

## Deep Brain Stimulators

### What is a deep brain stimulator (DBS)?

The device consists of an electrode(s) and a battery. The electrode is placed into the brain through an incision in the skull. It is attached to a battery placed in the chest just below the collar bone. The entire system is placed under the skin. Depending on your body build, there may be a small bulge under the skin where the battery is placed.

DBS is used to treat:

- Parkinson's disease
- Essential tremor
- Dystonia
- Certain other medical conditions

### How do I know if I am a good candidate for DBS?

You will meet with members of the movement disorders team. This team includes neurology, neurosurgery, physical therapy, and neuropsychology. They will review your condition and let you know if DBS will help you.

### How do I get ready for this surgery?

You will have a physical exam within 30 days before your surgery. This can take place at the hospital or with your primary care provider. This exam is to make sure you are healthy and ready for surgery and review your current medicines.

If you wish to talk with someone who has been through this surgery, let us know. We will give your name and phone number to a patient who has had DBS.

You may be asked to take part in research studies. They will explain this to you during your visit. You can choose to take part or not.

Plan to shampoo with an antibacterial soap the night before and the morning of surgery. This decreases the risk of infection.

**Do not** eat or drink after midnight.

You will get a letter in the mail, with the dates of your surgeries. It will also tell you which medicines to take before your surgeries.

Stop taking aspirin and products which contain ibuprofen (such as ibuprofen, Advil<sup>®</sup>, and Motrin<sup>®</sup>) one week before your surgery date. Please refer to your booklet, "Having Surgery at UW Hospital" for instructions.

### What happens during surgery?

The DBS surgery is done awake or asleep depending on your specific case. The surgeon can review with you which one is right for you.

### If you are awake for surgery:

1. Four small incisions are made on your scalp and bone. Markers or screws are placed in your skull to help the surgeon plan for your surgery. We ask that you have your entire head shaved prior to this surgery. Please use clippers at zero guard. Do not use a razor as that could nick or cut the skin. You will have IV sedation for this procedure. You will have a brain CT after the markers are in place, while sedated.
2. During the second surgery (10 days later), you will be asleep. In the operating room (OR), your head will be cleaned with an antiseptic soap. Drapes will be put on your head to

keep the area sterile. You will wake up and then the electrode(s) is placed deep in your brain. The brain itself does not have any pain sensors and you will not feel anything. During this time, the doctor and staff will ask you questions to make certain the electrode is in the right place.

You will be given more IV sedation when it is time to close the incision so you will not feel any pain. If you feel any pain during this time, tell staff and they can help make you more comfortable.

3. During the third step, the battery will be placed in your chest. You will be asleep for this and it will take 1-2 hours. First, an incision will be made in your chest. Then, the incision behind your ear will be re-opened. The doctor will insert the battery into your chest, bring the wire behind your ear down your neck to your chest and connect the two devices.

**If you are asleep surgery:** All the steps are done the same day. The surgeon will use MRI guidance for lead placement, so you will not need bone markers. You will have the electrodes and leads placed the same day as the battery.

### **What happens after surgery?**

You will most likely go home the day after the surgery. You will need someone to drive you home and stay with you for the first 24-48 hours. If you are having electrodes placed on both sides of your brain, this may be done at 2 different times.

### **Activity**

You may begin walking as soon as you feel that you can. Walk often, and have someone help you. Build your strength by taking frequent, short walks. Going for walks can be as simple as walking laps around a kitchen table, or up and down a hallway in your home. It is very important to move often, and increase as you are able. If you were in an exercise program before surgery, you can start again in 6 weeks.

### **Restrictions**

Until you see your doctor at your follow-up visit:

- **No** heavy lifting (no more than a gallon of milk), sports, running, etc.
- **Do not** use heavy or high-speed machinery.
- **Do not** climb a ladder or stand on high places.
- **No** swimming, hot tubs, or tub baths.

### **Household Chores**

You will need to rely on friends/family to help with household chores. Slowly increase the amount you do. You have a higher risk of falling when you are overtired or in pain. Being on pain medicine will also increase your fall risk.

