



DBS SURGERY

PREPARING FOR DBS:

A Comprehensive Guide



WELCOME TO ABBOTT DBS

We're honored to accompany you on your DBS therapy journey and are dedicated to providing the support and information you need.

We've worked closely with people from the Parkinson's and essential tremor communities, movement disorder specialists, neurosurgeons, and people who have received DBS to create this surgery guide for you and your loved ones. **The goal is to provide you with the necessary information for a smooth procedure and recovery.**



In this brochure, you'll find everything you need to prepare for your upcoming procedure and beyond.

We'll guide you through each stage

From understanding what to expect on surgery day, to navigating your recovery, and embracing life with your new device.

You'll discover insights into the innovative technology behind our DBS systems, hear inspiring stories from patients who've walked this path before, and learn how to make the most of your therapy for optimal results.

Welcome to the Abbott family—we're excited to embark on this journey with you!



Clive C.
Abbott DBS Recipient

STEPS FOR SUCCESS

As you embark on your DBS therapy journey, it's natural to experience some nervousness or anxiety while preparing for surgery.

Here are some tips that can help you prepare for your procedure:

- 1 Involve a care partner:** Discuss your DBS procedure with a trusted spouse, family member, or close friend.
- 2 Maintain open communication:** Keep your care partner updated as you prepare for the procedure. Ask them to join you at your doctors appointments to provide valuable support and help you absorb important information.
- 3 Connect with others:** Your doctor may suggest connecting with others who have DBS therapy. This can provide a first-hand experience on what it is like before and after.
- 4 Talk to your medical team:** This may include your movement disorder specialist, neurosurgeon, and staff members. The team is there to ensure you have a safe and successful procedure.



SCAN THE QR CODE

To speak with a DBS ambassador about their surgery experience.

Key Details to Discuss

Once you and your care team determine DBS is right for you, they will begin discussing details with you including:

- Expectations of DBS therapy
- Type of DBS battery (rechargeable or non-rechargeable)
- Target region within the brain
- Where to place the battery
- How the procedure will be performed
- Which medications to adjust

What to Pack Before Surgery

- 1** Important documents: ID, insurance card(s), and any relevant medical records.
- 2** Medications in their original labeled bottles, with a list of names, dosages, and times taken. Speak with your doctor about how long you'll be in the hospital to be sure you bring enough.
- 3** Comfortable clothes (opt for button-down shirts to avoid pulling clothes over your head).
- 4** Essential toiletries.
- 5** Name(s) and phone number(s) of family/friends to contact, if needed.
- 6** Personal items such as magazines or books.

Helpful Tip

If you live far away from the hospital, consider staying at a nearby hotel or with loved ones the night before surgery.

UNDERSTANDING

THE PROCEDURE

Lead Placement

The first stage of your DBS surgery involves placing thin wires, called leads, which deliver the stimulation to the specific areas of your brain to help manage your symptoms. Depending on the hospital, this procedure may be performed while you are awake, with sedation, or asleep under general anesthesia.



Your surgeon will position a temporary frame on your head to precisely guide the placement of the leads into targeted areas of your brain.



Prior to surgery, you will undergo an MRI and/or CT scan to help your surgeon plan the exact placement of the leads. These images provide a detailed roadmap of your brain, ensuring accurate targeting.

