

# ADVANCING CARE FOR COMPLEX NEUROLOGICAL CONDITIONS

## CHILDREN'S MERCY PEDIATRIC NEUROLOGY AND NEUROSURGERY

The Division of Pediatric Neurology and Section of Neurosurgery at Children's Mercy Kansas City offer some of the most advanced care in the region, with nationally recognized programs dedicated to specific conditions.

- The **Comprehensive Epilepsy Center** is one of only a few Level IV pediatric epilepsy centers in the nation.
- The **Tourette Syndrome Center of Excellence** is the only designated U.S. center of excellence, dedicated exclusively to children with Tourette syndrome and related conditions.
- The **Children's Mercy Comprehensive Stroke Clinic** is the only pediatric stroke center in the region and one of just 10 in the nation.
- Children's Mercy created a new model for **acute headache treatment**, a first of its kind in the U.S. The headache program offers a unique, tiered approach to provide holistic care for pediatric headache patients.
- The **Kernicterus Center of Excellence** is the only center in the U.S. devoted to the treatment of neurological disorders due to excessive newborn jaundice.

In addition, the innovative team of neurosurgeons at Children's Mercy cares for patients with the most complex neurological disorders and traumatic injuries of the brain, spinal cord and peripheral nerves, and performs fetal surgery to repair spina bifida. The neurosurgery team is also part of several robust multidisciplinary teams offering surgical solutions for children with spasticity, movement disorders and craniofacial disorders.



### A TOP-RANKED PROGRAM

One of the top neurology and neurosurgery programs for children in the nation, according to *U.S. News & World Report*.

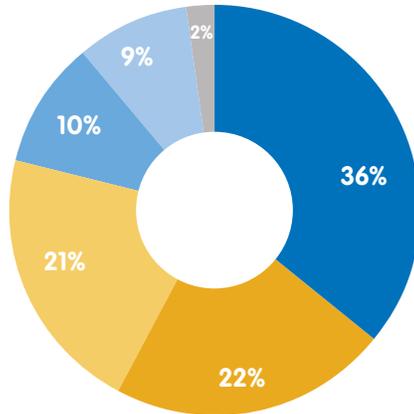
## 2019 BY THE NUMBERS

2,351	Electroencephalograms
<b>669</b>	<b>LONG-TERM MONITORING OBSERVATIONS</b>
53	Epilepsy surgeries
16	Fetal surgery cases
47	Craniosynostosis cases
669	Total neurosurgery cases
<b>865</b>	<b>EPILEPSY MONITORING UNIT EVALUATIONS</b>
86	Vagus nerve stimulator procedures
19,948	Neurology outpatient clinic visits



*The Tourette Syndrome Center of Excellence is the only designated U.S. center of excellence.*

## 2019 CLINIC VISITS



28,525 total Neurology and Neurosurgery visits



## RESEARCH TRANSLATES INTO ANSWERS FOR PATIENTS

Children’s Mercy is leading a variety of translational research studies to improve care delivery and patient outcomes. Currently more than 40 studies are in progress, focused on a broad range of neurological issues and medications.

The hospital provides one of the largest and most successful ketogenic diet programs in the country, where neurologists are studying ketogenic diet success predictors in patients with intractable epilepsy. Other epilepsy-related studies are looking at the efficacy of medications and other treatments.

Studies that focus on a range of issues related to Tourette syndrome, such as self-regulation, hormones and behavior patterns, are also planned or underway. The hospital recently launched a randomized double-blind placebo-controlled clinical trial to test the therapeutic effectiveness of bilateral multisite transcranial magnetic stimulation (mTMS) of the supplementary motor areas (mTMS-SMA therapy). The study will observe the immediate benefits obtained by Tourette syndrome patients given two weeks of treatment as compared to participants provided with placebo treatment. It also will monitor long-term benefits over a two-month period of follow-up.

Finally, studies have been designed to identify and predict conditions that lead to migraines, and to understand the efficacy of certain medications as migraine treatment.



