Comprehensive Epilepsy Center

The Only Level 4 Designated Center in Metropolitan Washington, D.C.

Knowledge and Compassion

Focused on You
Seizing Control

Epilepsy affects nearly 3 million people in the United States or about one out of every 100 Americans. Many spend years—often their entire lives—taking various medications for their disorder, usually with good results. But uncontrolled, epilepsy can limit an individual’s ability to drive, work or enjoy other activities.

However, there is hope.

When traditional approaches fail, MedStar Georgetown University Hospital can help. Our Comprehensive Epilepsy Center features experts who can accurately locate the precise area of the brain causing seizures in both adults and children. And with the right diagnosis, we can tailor personalized treatment plans to reduce or even eliminate the severity and frequency of seizures for many patients.

Combined with our Jesuit tradition of cura personalis—caring for the whole person—MedStar Georgetown’s Comprehensive Epilepsy Center can offer an improved quality of life to young and old alike.

On the Road Again

Daniele Wishnow endured eight years of medications and side-effects, a major car accident and losing the ability to drive before she finally discovered the epilepsy experts at MedStar Georgetown University Hospital. Months later, her life was back on track.

“At my worst, I had a combination of grand mal seizures—losing consciousness, collapsing and jerking,” Daniele says, “along with multiple small seizures that made me blank out for a few seconds or so. For a long time, medications kept them pretty much under control, but then they quit working.”

Daniele underwent evaluation at MedStar Georgetown’s Level 4 Epilepsy Center, spending two separate, week-long stays in the center’s dedicated, state-of-the-art monitoring unit. Specialized, high contrast imaging revealed a relatively rare but benign type of brain tumor as the source of Daniele’s seizures. Surgery was her only option.

So on January 2013, Christopher Kalhorn, MD—director of functional, pediatric and epilepsy neurosurgery—successfully removed Daniele’s lesion. Today, Daniele’s back on the road and back to living a full life.

“I haven’t had a seizure in over a year,” she says. “I love Dr. Kalhorn and my neurologist, Dr. William Bell, director of the Center! They were the ones who finally identified the cause of my problem and fixed it. If I had to do it all over again, I would.”
The Comprehensive Epilepsy Center

MedStar Georgetown’s Comprehensive Epilepsy Center takes the hospital’s established reputation for excellence in neurological disorders and diseases to new heights. As the Washington, D.C., area’s only Level 4 facility—the highest designation from the National Association of Epilepsy Centers—we offer the most sophisticated diagnostic tools, medical and surgical care for even the most complex cases. Highlights of the program include:

- A new six-bed, state-of-the-art epilepsy monitoring unit for around-the-clock video and EEG monitoring of children and adults, assuring the most accurate diagnosis
- The ability to pinpoint the exact area in the brain where seizures begin, including the use of surgically implanted grid electrodes when necessary
- High-resolution imaging for brain mapping; i.e., identifying the parts of the brain that control speech, motor and other key functions to protect them during surgery
- All proven treatments, such as medical therapy, brain surgery and vagus nerve stimulation through implantable devices
- Expertise in treating both children and adults, including pregnant women
- A dedicated team of epileptologists—neurologists with expertise in epilepsy—neurologists, neurosurgeons and neuroradiologists who work together to promote the best possible outcome for each patient

State-of-the-Art Facilities:
Take a tour at MedStarGeorgetown.org/EMU

The new Epilepsy Monitoring Unit features a homelike environment for the comfort of patients and family members alike.

A patient conducts life as usual as technologists monitor her brain activity.

Capabilities and compassion create the right atmosphere for patients and their families to begin the journey toward health.
Understanding Epilepsy

Epilepsy results when clusters of nerve cells (neurons) in the brain signal abnormally—causing strange sensations, emotions and behavior, including convulsions, muscle spasms or loss of consciousness. Anything that disturbs the neuron’s normal pattern of activity—from illness to brain damage to abnormal brain development—can lead to seizures. People who have two or more seizures, not related to acute medical illness, are considered to have epilepsy. Most cases of epilepsy have no known cause.

Abnormal signals in the brain’s neurons might cause seizures.

There are two main categories of epileptic seizures: generalized and partial.

**Generalized seizures** affect the entire brain and usually include a loss of consciousness lasting anywhere from a few seconds to two minutes. There are four main types:
- **Absence, or petit mal, seizures** cause a one- to twenty-second loss of consciousness and staring. More likely to affect children, these seizures occur quickly, and symptoms are sometimes unnoticeable.
- **Myoclonic seizures** produce brief muscle contractions that may appear as sudden jerks or clumsiness, without loss of consciousness.
- **Atonic seizures** appear without warning, causing a brief loss of consciousness and abrupt muscle weakness that may result in sudden falls.
- **Tonic-clonic, or grand mal, seizures** begin with stiffness in the limbs (tonic phase), followed by jerking of the limbs and face (clonic phase) and end with patients experiencing amnesia or confusion regarding the seizure. People who have tonic-clonic seizures are unconscious for one to two minutes.