Battery Placement

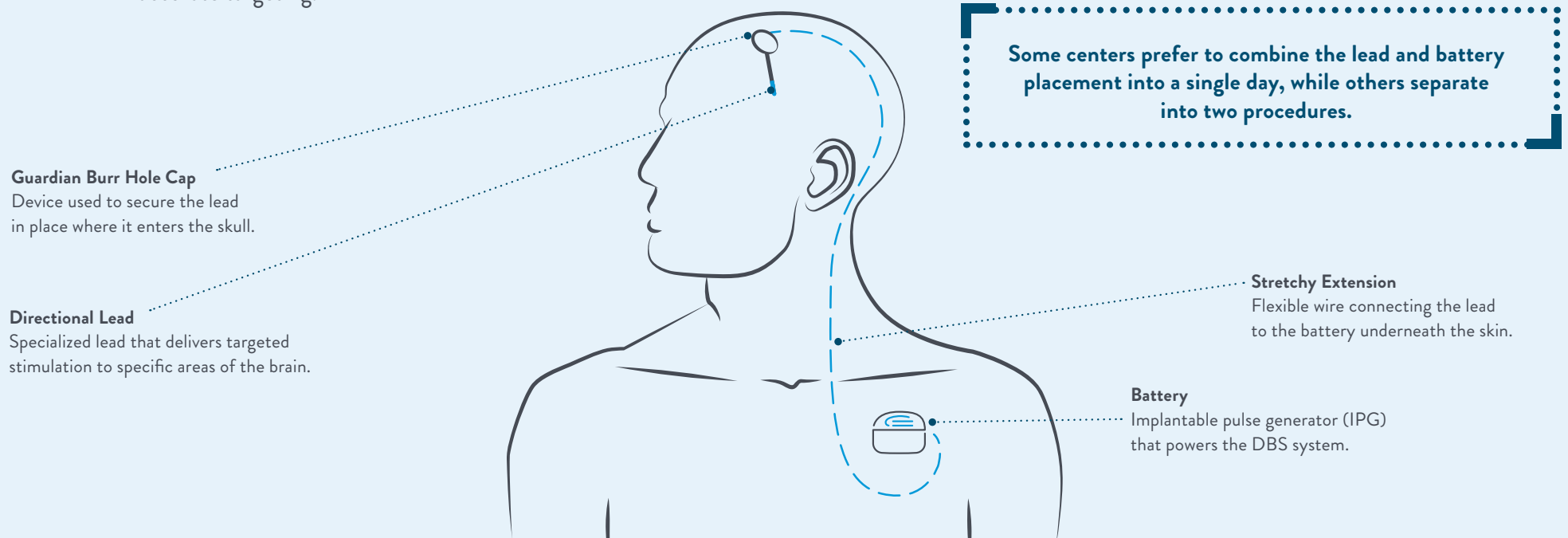
The second stage of your DBS surgery involves implanting a battery that functions like a pacemaker for your brain, sending stimulation through the previously implanted leads. The procedure is performed under general anesthesia as an outpatient procedure. Depending on the hospital, this procedure may be performed while you are awake, with sedation, or asleep under general anesthesia.



The battery placement is performed under general anesthesia as an out patient procedure, and is typically performed one-to-three weeks after lead placement.



The battery is typically placed underneath the skin, below the collarbone, with leads connected to it through an extension wire that runs beneath the skin.



Programming Your DBS System

A few weeks after battery placement, you'll have your first programming session. Using an Apple[†] iPad[‡], your clinician will program your DBS system and adjust the settings to find optimal stimulation levels. This may be done on and off medication.



You may be asked to perform simple tasks like tapping your fingers, or walking.

Abbott will provide you with a mobile device, or you can use your personal Apple[†] mobile device* that allows you to:

- Meet virtually with your doctor**
- Turn stimulation on/off
- Adjust stimulation settings
- Place your battery in MRI or surgery mode

If your battery is rechargeable, you can also:

- Check remaining battery life
- Adjust charging speed
- Connect with your charger



Appointments From the Comfort of Your Home

With a limited number of specialized DBS centers, seeing your doctor regularly may be challenging. Depending on where you are located, traveling for care may be associated with additional costs such as gas, parking, lodging, and food.

NeuroSphere[™] Virtual Clinic is **the only DBS system with remote programming**, allowing you to communicate with your doctor and receive setting adjustments from the comfort of your home.**

INITIAL STUDIES SHOW NEUROSPHERE[™] VIRTUAL CLINIC CAN:



Shorten time to patient-perceived benefit and therapy optimization.^{1***}



Save users and their care partners time and money.^{2†}



9 OUT OF 10 PATIENTS²

- ✓ Agreed NeuroSphere[™] Virtual Clinic improved their access to care
- ✓ Were satisfied with their experience
- ✓ Would use NeuroSphere[™] Virtual Clinic again

Post-surgery

Use the following guidelines as a reference after surgery, but speak with your provider to determine what's best for you.

Exercise: Exercise is encouraged, but avoid contact sports, rough activities, and heavy lifting until cleared by your doctor.

Travel: When traveling, ask for a physical screening and present your device information card, as the security scanners or metal detectors could interfere with your therapy. It's often helpful to mention you have a neurostimulator or a pacemaker-like device for the brain, without explaining DBS.

Driving: Ask your doctor if you should wait before driving again.

Haircuts: Avoid haircuts and dying your hair until your incisions are fully healed. Once healed, you can resume haircuts as usual.

