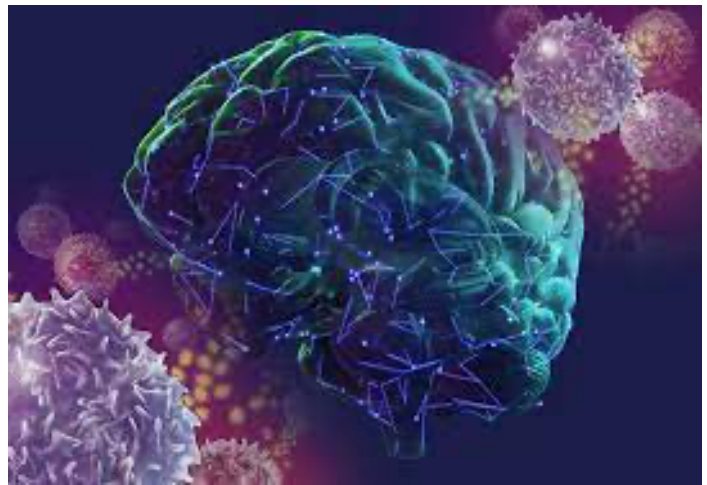
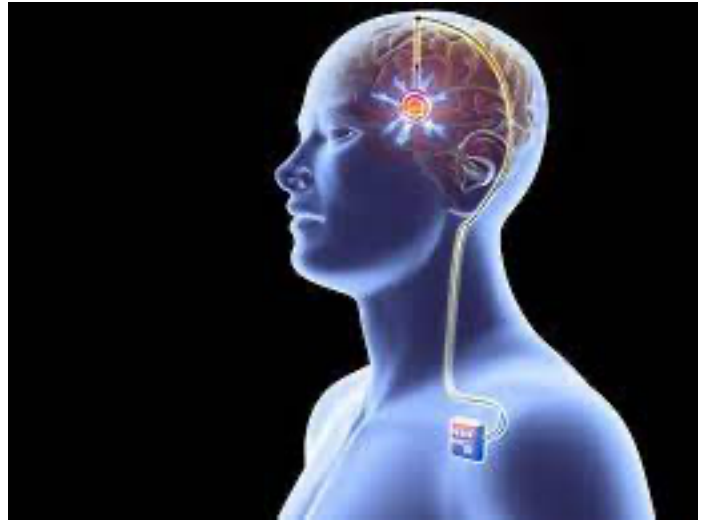


# Deep Brain Stimulation Program



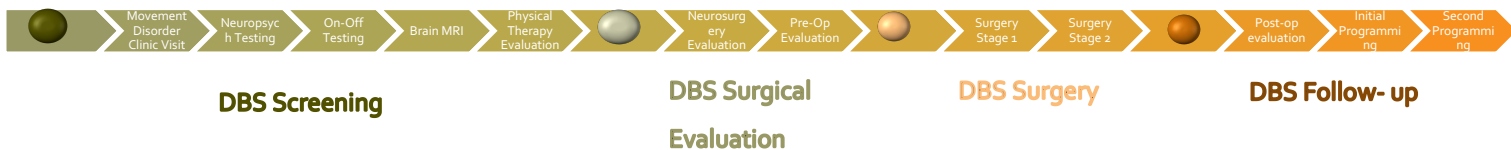
## Timeline

Deep Brain Stimulation involves four major stages. Use the link below to navigate between stages:

1. DBS Screening
2. DBS pre-surgical evaluation
3. DBS Surgery
4. Post-DBS surgery and Programming

Each step is important and can't be eliminated to allow for a smooth process and optimal patient preparation and selection.

# DBS Screening

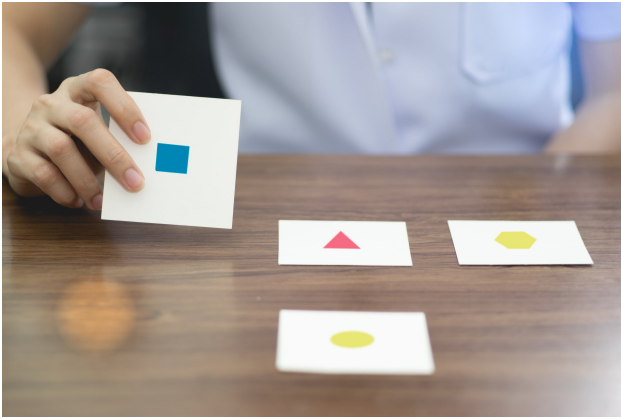


Deep Brain Stimulation surgery is a surgical procedure that treats tremors and other motor symptoms not treated well with medications. DBS leads to improved quality of life. Not all patients are candidates for this treatment. A thorough screening by a Neurologist, through careful evaluation of patients before surgery is important to ensure the ultimate benefit from this complicated procedure.