*The Children’s Mercy neurosurgery team provides care for patients with the most complex neurological disorders.*

## ADVANCED TREATMENTS TO IMPROVE PATIENT OUTCOMES

The advanced team of neurology and neurosurgery experts at Children’s Mercy has developed leading-edge services, specialty clinics and programs to improve outcomes for common to complex neurological and neurosurgical conditions.

### Specialty Clinics and Programs

- Neurofibromatosis and Tuberous Sclerosis Multidisciplinary Clinics, affiliate of TS Alliance
- Mitochondrial Clinic, affiliate of MCN network
- Multiple Sclerosis Clinic, affiliate of MS Society
- Neurorheumatology Clinic
- Movement Disorder and DBS Program
- Conversion and Neurogenomic Clinic
- Complex Movement Disorders and Spasticity Multidisciplinary Clinic

## FY 2019 ACADEMIC LEADERSHIP AT A GLANCE

**36** INVITED PRESENTATIONS

**20** MANUSCRIPTS

**17** POSTER PRESENTATIONS

**2** BOOK CHAPTERS

**2** GRANT/FUNDING AWARDS

- \$1.66 million HRSA Grant

- \$49,615 BioNexus KC Patton Trust Research Grant

**Holistic migraine treatment.** To address the unique challenges of migraine in young patients, Children’s Mercy expanded existing neurology services and created a first-of-its-kind model for acute headache treatment. The headache program at Children’s Mercy now offers a unique, tiered approach to provide holistic care for pediatric headache patients.

**Level IV Epilepsy Center.** The Children’s Mercy Comprehensive Epilepsy Center offers multidisciplinary clinical support to pediatric patients with epilepsy. The program is recognized by the National Association of Epilepsy Centers as a Level IV Center, the highest level in epilepsy care. This designation recognizes programs that meet the top standards for patient care. The team is focused on offering treatments for drug-resistant intractable epilepsy, including:

- Robotic surgery—Children’s Mercy is the only pediatric hospital in the region utilizing a state-of-the-art surgical navigation and positioning system known as robotic stereotactic assistance, or ROSA Brain, to precisely pinpoint the source of seizure activity via a minimally invasive method.
- A full range of surgical options—Epilepsy resection surgery, laser interstitial thermal therapy and vagus nerve stimulation (VNS) are available at Children’s Mercy.
- Streamlined patient access, including same-day and Saturday EEG testing—Most clinic appointments can be scheduled at one of our convenient locations within days, not months. Same-day EEG testing is available from our ABRET-certified lab at multiple Children’s Mercy locations.
- Ketogenic diet program—The program helps children with epilepsy and other seizure disorders to reduce or eliminate seizures through a medically prescribed personalized diet plan.

**Comprehensive stroke care.** The Children’s Mercy Comprehensive Stroke Center is one of only 10 pediatric stroke centers in the nation. The center offers 24/7 comprehensive pediatric stroke services, including comprehensive assessment, evaluations and diagnostic services to diagnose, treat and prevent stroke recurrence and complications, and optimize recovery. The stroke program provides care to more than 100 children annually, ranging in age from newborn to adolescent, with a spectrum of stroke diagnoses.

**Spina bifida repair.** Neurosurgeons Paul Grabb, MD, and Michael Partington, MD, work closely with the Fetal Treatment Team led by Emanuel (Mike) Vlastos, MD, Medical Director of Fetal Therapy. Dr. Vlastos is

internationally known for his expertise in fetal medicine, particularly prenatal treatment for spina bifida. Dr. Grabb and Dr. Partington have expertise operating on fetuses, neonates and children with spina bifida that spans more than 20 years. The team performs spinal repair procedures on fetuses between 24-26 weeks of pregnancy.

**Revascularization procedures.** The neurosurgery team also performs revascularization procedures on children with occlusive vascular disease such as moyamoya. The team will participate in an upcoming national database for children with sickle cell disease undergoing revascularization surgery for moyamoya.