Battery recharging: If you decide on our rechargeable battery, how long and how often you'll need to charge depends on several factors, including where the leads are implanted and the programming settings used.

Helpful Tip

If you need an MRI after DBS surgery, our DBS systems are compatible with standard 1.5T MRI scans, ensuring you have reliable access to necessary imaging.

LIFE WITH DBS

In the weeks and months following your DBS surgery, you'll become more familiar with your system. While results vary, you should gradually gain better control over your movement symptoms. Increased activity and fewer symptoms often boost confidence and freedom. Inform your doctors if something feels off, as you may need a programming adjustment.

“ In 2019, I moved forward with DBS. The first time they turned it on, my entire family was there. We all cried with joy. The tremor was gone! ”

Michael H.
Abbott DBS
Ambassador



LIFE AS A CARE PARTNER

Whether you're a friend, child, parent, or spouse, care partners play a critical role in the well-being of an individual with Parkinson's or essential tremor.

Your role

Care partners take on many roles, from accompanying a loved one to doctor's appointments to managing more responsibilities. It is important to establish a partnership based on mutual understanding of where you can help, physically and emotionally.

Managing your loved one's care

As a care partner, you offer an additional perspective on how your loved one is doing as they progress in their journey. You may recognize new symptoms or subtle changes in mood or behavior.

Caring for yourself

Caring for a loved one with a chronic condition can be a source of pride, but it can also be exhausting. Taking care of yourself is essential to being the best care partner possible.

Helpful Tip

Compile a list of family members or friends that you can call to provide some relief. Don't forget your own interests and your life outside of caring for your loved one, like regular social activities and time for yourself.

We asked care partners what advice they have for others whose loved one is contemplating DBS.



“

Marge S.

Develop friendships with other caregivers. For years now, I have relied on my network of other care partners. It's priceless to be able to call on them.



“

Tom C.

Help your loved one focus on potential positive outcomes. Remind them that this is a step toward better symptom management and improved quality of life.



“

Lucinda H.

It's important to remember they are the ones living it. Make decisions together. The journey is a partnership.

COMMONLY ASKED QUESTIONS

1 How long does it take for symptoms to improve?

Most will see improvements within several weeks, others may see improvements over weeks or months as the doctor continues to make programming changes while also adjusting medications.

2 Will DBS prevent my condition from progressing?

While DBS has not been shown to prevent your condition from progressing, it's goal is to provide an extended period of control over your symptoms and improve your quality of life. By effectively managing your symptoms, DBS might allow you to reduce your medications, which could lead to fewer medication-related side effects.³

3 Will the surgical scars be noticeable?

Your DBS system is fully implanted under the skin. You may be able to feel the battery underneath the skin of your chest, and while the surgical scars are noticeable initially, they should fade over time.



Visit LifeWithDBS.com or scan the QR Code to explore additional helpful resources.

YOUR DBS TOOLKIT

To help manage your DBS therapy, we provide a range of resources and tools to support daily life with the device.

Resources

Personal ID Card: Shortly after your implant, you will receive a Personal ID card. Carry your card to inform medical personnel of your implanted device and ensure smooth passage through airport security.

NeuroSphere™ Digital Health App: Use the app on your personal Apple® mobile device* or Abbott-provided device to manage your therapy, access instructional videos, and connect with your doctor virtually.

MRI Information: Visit manuals.eifu.abbott for up-to-date MRI safety information, product manuals, and patient guides.

Care Instructions: Download the latest user's guide at manuals.eifu.abbott for detailed home care instructions for your DBS system.

Suggested Accessories

Journal: Keeping a journal can help track your progress, note changes in symptoms, and prepare questions for your doctor. It's a valuable tool for documenting your recovery journey, including adjustments to therapy settings and daily activities.

Travel Case: Carrying a travel case allows you to securely store and transport the essential equipment and information regarding your therapy.

Extra Charging Cables: Extra charging cables ensure you're always ready for a quick recharge if needed.

* Available on eligible mobile devices. For a list of mobile devices compatible with Abbott's Neuromodulation Patient Controller applications, <http://www.NMmobiledevicesync.com/dbs>

** Anywhere with a cellular or Wi-Fi® connection and sufficiently charged patient controller and neurostimulation device.

*** With programming access through NeuroSphere™ Virtual Clinic. Based on results from an analysis of the first 49 patients in the ROAM study primary endpoint.

† Time and cost related to travel.

