

UNIVERSITY OF MISSOURI HEALTH CARE

Neurosciences





Hello and welcome to Neurosciences at University of Missouri Health Care. We would like to take this opportunity to introduce you to our different programs and professionals, as well as highlight some of our team's capabilities and accomplishments.

Over the last several years, we have seen an increase in demand for care of patients with neurological disease — whether it be stroke, brain tumors, sleep, epilepsy, Parkinson's Disease or another condition. As a result of these increases, our neurology and neurosurgery teams have worked together to build up existing programs; recruit new faculty, nurses and other staff; acquire new equipment and look for new approaches to improve patient access to care.

Recently, our epilepsy program has been recertified as a Level IV Center – the highest rating available. Our stroke center has also been recertified as a Comprehensive Stroke Center. We now have three stroke neurologists and three endovascular providers to care for strokes, aneurysms and other vascular diseases of the brain, and new endovascular techniques are being incorporated into our armamentarium. For our patients with brain tumors, we've added a medical neuro-oncologist and intra-operative CT scanner, and we offer a number of clinical trials in addition to our advanced surgical procedures. Our neuroscience intensive care unit has also been expanded to 14 beds.

As a part of an academic health system, we are committed to training the next generation of doctors. We offer residency programs in neurology and neurosurgery with medical students regularly rotating in on both services. We offer fellowship programs in neurocritical care, sleep medicine, clinical neurophysiology, stroke and neuroendovascular procedures. Not only are we honored to help these students learn, but these learners also help keep our faculty up-to-date and engaged with the latest developments in neurosciences.

Research and innovation are a key part of our neurosciences programs. Our neurology and neurosurgery researchers focus on neuromuscular disorders, Parkinson's disease, dementia, neurobiology of sleep and sleep disorders, brain tumors, head trauma and biomarkers of TBI. Through our amplification of paper presentations, publications, edited books and book chapters, we're actively increasing our research funding — including funding from NIH and the Veterans Administration.

We have significant outreach efforts within our community as well. In addition to neurology grand rounds, neurosurgery grand rounds and sleep medicine grand rounds (available by Zoom), we host a Parkinson's Disease symposium, a spine course, stroke education and other events. We are also active in an array of disease focused groups — such as ALS, muscular dystrophies, Parkinson's disease and movement disorders, Head for the Cure for brain tumors, stroke and sleep disorders.

Lastly, although we are dedicated to the education of our students, residents, fellows and health care personnel, we also want to become a collaborative educational partner for our colleagues in the state and beyond. We look forward to hearing from you about neurology and neurosurgery topics that we can discuss in educational programs (and provide CME). This will help us to get to know each other better and work together to provide the best care to our communities. After all, that is the mission of health care.

With best wishes from all of us at MU Health Care to all of you!

Pradeep Sahota, MD, FAAN, FANA, FAASM, FAES, FACP
Professor and Chairman of Neurology, Director of Sleep Disorders Center and Sleep Medicine Fellowship Program

N. Scott Litofsky, MD
Professor and Chief of Neurological Surgery, Director of Neuro-oncology and Radiosurgery, Program Director for Neurological Surgery Residency Program

The complex care patients deserve with access to the region's most advanced treatment options.

University of Missouri Health Care is the state's premier academic health system, providing the most advanced and innovative treatments in the region. Our team of specialists, which consists of neurologists, neurosurgeons and other health care professionals, work together to not only provide the best care for our patients, but to also continuously advance the field of neurosciences to make that care even better.

We're able to keep up with the latest advancements and best practices, and in many cases, set the standard of care. From chronic migraines to Alzheimer's disease, our team of board-certified neurologists and neurosurgeons specialize in a variety of areas, including:

- Behavioral neurology
- Brain and spine trauma
- Brain and spine tumors
- Epilepsy
- Hydrocephalus
- Multiple sclerosis
- Neuro-modulation for pain
- Neuromuscular disease
- Neurosurgery spine
- Parkinson's disease and other movement disorders
- Sleep disorders
- Stroke, aneurysm, arteriovenous malformation (AVM) and cerebral hemorrhage

Our specialists are available to assist you and your patients with consults, telehealth opportunities, scheduling, admissions and more. We are committed to supporting your treatment plan and maintaining timely communication about your patient's status.