**Partial seizures**, the most common type, originate in a single area of the brain and can affect different physical, emotional or sensory functions:
- **Simple partial seizures** cause sudden jerks or movements and unusual sensations.
- **Complex partial seizures** cause impaired awareness, total loss of consciousness or confusion with patients experiencing an aura (a distinct feeling) that warns of an upcoming epileptic event.
- **Secondarily generalized tonic-clonic seizures** occur when a partial seizure spreads to the rest of the brain and develops into a generalized, full-blown tonic-clonic (grand mal) seizure.

People who experience partial seizures may benefit from epilepsy surgery.
A Mystery No More

Anxiety. Tourette’s syndrome. Sleep apnea.

No matter how many doctors Jeffrey Shriner saw, no one could identify the cause of his nighttime thrashings. Despite daily doses of anti-seizure drugs, Jeffrey still suffered violent episodes from his late teens until his early 40s, when MedStar Georgetown University Hospital came to his rescue.

A local neurologist finally recognized Jeffrey’s need for a definitive diagnosis. She referred him to Gholam Motamedi, MD, a neurologist at MedStar Georgetown’s Comprehensive Epilepsy Center and an expert at managing the most difficult cases.

Dr. Motamedi admitted Jeffrey to the hospital for intensive monitoring, which included brain mapping. The overall results confirmed he had epilepsy and pinpointed his seizures’ origin. Dr. Motamedi recommended brain surgery, and Jeffrey and his wife Shawna quickly agreed.

Christopher Kalhorn, MD—director of functional, pediatric and epilepsy neurosurgery—removed the part of Jeffrey’s brain that was causing his problems. Six months later, Jeffrey was seizure-free and back at work part-time.

Today he’s on the job five days a week, driving again and living a normal life with Shawna and their two sons.

He thanks MedStar Georgetown University Hospital and its specialized, caring team for his progress. “If you have uncontrolled seizures,” Jeffrey concludes, “you owe it to yourself to check them out. MedStar Georgetown is absolutely excellent.”

The Right Diagnosis

When it comes to epilepsy, we believe that even an occasional seizure is one too many. Thanks to MedStar Georgetown’s experienced specialists—and improved diagnostic, medical management and surgical techniques—many people who have epilepsy today can live seizure-free, often for the first time in decades.

Not all seizures are caused by epilepsy. So the first step in getting the right treatment is receiving the right diagnosis. MedStar Georgetown’s specialists begin with a complete neurological examination, along with a full medical and family history review. Those who need additional testing are admitted for monitoring to confirm that their seizures are actually caused by epilepsy.

During monitoring, specialists observe both adult and pediatric patients for several days while they are off seizure medications. Family members can spend the night, which is especially important for younger patients. All the while, the latest digital video-EEG monitoring equipment tracks brain activity and alerts staff to the first sign of seizures so the process of determining their type and origin can begin.

To determine the best treatment options, findings from the neurological examination and monitoring are supplemented with a variety of other diagnostic tests:

• State-of-the-art imaging studies including magnetic resonance imaging (MRI), which reveals brain structure and identifies abnormalities
• Positron emission tomography (PET) and functional MRI (fMRI) to evaluate brain activity
• Neuropsychological evaluations
• Wada testing to determine the location in the brain responsible for speech and memory
• For surgical candidates, brain mapping to guide the neurosurgeon within millimeters of the seizure site while protecting vital functions
Restoring a Childhood

Eleven-year-old Jedidiah Depeiza had lived with seizures since he was a toddler. Yet over the years, his body grew increasingly resistant to anti-epileptic drugs. He held his own until his parents noticed a slow, subtle decline.

“He was having more seizures, vision problems and was just not himself,” says his mother Kim. Frustrated by his medical team’s response, she launched a desperate search to find better care.

Her prayers were answered by MedStar Georgetown University Hospital’s Comprehensive Epilepsy Center.

“During inpatient monitoring, Dr. Zecavati discovered that Jedidiah had about 30 sub-clinical seizures a day, undetectable to the naked eye. Five days later, she and epileptologist Cesar Santos, MD, chief of the Division of Pediatric Neurology, wrestled them under control with strong doses of different medications.