### **Driving/Travel**

**Do not** drive until cleared by your doctor. Avoid flying for 4 weeks. If you plan air travel within six weeks, please discuss this with your doctor.

### **Work**

You and your doctor will decide when you are ready to go back to work. Most people need 4-6 weeks to heal. This varies based on the type of surgery you had, how you are feeling and the type of work you do.

## **Incision Care**

Please follow the instructions in your discharge packet for incision care. Look at your incision daily. Keep it clean and dry.

When it is OK to get your incision wet, please use a mild shampoo such as baby shampoo. Do not rub the incision. Pat dry.

Avoid using a conditioner, dandruff shampoo, or any combined shampoo/conditioner products for 3 months, even after your sutures are removed. These products can slow healing by causing a build-up of dry skin.

If you are not able to shower, clean the incision daily with mild soap and water. Do not apply creams.

Do not get a perm or color your hair. Protect the area from sun and cold.

Some incisions have sutures that will dissolve on their own. These may look like clear fishing line. They will slowly fall out in about 2 – 3 weeks. This incision requires the same care as described above.

You may have numbness, itching or slight scabbing at the site. This is normal. It may take months for the numbness to go away.

## **Signs of Infection**

- Increased redness, swelling
- Drainage
- Marked increase in pain
- Fever greater than 100°F

## **Pain**

As your pain improves, decrease the amount of opioid pain medicine you take.

## **When will the DBS be turned on?**

You will be seen by the DBS programmer in the neurology clinic one month after your electrode is placed. They will work closely with you to assess how you respond to the DBS. It may take several programming visits over a few months before you notice your symptoms have improved.

You will be given a patient programmer at the time of your battery placement. It is the size of a small remote control. This allows you to turn the battery on and off if needed. The DBS team may also allow you to make minor changes to the program.

## **Will my medicines be changed after surgery?**

Your neurologist, DBS programmer, and clinic nurse will work with you closely to decide what changes need to be made in your medicines. You may be able to decrease the amount of medicine that you take. This will depend on your symptoms and how much they improve with DBS.

You will need to take antibiotics before having any dental work done for the first six months after your DBS is placed. Tell your dentist that you have an implanted device.

## **Are there things I should not do after I have the DBS?**

There are some precautions you will need to take after DBS placement.

**Imaging:** The new DBS systems allow you to have an MRI or CT scan. You may also have an ECG. The battery will need to be turned off but will be turned right back on. You will not need to turn off DBS for x-rays.

**Security devices:** Be cautious with any security screening and scanning devices. It is best that you avoid being scanned or "wanded." You may need to be hand patted by security instead.

**Surgeries:** Surgery or other procedures will need the DBS to be turned off. You will be shown how this is done using your patient programmer. You will need to check with your neurosurgeon before the procedure, to see if you need antibiotics.

**How often does my battery need to be replaced?**

This is a short surgery that does not require invasive brain surgery. You come to the hospital and usually go home later the same day.

- Non-rechargeable batteries will need to be replaced every 2-5 years.
- Rechargeable batteries last 9-15 years.

**When to Call**

Call your **neurosurgeon** if you have:

- Severe or increasing headaches
- Changes in your vision
- Constant nausea or vomiting
- Increased sleepiness
- Change in behavior
- Problems with walking or balance
- Any drainage from your incision or any signs of infection

Call your **neurologist** if you have:

- Increased involuntary movements (dyskinesia)
- Hallucinations
- Confusion or memory loss
- Increased tremor
- Decreased balance or increase in falls

**Who to Call**

Neurosurgery Clinic  
**(608) 263-7502**

Neurology Clinic  
**(608) 263-5442**

The toll-free number is **1-800-323-8942**.

Your health care team may have given you this information as part of your care. If so, please use it and call if you have any questions. If this information was not given to you as part of your care, please check with your doctor. This is not medical advice. This is not to be used for diagnosis or treatment of any medical condition. Because each person's health needs are different, you should talk with your doctor or others on your health care team when using this information. If you have an emergency, please call 911. Copyright © 1/2022. University of Wisconsin Hospitals and Clinics Authority. All rights reserved. Produced by the Department of Nursing. HF#5858.