patients. Other rare, less serious complications include infection, malfunction of the stimulator and unintended movement of the implant. The DBS system may need replacement if these problems occur.

Movement Disorders Program

The Vanderbilt Clinic (TVC)
1301 Medical Center Drive, Suite 3930
Nashville, TN 37232

Vanderbilt Neurosurgery Clinic
Village @ Vanderbilt, 1st Floor
1500 21st Avenue, Suite 1506
Nashville, TN 37212

(615) 2000-DBS
VanderbiltDBS.com

VANDERBILT UNIVERSITY
MEDICAL CENTER

775-2473 10/15

Deep Brain Stimulation

Movement Disorders Program

VANDERBILT UNIVERSITY
MEDICAL CENTER

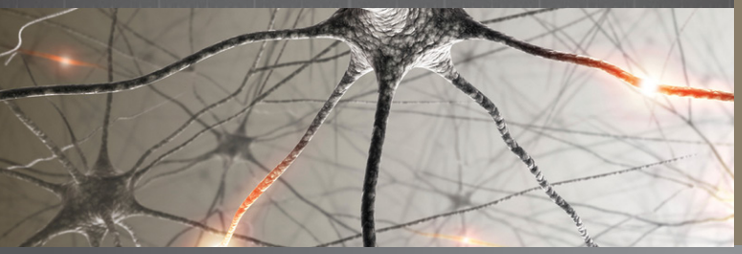
4 requirements for Deep Brain Stimulation:

1 You have taken a reasonable course of medication as determined by your movement disorder neurologist.

2 Despite medications, you are significantly disabled by your disorder but in good health for surgery.

3 You do not have a medical condition that requires routine MRI scans of the body, as MRI interferes with DBS. CT scans are less affected by DBS.

4 You are willing and able to participate in the programming of the device. You will need to travel to programming sessions and to provide feedback.



BEFORE SURGERY

Completed over several separate visits over several months

Neurologist — Movement disorders evaluation

Functional assessment of symptoms associated with your disease

Neuropsychological testing

Neurosurgical evaluation

DBS case conference

Insurance approval

Anesthesia evaluation

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SURGERY

Stage 1 — MRI with bone markers - OUTPATIENT

Stage 2 A/B — awake implantation of DBS electrodes, both sides if applicable - INPATIENT

Stage 3 — implantation of battery pack - OUTPATIENT

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AFTER SURGERY

Programming

Check of the surgical wounds

CT scan of brain

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FOLLOW-UP

Formal evaluation of symptom response to DBS at 6 months then yearly

Includes neuropsychological testing and repeating the functional assessment of symptoms

Reprogramming of the DBS system

Vanderbilt Movement Disorders

What is the surgical process?

PRE-SURGICAL WORK UP

If you meet the requirements as determined by your initial neurological evaluation, you will then undergo neuropsychological testing to assess your memory and mood, as well as a motor skills assessment. These will occur at a separate visit. Results will be evaluated by the DBS team.

SURGERY STAGES:

Typically, each stage (1-3) will occur 1 week apart.

STAGE 1

For surgical planning, bone markers (small screws) are placed in your skull, followed by a special MRI and/or CT scan on the same day.

STAGE 2

The DBS (brain) electrodes are placed at the optimal target. You will be awake and off most medications during this procedure so your symptoms will not be masked by sleep. You will stay overnight.

STAGE 3

DBS battery implant and connection to the brain wire. Typically, it is placed below the collar bone, just like a heart pacemaker. (Same day procedure)

STAGE 4

The initial programming of your stimulators will occur 4-6 weeks after Stage 2.

STAGE 5

You will still be seen periodically to adjust your stimulator for the best symptom control. You will also undergo a more formalized evaluation similar to your pre-operative evaluation at 6 months then yearly afterwards to follow your progress.