

# Epilepsy Surgery Program



The Epilepsy Surgery Program at Cincinnati Children's Hospital Medical Center provides the diagnostic and surgical expertise to treat the most complex cases of intractable epilepsy. Our team is dedicated to dramatically reducing the severity and occurrence of seizures and, when possible, eliminating them altogether. The program is part of the Comprehensive Epilepsy Center at Cincinnati Children's, one of the largest pediatric epilepsy centers in the world.

## CONTACT US

For patient referrals and non-urgent consultation during business hours, contact the program directly at:

Phone: **513-803-4953**  
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**International**  
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[www.cincinnatichildrens.org](http://www.cincinnatichildrens.org)

## EPILEPSY SURGERY PROGRAM LEADERSHIP

Francesco T. Mangano, DO, FACS, FAAP, FACOS  
*Co-Director; Division Chief Pediatric Neurosurgery*

Hansel Greiner, MD  
*Co-Director; Pediatric Epileptologist*

## OUR APPROACH

Our program offers the full complement of diagnostic tests and tools needed to evaluate pediatric patients with epilepsy. This advantage allows us to broaden traditional surgical selection criteria and include patients with non-lesional epilepsy, tuberous sclerosis complex and other complex medical issues. We also perform invasive monitoring with grid placement and stereo EEG followed by resection, ablation, neurostimulation or disconnection surgery on patients who might elsewhere be regarded as too young. This approach is necessary when a child's quality of life and developmental progress are at stake.

## SURGICAL TREATMENT FOR EVERY TYPE OF INTRACTABLE EPILEPSY

Cincinnati Children's offers surgical treatment for all types of intractable epilepsy, including:

- Focal epilepsy
- Generalized epilepsy
- Epilepsy with no visible MRI abnormality
- Epilepsy with an MRI abnormality (so-called "lesional")
- Multi-lesional epilepsy (to include tuberous sclerosis complex)

Our team of specialists also treats the different types of seizures associated with epilepsy, such as partial, drop, absence/petit mal and grand mal (generalized tonic-clonic) seizures, as well as infantile spasms and epileptic spasms.



Ranked #3 in the nation and #6 in Neurology & Neurosurgery.



**>50**

Craniotomies performed by the epilepsy surgery team each year

**More than 50%**

Patients undergoing surgery for removal of seizure focus who have achieved complete seizure freedom post-surgery

Patients who do not achieve complete seizure freedom post-surgery typically experience a significant reduction in seizures, sometimes more than a

**90% reduction**

**700+**

Surgical cases for epilepsy in the last five years

## ADVANCED TECHNOLOGY HELPS DIAGNOSE AND TREAT INTRACTABLE EPILEPSY

In order to determine surgical candidacy, patients undergo several days of noninvasive testing in the ten-bed, state-of-the-art epilepsy monitoring unit at Cincinnati Children's. Those who are identified as surgical candidates may have stereotactic EEG or grid placement surgery, in which electrodes are placed directly on or deep inside the brain in order to further localize the seizure zone and eloquent regions of the brain. Once the zones are identified, pediatric neurosurgeons have the surgical capabilities to resect, disconnect or stimulate the area of the brain involved in the seizures.

The surgical team at Cincinnati Children's uses advanced technologies to create detailed cortical maps, identify the seizure foci, evaluate electrical and magnetic waveforms in the brain, and measure the electrographic spread of seizures within hundredths of a second. These technologies include:

- Robot-assisted depth electrode placement (stereo EEG)
- 3T MRI with special epilepsy surgery protocol
- FDG-PET with SPM analysis
- Ictal/interictal SPECT with subtraction analysis (SISCOM)
- Magnetoencephalography with source localization imaging (MEG/MSI)
- High-density EEG with source localization
- fMRI
- Invasive EEG monitoring with grid placement
- Navigated transcranial magnetic stimulation for functional mapping

## CLINICAL RESEARCH ADVANCES TREATMENT OPTIONS

Along with our commitment to comprehensive diagnostics and surgical treatment is our focus on clinical research. Cincinnati Children's receives among the largest amounts of NIH funding for pediatric epilepsy research in the nation. Our participation in clinical research trials contributes to advancements in the field and allows us to offer the most effective technologies and surgical techniques based on the latest scientific findings.

## INTRAOPERATIVE IMAGING TECHNOLOGIES ENHANCE SAFETY, ACCURACY

Surgeries take place in our stereotactic surgical suite, where imaging technologies such as intraoperative MRI and robotic assisted stereotaxy allow the surgical team to further pinpoint the seizure zone and its proximity to primary language, motor and sensory areas of brain. Among the epilepsy surgeries performed at Cincinnati Children's are:

- Lobar resection (lobectomy)
- Multilobar resection
- Corticectomy (cortical resection)
- Corpus callosotomy
- Hemispherectomy or hemispherotomy
- Insertion of vagal nerve stimulator (VNS)
- Responsive neurostimulation (RNS)
- Laser ablation
- Deep brain stimulation (DBS)

**For urgent issues, or to speak with the specialist on call 24/7, call the Physician Priority Link® at 1-888-987-7997.**

**For international inquiries, call +1-513-636-3100 or email [international@cchmc.org](mailto:international@cchmc.org).**