1. Abbott. *ROAM-DBS Clinical Study Report* (CL1023599). Plano, TX. 2024.
2. Esper CD, Merola A, Himes L, Patel N, Bezchlibnyk YB, Falconer D, Weiss D, Luca C, Cheeran B, Mari Z. Necessity and feasibility of remote tele-programming of deep brain stimulation systems in Parkinson's disease. *Parkinsonism Relat Disord*. 2022 Mar;96:38-42. doi: 10.1016/j.parkreldis.2022.01.017.
3. Perestelo-Pérez L, Rivero-Santana A, Pérez-Ramos J, et al. Deep brain stimulation in Parkinson's disease: meta-analysis of randomized controlled trials. *J Neurol*. 2014;261(11):2051-2060. doi:10.1007/s00415-014-7254-6

Risk Information: There is no cure for Parkinson's disease (PD) and essential tremor (ET), but there are options available to treat symptoms. The first-line therapy is medication. Surgical treatments are also available. It's important to discuss with your doctor what's right for you along with the risks and side effects of each option, such as motor fluctuations or permanent neurological impairment. As with any surgery or therapy, DBS has risks and complications. Loss of coordination is a potential side effect of DBS therapy. Patients should exercise reasonable caution when participating in activities requiring coordination, including those that were done before receiving therapy (for example, swimming). Patients should also exercise reasonable caution when bathing. New onset or worsening depression, which may be temporary or permanent, is a risk that has been reported with DBS therapy. Suicidal ideation, suicide attempts, and suicide are events that have also been reported. Most side effects of DBS surgery are temporary and correct themselves over time. Some people may experience lasting, stroke-like symptoms, such as weakness, numbness, problems with vision or slurred speech. In the event that the side effects are intolerable, or you are not satisfied with the therapy, the DBS system can be turned off or surgically removed. Risks of brain surgery include serious complications such as coma, bleeding inside the brain, paralysis, seizures and infection. Some of these may be fatal.

Abbott

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Rx Only

Brief Summary: Prior to using Abbott devices, please review the User's Guide for a complete listing of indications, contraindications, warnings, precautions, potential adverse events, and directions for use. The system is intended to be used with leads and associated extensions that are compatible with the system.

Indications for Use: Bilateral stimulation of the subthalamic nucleus (STN) or the internal globus pallidus (GPi) as an adjunctive therapy to reduce some of the symptoms of advanced levodopa-responsive Parkinson's disease that are not adequately controlled by medications, and unilateral or bilateral stimulation of the ventral intermediate nucleus (VIM) of the thalamus for the suppression of disabling upper extremity tremor in adult essential tremor patients whose tremor is not adequately controlled by medications and where the tremor constitutes a significant functional disability.

Contraindications: Patients who are unable to operate the system or for whom test stimulation is unsuccessful. Diathermy, electroshock therapy, and transcranial magnetic stimulation (TMS) are contraindicated for patients with a deep brain stimulation system.

Warnings/Precautions: Return of symptoms due to abrupt cessation of stimulation (rebound effect), excessive or low frequency stimulation, risk of depression and suicide, implanted cardiac systems or other active implantable devices, magnetic resonance imaging (MRI), electromagnetic interference (EMI), proximity to electrosurgery devices and high-output ultrasonics and lithotripsy, ultrasonic scanning equipment, external defibrillators, and therapeutic radiation, therapeutic magnets, radiofrequency sources, explosive or flammable gases, theft detectors and metal screening devices, case damage, activities requiring excessive twisting or stretching, operation of machinery and equipment, pregnancy, pediatric use, and implant heating. Loss of coordination is a possible side effect of DBS Therapy; exercise caution when doing activities requiring coordination (for example, swimming), and exercise caution when bathing. Patients who are poor surgical risks, with multiple illnesses, or with active general infections should not be implanted.

Adverse Effects: Loss of therapeutic benefit or decreased therapeutic response, painful stimulation, persistent pain around the implanted parts (e.g., along the extension path in the neck), worsening of motor impairment, paresis, dystonia, sensory disturbance or impairment, speech or language impairment, and cognitive impairment. Surgical risks include intracranial hemorrhage, stroke, paralysis, and death. Other complications may include seizures and infection. User's Guide must be reviewed for detailed disclosure.

™ Indicates a trademark of the Abbott group of companies.

† Indicates a third-party trademark, which is property of its respective owner.

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