The DBS screening process starts with a visit to a movement disorder neurologist with DBS expertise. The Movement Disorder Specialist will decide if the patient is a good DBS candidate and schedule a screening process that includes a Neuropsychiatric testing, on-off testing when appropriate, Physical Therapy evaluation and a Brain MRI. The Movement Disorder Specialist along with the Deep Brain Stimulation team will oversee the entire DBS process, therapy goals, the surgery process and more.

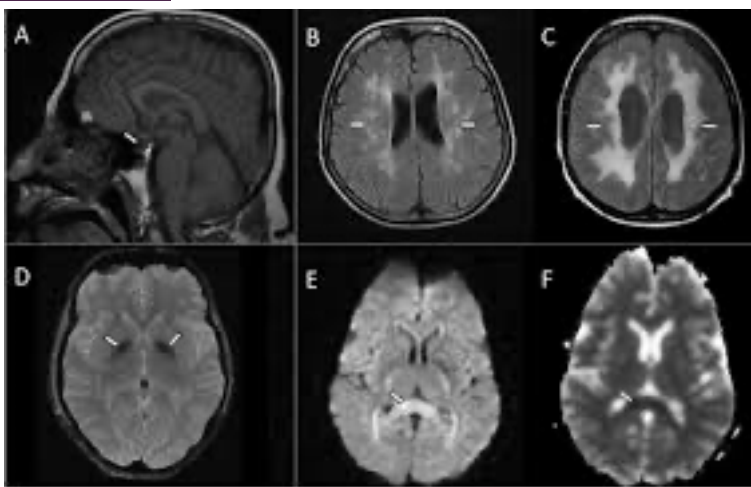
## Neuropsychiatric Testing

This is an important step to evaluate the patients cognitive and mood state.



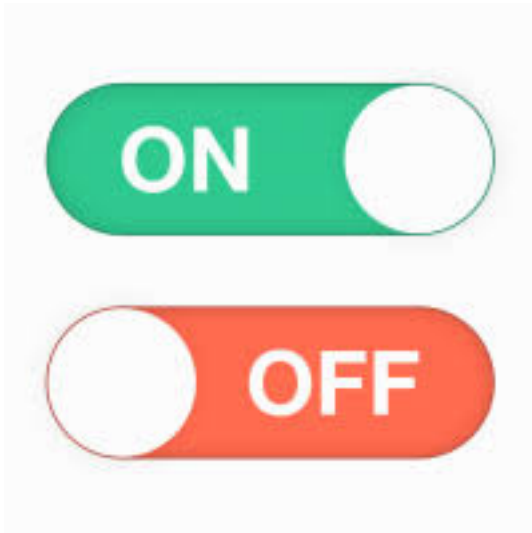
A neuropsychological evaluation assesses memory, concentration, dexterity, executive function, and other cognitive processes. It is an important method of evaluating the impact of neurological disorders such as essential tremor, dystonia, and Parkinson's disease on cognitive abilities. It is also a helpful marker of overall brain health as it demonstrates how the brain is functioning. These evaluations help inform members of the DBS treatment team, specifically neurology and neurosurgery, on proceeding with the surgery and to help plan where the leads will be placed. An evaluation is also recommended by the DBS treatment team one year after surgery to help patients and their medical providers clarify cognitive abilities over time. An additional aspect of neuropsychological evaluations is to evaluate current mood symptoms (e.g., depression, anxiety). If present, recommendations can be made for treatment that will provide improvement and quality of life in general.

## Brain MRI



An MRI scan of the brain is used to identify any potential problems that may interfere with performing DBS surgery. Patients who have had a brain MRI done within the last six months at

an outside facility can bring/send images on a disk to be uploaded into the UT Health San Antonio system instead of repeating the scan (contact DBS coordinator to arrange).