► To refer a patient, call:

- Neurology and Sleep Disorders: **(573) 882-1515**
- Neurosurgery: **(573) 882-4908**

BY THE NUMBERS



16,276
Neurology Visits



3,371
Neurosurgery Visits



33
Team Members

NEUROSURGERY PROCEDURES

1294 Major

347 Minor

399
Craniotomies

287
Functional

86
Vascular

458
Spine

42
Shunts



2,644
Sleep
Studies



538
Epilepsy
Studies



CURRENT CLINICAL TRIALS FOR:

- ALS
- Myasthenia Gravis
- Spinal Muscular atrophy
- Narcolepsy
- Neurocritical care
- Stroke
- Brain Tumors
- Spine



1,355
Code Strokes



154
Peer-Reviewed
Publications



Neurology

Because neurological diseases involve different parts of the nervous system, our neurology care team includes specialists in brain and spinal cord diseases, muscle and joint conditions and other medical specialties. We create a personalized plan based on each patient's unique needs. In addition to being clinicians, our doctors are also educators and leading researchers in neurological disease, offering advanced therapies for a variety of neurological conditions, including:

- Amyotrophic lateral sclerosis (ALS)
- Aneurysm coiling
- Ataxia
- Autism
- Botox treatment of various neurological disorders
- Cerebrovascular disease including:
 - Stroke
 - Aneurysm
 - Arteriovenous malformation (AVM)
 - Cerebral hemorrhage
- Chorea
- Dementia
- Dystonia
- Epilepsy
- Headache
- Insomnia and parasomnia
- Multiple sclerosis
- Multisystem atrophy
- Muscle dystrophies
- Myasthenia gravis
- Myopathies
- Narcolepsy
- Neuralgias such as trigeminal neuralgia
- Neurocritical care
- Neuropathy, both generalized and focal, including:
 - Guillain-Barré syndrome
 - Carpal tunnel syndrome
 - Tarsal tunnel syndrome
- Parkinson's disease
- Progressive supranuclear palsy
- REM behavior disorder
- Restless leg syndrome
- Sleep Apnea
- Spasticity
- Stent placement
- Thrombolysis
- Tremors



Neurosurgery

Our neurosurgery team treats patients of all ages for the most complex conditions of the brain, spine and nerves. Due to the complex nature of neurological conditions, our team consists of neurosurgeons, respiratory therapists, rehabilitation specialists, social workers, dietitians and other specialists to make sure all patient needs are met.

Using the latest technology and techniques, our experts are able to treat the following conditions:

- Arachnoid cysts
- Arteriovenous malformation (AVM)
- Brain tumors
- Carotid endarterectomy and stenting
- Carpal tunnel syndrome
- Cerebrospinal fluid fistulas
- Cerebrovascular surgery
- Cervical spine disorders
- Chiari malformation
- Chronic pain
- Complex spine surgery
- Craniofacial surgery
- Deep brain stimulation
- Degenerative spine surgery
- Endoscopic transphenoidal surgery
- Extracranial to intracranial bypass surgery
- Glioblastoma and gliomas
- Head trauma
- Hydrocephalus
- Metastatic cancer to the brain
- Microvascular decompression and facial pain treatment
- Minimally invasive aneurysm treatment with coils/pipeline
- Minimally invasive cranial surgery
- Movement disorders
- Open surgery for aneurysms
- Parkinson's disease
- Peripheral nerve surgery
- Pituitary surgery - open
- Skull-base surgery
- Spasticity
- Spina bifida
- Spinal stimulators
- Spinal tumors
- Spinal deformity surgery
- Spine surgery
- Stereotactic neurosurgery
- Stereotactic radiosurgery
- Stroke intervention
- Trigeminal neuralgia
- Vertebral artery bypass surgery
- Vestibular schwannomas



Stroke and Cerebrovascular Disease

As the first and only institution in mid-Missouri to earn the Comprehensive Stroke Center certification from DNV GL Healthcare, our team offers the fastest, most effective care when it matters most. With board-certified stroke and interventional neurologists and vascular neurosurgeons, our team has over 50 years of combined experience in treating stroke and other complex neurovascular diseases of the brain and spine.