**CARF-certified rehab.** Patients with brain injury or tumors, stroke and other neurologic disorders, such as Guillain-Barré and acute flaccid myelitis, have access to the hospital’s CARF-certified inpatient rehabilitation facility, one of only 32 accredited pediatric programs in the country.

## FY19 OUTCOMES

- 88.1%** of patients are seizure-free after surgery (Engel I and II).\*
- 65%** of patients with refractory epilepsy achieve at least a 50% reduction in their seizures after implementing a ketogenic diet.
- 80%** of Headache Treatment Center patients report decreased pain.
- 90%+** of fetuses with spina bifida treated with prenatal repair have not required shunt placement within their first year of life.

*\*This is above national level.*

## CHILDREN’S MERCY RESEARCH INSTITUTE

The Children’s Mercy Research Institute (CMRI) at Children’s Mercy Kansas City is an integrated research environment where no boundaries exist between science and medicine. Here, physicians, scientists, academic colleagues and philanthropic partners are collaborating to change the future for children. CMRI areas of emphasis provide the supportive structure for all research conducted at Children’s Mercy. Research may fall under one or more of these areas and include Genomics, Precision Therapeutics, Population Health and Health Care Innovation. To enhance its research endeavors, a new building, future home to the CMRI, is under construction. The institute has been carefully designed so research and clinical care work as cross-functional teams, aligned together, to find answers to pediatric medicine’s most challenging questions.

## NEUROLOGY AND NEUROSURGERY TEAM

### NEUROLOGY LEADERSHIP

Ahmed T. Abdelmoity, MD, FAAP, FAES  
Director, Division of Neurology

### NEUROLOGY FACULTY

Tyler J. Allison, MD  
Lalit R. Bansal, MD  
Jennifer L. Bickel, MD, FAAN  
Keith A. Coffman, MD  
Jennifer J. Dilts, DO  
Anna Esparham, MD  
Keely Fitzgerald, DO  
Rose Gelineau-Morel, MD  
Marcie Goeden, MD  
Ara S. Hall, MD  
Mohammed Ilyas, MD  
Gina L. Jones, DO  
Roha Khalid, MD  
Jean-Baptiste Le Pichon, MD, PhD  
Kailash T. Pawar, MD  
Julio Quezada, MD  
Sean Riordan, PhD  
Steven M. Shapiro, MD, MSHA, FAAP  
Lines M. Vargas, MD

### NEUROLOGY APRNs

Lisa Culliton, APRN  
Erin Fecske, APRN  
Megan Gustafson, APRN  
Caley Hague, APRN  
Jayme Kagarice, APRN  
Lara Koral, APRN  
Katie McCrary, APRN  
Tara Myers, APRN  
Stephanie O'Toole, APRN  
Kimberly Periman, APRN

Emily Pierzchalski, APRN  
Elizabeth Shaffer, APRN  
Jessica Waldren, APRN  
Micah Wallace, APRN  
Tammie Wingert, APRN

### NEUROSURGERY LEADERSHIP

Paul Grabb, MD  
Section Chief, Neurosurgery

### NEUROSURGERY FACULTY

David Garcia, MD  
Christian Kaufman, MD  
Michael Partington, MD

### NEUROSURGERY APRNs

Danielle Adams, APRN  
Ashley Fuchs, APRN  
Jessica Kinney, APRN  
Lauren Mitchell, APRN  
Jillissa Rush, APRN

### NEUROPSYCHOLOGY FACULTY

Paul Glasier, PhD  
Joshua Hall, PhD

**The Neurology and Neurosurgery team extends beyond physicians and providers. From registered nurses to family therapists to a ketogenic chef, Children's Mercy equips its departments with an array of specialty staff to support a complete patient experience.**



in academic affiliation with

#### LEARN MORE ABOUT NEUROLOGY AND NEUROSURGERY AT CHILDREN'S MERCY.



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