### On-Off Testing

Once the Neuropsychological testing and Brain MRI has been completed and is favorable for DBS, you will proceed to complete an on-off testing visit which will be scheduled by the DBS coordinator. This visit is to confirm that motor symptoms have a response to Levodopa of over 30%. For this visit the patient will need to prepare as follows:

- Be off any Parkinson's (PD) medications after 9 pm the day before this appointment (in other words, not take any PD medications for at least 12 hours prior to the exam).
- Patients need to bring their PD medications to the clinic so they can be evaluated both off and on medications (exam is repeated after medications are taken and have started working).

Parkinson's (PD) medications include carbidopa/levodopa (Sinemet, Sinemet CR, Rytary, Duopa, Stalevo), pramipexole (Mirapex), ropinirole (Requip), apomorphine (Apokyn), rotigotine (Neupro patch), amantadine (Symmetrel), rasagiline (Azilect), selegiline (Eldepryl), entacapone (Comtan), trihexyphenidyl (Artane).

Long-acting pramipexole (Mirapex ER) and long-acting ropinirole (Requip XR) should be held for 24 hours prior to the on-off visit, meaning they should NOT be taken the night before the exam. All other Parkinson's medications should be held for 12 hours prior to exam; the Neupro patch should be removed at 9 pm. Other medications, should be taken as prescribed. A light breakfast without protein (no meat, eggs, milk or cheese) is recommended so that levodopa absorbs faster in the clinic.

During the visit, each patient will be evaluated by our expert clinicians. A clinical exam will be done and then repeated after 150% of home dose of Levodopa.

The examination before and after medication will be videotaped.

This visit lasts approximately 2-3 hours

Patients with ESSENTIAL TREMOR can skip this visit.

## **Physical Therapy Evaluation**

In the physical therapy evaluation your strength, balance, fine motor skills, coordination, functional mobility, and gait will be assessed. The information gathered during the physical therapy evaluation will serve as a baseline measure for future evaluations. The physical therapy evaluation will also be reviewed in a DBS consensus meeting to determine candidacy for the DBS procedure.

Evaluation Time: 45 minutes - 1 hour

Location: MARC Building 3<sup>rd</sup> floor Suite 3A (at the end of the building to the left when you get out of the elevators)

Clinic Phone #: (210) 450-9680

Patients with ESSENTIAL TREMOR can skip this visit.

After completion of these steps, our team of experts will meet to discuss each patient's candidacy for DBS at the multidisciplinary DBS team meeting. Our team includes our movement disorders specialists, PAs, NPs, Neurosurgeon, Neurological and Neurosurgical DBS coordinators, Research coordinator, Physical Therapist and Neuropsychologist. During this meeting we will also discuss anatomical brain target and device selection based on the overall evaluation, severity of symptoms and disease.

## **Pre-DBS Surgery**

## DBS Surgical Evaluation Visit

Our DBS surgeon Dr. Papanastassiou will meet with the patient and go over the different types of DBS placement procedures and discuss the surgical plan and review any medication or medical conditions that may be controlled or treated before the day of surgery.

## Pre-Operative Visit

### DBS Surgery

DBS Surgery Part 1: Brain Lead Placement

DBS Surgery Part 2: Battery Placement

DBS Follow Up

Wound Check

## Initial Programming

Approximately four weeks after the first part of surgery, DBS device will be turned on for the first time by our DBS trained movement disorders physicians. Prior to that, the patients will take their medication with no changes. For the initial programming visit, the patients will not take Parkinson medication for twelve hours. We will then turn on the device and choose the best DBS settings based on the patient's symptom response off Parkinson medication. Subsequently the patients will proceed to take their medication and adjustments will be made as needed.

This visit may last up to 3 hours.

Location:

Movement Disorders Clinic at the MARC Building with our Movement Disorders Specialists,

Dr. Coss, Dr. Horn, Dr. Vaou

## Follow-up Programming

Follow-up programming will be scheduled one to four weeks after initial programming. For this visit, the patient will not stop your Parkinson medication. Frequent visits may be needed for the next three to six months depending on the time of symptom optimization. During this time, medication will be decreased and adjusted as tolerated.

This visit may last for 1 hour.

Location:

Movement Disorders Clinic at the MARC Building with our Movement Disorders Specialists,

Dr. Coss, Dr. Horn, Dr. Vaou