Today, the youngster is living the life of most kids his age. “Thanks to MedStar Georgetown, the difference between the boy I brought to the hospital and the one I took home is like night and day,” says Kim.

The Right Treatments

Medical Therapy

After trying at least two different drugs, alone or in combination, physicians can help patients control most epileptic seizures. In fact, medical therapy remains the gold standard for treating people who have epilepsy.

However, for the majority of patients in MedStar Georgetown’s Comprehensive Epilepsy Center, standard medications aren’t effective, or have quit working. In such cases, our epileptologists will first try to get the most out of medical management by exploring combinations of drugs at different dosages. If those therapies still do not produce results, a patient may be a candidate for surgery or vagus nerve stimulation.

Surgery

More than 30 percent of all people with epileptic seizures never find relief through medication. If two different anti-epileptic drugs have failed to produce results, the chances of becoming seizure-free on another medication are minimal. Additionally, just the act of having seizures can cause further damage to the brain. As a result, many neurologists recommend that more people with epilepsy consider surgery, which studies have proven to be reasonably safe and effective when done properly. For seizures originating in the temporal lobe, for instance, surgery can significantly reduce or even stop seizures around 70 to 90 percent of the time.

Despite such facts, only between 10 to 25 percent of eligible patients currently undergo surgery. MedStar Georgetown is working to change those figures—restoring hope, self-esteem and quality of life to many people who have epilepsy, including those with complex cases.
Vagus Nerve Stimulation
Vagus nerve stimulation (VNS) is a potential treatment for patients who have uncontrolled seizures and are not suitable candidates for epileptic surgery. VNS involves a brief surgical procedure to insert a tiny generator or battery, similar to a cardiac pacemaker, under the skin of the chest. A wire is then threaded from the device to the left vagus nerve in the neck. VNS works by sending intermittent electrical signals to the brain through the vagus nerve, which helps prevent seizures. VNS does not involve brain surgery, but it also does not produce the same level of results.

Surgery Turned My Life Around
Unlike many people with epilepsy, Burhan Khan actually got better as he grew older. From his diagnosis as a toddler, his seizures—always short and fast, causing him to go blank or lose consciousness for a few seconds—weakened over time. Months, sometimes even a year, would go by seizure-free.

Nevertheless, Burhan restricted his driving just to be safe. But his job as a commercial loan officer required him to be on the road. One fateful day in 2012, he blacked out behind the wheel, totaling his car and badly damaging another.

Not long afterward, blind luck—the good kind—stepped in.

“Out of the blue, I received a postcard from MedStar Georgetown, discussing epilepsy surgery,” he explains. “I called them immediately.”

A five-day stay in the epilepsy monitoring unit pinpointed the exact source of Burhan’s seizures. He faced a choice: try different combinations of medicine, with a 5 to 10 percent chance of effectiveness, or surgery with its 70 to 90 percent success rate.

Burhan immediately picked surgery, and today says his 2013 procedure “made a huge difference. I now have more opportunities in my professional and personal life. I don’t remember what it’s like to have seizures anymore—that’s the best.”

MedStar Georgetown’s experts provide accurate diagnosis and effective treatment to adults and children who have epilepsy.

Anything that disturbs the neuron’s normal pattern of activity—from illness to brain damage to abnormal brain development—can lead to seizures.
Is Surgery Right for You?

You may be a candidate for surgery if:

• You have received proper medical treatment for at least a year.
• You have tried a minimum of two different anti-seizure drugs, separately or in combination, which failed to control your seizures adequately.
• Your seizures are under control, but you are experiencing intolerable side effects from medication.

If so, epilepsy evaluation and monitoring by the experts at MedStar Georgetown’s Comprehensive Epilepsy Center can identify the source of your seizures and determine if surgery will work for you. Under the right circumstances, surgery may also help certain children.

Meet Our Team

Christopher Kalhorn, MD; Gholam Motamedi, MD; Cesar Santos, MD; and William Bell, MD
MedStar Georgetown University Hospital is a not-for-profit, acute-care teaching and research hospital with 609 beds located in Northwest Washington, D.C. Founded in the Jesuit principle of *cura personalis*—caring for the whole person—MedStar Georgetown is committed to offering a variety of innovative diagnostic and treatment options within a trusting and compassionate environment.

MedStar Georgetown’s centers of excellence include neurosciences, transplant, cancer and gastroenterology. Along with Magnet® nurses, internationally recognized physicians, advanced research and cutting-edge technologies, MedStar Georgetown’s healthcare professionals have a reputation for medical excellence and leadership. MedStar Georgetown University Hospital—Knowledge and Compassion *Focused on You.*

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