Our team uses a multidisciplinary and tailored approach to manage multiple cerebrovascular conditions including:

- Stroke
- Hemorrhages
- Aneurysms
- Arteriovenous malformations and fistulas
- Carotid artery disease
- Neurovascular trauma

Our physicians are trained and certified in the latest medical, endovascular and surgical treatment options, including:

- tPA administration
- Mechanical clot-retrieval
- Stent placement
- Aneurysm coiling
- Neurosurgery (open, minimally invasive, micro and radiosurgery)



Epilepsy

Our center is recognized by the National Association of Epilepsy Center as a Level IV Comprehensive Epilepsy Center, the highest level with the ability to provide surgical epilepsy management. Because our team consists of specialists in epilepsy, neurosurgery, neuroradiology, neuropsychology and neuropathology, we're able to offer a full-service epilepsy clinic, evaluating for both medical treatment and surgical options. Some of our treatment options include:

- Anticonvulsant medications
- Vagal nerve stimulation
- Responsive neurostimulation
- Temporal lobectomy
- Amygdalohippocampectomy
- Resective surgery including temporal lobectomy, amygdalohippocampectomy, topectomy, multiple subpial transections
- Deep brain stimulation

Evaluation Process

Medically refractory seizure patients undergo an extensive evaluation to see if they are a candidate for surgical options. The evaluation includes:

- Invasive video EEG with electrode implantations
- Wada testing
- Brain function mapping
- Neuroimaging with 3T brain MRI, PET/CT and functional MRI
- Neuropsychological assessment of patient's cognitive abilities
- Video EEG monitoring to localize the epileptogenic zone



Parkinson's Disease and Movement Disorders

Our team is involved in multiple research projects covering the spectrum of Parkinson's disease including clinical trials, translational science in identifying biomarkers for Parkinson's disease associated dementia and neuroinflammatory biomarkers in animal models of Parkinson's disease. We also conduct monthly support groups and an annual Parkinson's disease symposium for patients with Parkinson's disease, their caregiver and health care providers.

Our fellowship-trained movement disorder experts have the skills to treat all types of movement disorders, including:

- Ataxia, tic disorders (including Tourette syndrome) and dystonia
- Cortical basal ganglionic degeneration
- Dyskinesias including chorea
- Essential tremor
- Huntington's disease
- Multiple system atrophy (MSA)
- Normal pressure hydrocephalus (NPH)
- Parkinson's disease
- Progressive supranuclear palsy (PSP)
- Shy-Drager syndrome

From cognitive exams to psychological counseling, we offer a full range of treatments, surgery and support services, including our advanced:

- Botulinum toxin injections for dystonia, spasticity and chronic migraine
- Deep brain stimulation
- Duopa™ infusion



Neuroscience ICU

Our 14-bed neuro-ICU bridges multiple fields and our fellowship-trained neuro intensivists provide specialized care to critically ill patients with neurological illnesses, including:

- Severe traumatic brain injury (STBI)
- Subarachnoid hemorrhage (SAH)
- Intra-cerebral hemorrhage (ICH)
- Ischemic stroke
- Neuromuscular diseases
- Refractory status epilepticus
- Central nervous system infections
- Postoperative neurosurgical care
- Other acute neurological illnesses

Recent Research Publications

Because research and innovation are critical to the advancement of health care, our specialists are constantly pursuing better treatments and safer procedures through clinical trials and other research initiatives to offer patients the best, most personalized care.

In the last two years, we have been involved in over 154 peer-reviewed publications, 139 published meeting abstracts and 58 other published works. For the most recent list of publications featuring our neuroscience specialists, please visit muhealth.org/neuro-publications.



Connecting you to MU Health Care

With patient-focused care in mind, our network development coordinators act as liaisons between MU Health Care and referring providers. They are available to meet with you and your staff to ensure that any referral to an MU Health Care provider is as smooth as possible.

The network development coordinators work with your team to:

- Improve the referral process by assisting with referral issues, access and communication
- Introduce you to MU Health Care specialists
- Facilitate communication between referring physicians and MU Health Care specialty departments
- Present new and existing clinical capabilities within MU Health Care
- Facilitate continuing medical education and other practice development opportunities
- Discuss and assist with Provider Connection portal technology
- Explore community outreach needs

How to Refer a Patient:

Neurology and Sleep Disorders

- Call **(573) 882-1515**
- Referring providers will be asked to fax the reason for referral, diagnostic imaging reports and key clinical information
- Referral form is located at **muhealth.org/neurology-referral-form**

Neurosurgery

- Call **(573) 882-4908**
- Referring providers will be asked to fax the reason for referral, diagnostic imaging reports and key clinical information
- Referral form is located at **muhealth.org/neurosurgery-referral-form**
- The information will be reviewed that day, and the patient will be scheduled for an appointment
- More recent imaging may be requested to enhance the evaluation process. For urgent or emergent conditions, call the MU Health Care transfer coordinator at **(573) 882-6985** and the neurosurgeon on-call will be paged.

▶ Contact the Network Development team at **(573) 882-4089** or **networkdevelopment@health.missouri.edu**.

 Health Care