

Deep Brain Stimulation (DBS)

QE II

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Deep Brain Stimulation (DBS)

What is Deep Brain Stimulation (DBS)?

- DBS is a type of surgery used to help treat different conditions, like:
 - › Essential tremor (a movement disorder)
 - › Dystonia (a movement disorder)
 - › Parkinson's disease and some other neurological (brain) disorders
- It works by sending tiny electrical impulses through an electrode (wire) in your brain.

Is DBS right for me?

- Your health care team will do a full review of your health to decide if DBS surgery is right for you.
- First, you will have a meeting with your health care team. Your team includes:
 - › Your neurologist (a doctor who specializes in brain conditions)
 - › A neurosurgeon (a doctor who specializes in brain surgery)
 - › Nurses

Residents (specialists in training) and students may also be at this meeting.

- During the meeting, your health care team will:
 - › Do a neurological exam
 - › Do your full health review
 - › Review your current medications
- The meeting takes about 1 hour. Bring a support person with you to this meeting. They can help you talk with the team about your questions and concerns.
- At this time, your health care team may decide more tests are needed. These tests can include:
 - › An MRI (magnetic resonance imaging) test.
 - › A neuropsychological exam. This exam may last for most of the day. You will meet with a neuropsychologist (a mental health provider who specializes in brain conditions) to review your cognitive (thinking) abilities.
 - › A video test. Nurses from the Neuromodulation Program will take a short video of you to check your symptoms while you do things like talk, walk, and write. If you have Parkinson's disease, you will be tested both on and off your medications.

Bring a support person with you to any test you have.

- After the results from these tests are reviewed, your health care team will decide if DBS surgery is right for you. This may take up to 6 months.
- If your health care team decides that DBS surgery is right for you, you will meet with the team again to sign a consent form.

Surgery

There are 3 steps of DBS surgery.

Step 1:

- During this step, you will have:
 - › Local anesthesia (freezing)
 - or**
 - › General anesthesia (medication to put you to sleep during surgery)

Your surgeon will talk with you about which anesthesia is right for you.

- You will be taken to the Operating Room (O.R.).

- Your neurosurgeon will put a stereotactic frame (a special metal frame) around your head. The frame is held in place with pins.
 - › You will be given local anesthesia. You will be awake, but will feel only a small amount pain.
 - › This frame will stay on until 1 or both electrodes are in place.
- Once the frame is in place, you will have a radiological scan (also called an O-arm or CT scan). This will help your neurosurgeon find the exact area of your brain, called the target area, for stimulation. You may be taken to the X-ray Department for this scan, or it may be done in the O.R.
- You will get more local anesthetic before your neurosurgeon drills a small hole (called a ‘burr’ hole) in your skull.
- Then, your neurosurgeon will place test electrodes to record your brain activity. You will hear sounds made by the activity of your brain cells. These electrodes are used to do a test stimulation.
- After turning off the test stimulation, you may have:
 - › Relief of your symptoms
 - or**
 - › Side effects (like tingling, twitching) of the stimulation

Step 2:

- In step 2, the neurosurgeon will put an internal (inside) pulse generator (IPG) and extension wires in place.
- If you were awake for step 1 of your surgery, you will have general anesthetic to put you to sleep for step 2.
- The neurosurgeon will make 2 small incisions (cuts) behind your ear and near your collarbone. The incisions are usually on your left side.
- They will place the pulse generator in the incision near your collarbone. Then, they will place the extension wires under the skin of your scalp and neck. The wires run behind your ear and connect to the pulse generator.

After your surgery

- After your surgery, you will be taken to the recovery area. A nurse will check on you every 15 minutes.
- Once you are fully awake and feeling OK, you will be taken to the IMCU (Intermediate Care Unit) on the Neurosurgery unit (Unit 7.3).
- You will stay overnight in the IMCU. Usually, people are ready to leave the IMCU and move to the main part of Unit 7.3 the next day. Expect to stay 3 to 5 days in the hospital.

- You will have a bump under your skin just below your collarbone where the pulse generator is placed. You may also have some small bumps on your head.
- The pulse generator and wires cannot be seen outside your body.
- Your health care team will visit you before you go home.

When you go home

- Your health care team will give you instructions about how to shower and care for your incision (cut) at home.

For the first 6 weeks after your surgery:

- › **Do not lift anything over 10 pounds.**
- › **Do not drive.** Talk to your neurosurgeon about driving at your follow-up appointment.
- Over time, you can go back to your usual activities.
- You may have a headache from the stereotactic frame. **Call your primary health care provider right away if you have a severe (very bad) headache.**
- The Neuromodulation Program nurses will follow you closely after surgery and while you have your DBS.

**Call 911 or go to the nearest
Emergency Department right away if
you have any of the following:**

- › Severe headache
- › Fever (temperature above 38 °C or 100.4 °F)
- › Itching or hives
- › Muscle weakness throughout your body
- › Nausea (feeling sick to your stomach)
- › Vomiting (throwing up)
- › Numbness or tingling on 1 side of your body
- › Pain
- › Redness, swelling, or irritation at any of your incisions
- › Trouble talking
- › Trouble seeing or other vision problems

Using your DBS system

- Your pulse generator is usually not turned on while you are in the hospital after your surgery.
- You will have an appointment with your neurosurgeon at the Neuroscience Clinic about 4 weeks after your surgery. Your DBS system will be turned on at this appointment.
- When your DBS system is turned on, you will use a small remote control to:
 - › change the strength of the electrical current.
 - › turn the electrical current on and off.
- We will teach you how to use the remote at your Neuroscience Clinic appointment.
- The pulse generator battery lasts about 3 to 5 years. You will need surgery again to replace the battery when it wears out.
- Sometimes, a rechargeable pulse generator is implanted. If you and your neurosurgeon decide that a rechargeable generator is right for you, they will talk with you about this before surgery.

Your DBS card

- After your surgery, your health care team will give you a temporary card with information about your DBS system.
- The company that makes your DBS system will mail you a permanent card in about 6 weeks. The permanent card will have:
 - › Your name
 - › The make and model of your DBS system

Keep this card in your wallet at all times.

If you are ever admitted to the hospital or an Emergency Department, show or tell the health care team your card. This is very important.

What are your questions?

Please ask a member of your health care team. We are here to help you.

Living with your DBS system

- You may choose to wear a MedicAlert® bracelet or tag if you use a DBS system, but you do not have to.
- Stay away from large magnets and security scanners. These are common in airports. These magnets may turn your system off or on.
 - › **Show your implantation card at airport security and ask for a “pat down”.** Airports are familiar with these types of devices and will have steps in place. Give yourself extra time at security when travelling.
- **Do not** get a treatment called diathermy (a type of ultrasound used for pain relief and healing at physiotherapy, chiropractic, and some dental offices).



If you are ever admitted to a hospital or an Emergency Department, tell the health care team that you have a DBS system. This is very important.

Notes:

This pamphlet is for educational purposes only. It is not intended to replace the advice or professional judgment of a health care provider. The information may not apply to all situations. If you have any questions, please ask your health care provider.

Find this pamphlet and all our patient resources here:
<https://library.nshealth.ca/Patients-Guides>

Connect with a registered nurse in Nova Scotia any time:
Call 811 or visit: <https://811.novascotia.ca>

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