Our Mission:

At McGovern Medical School at UTHealth, our aim is to be the best – locally, nationally and internationally.

To achieve this goal, we focus on:
• Providing the highest quality care and achieving the best outcomes
• Providing the best service and achieving the highest patient and referring doctor satisfaction
• Innovating and testing new ideas, advancing medicine and setting new standards of care
• Teaching the next generation to be the best

What’s Inside

01 Letter
02 About the Program
05 Neuroscience Services
09 Neurosurgery Training Program
  – Rotations
  – PGY Levels
  – Facilities
  – Benefits
  – Conferences
  – Neurosurgery Accreditation
  – Board Exam Requirements
  – Why Houston?
  – Extracurricular
14 How to Apply
14 MNI Facts
15 Staff Listing
Dear prospective resident,

The Residency Program of McGovern Medical School at UTHealth and the Vivian L. Smith Department of Neurosurgery is driven by extensive access to complex neurosurgical cases at the Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center, the market leader in neurosurgery.

We are committed to providing the best neurosurgical care to the citizens of Houston, to leading the world in advancing the art and science of neurosurgery, and to producing the next generation of neurosurgical leaders. All aspects of this mission are integrated into our daily practice. Clinicians collaborate with scientists, and all are involved in teaching.

Each faculty and staff member in the department of Neurosurgery has complete commitment to the goal of being the best and training the best. Residents are individually mentored, evaluated and promoted, and are also regularly asked to evaluate the Program and participate in its continual improvement. Through this structure, McGovern Medical School residents develop into excellent and academically oriented neurosurgeons, positioned to learn throughout their careers.

Mischer Neuroscience Institute has been a leader in bringing innovations to the field of neuroscience, with a long list of firsts in the treatment of stroke, multiple sclerosis, epilepsy, neurotrauma, brain aneurysms and other complex neurological conditions. We are proud of the dedication of our team of physicians and scientists and invite you to learn more about our Residency Program and the Institute.

Sincerely,

Dong H. Kim, M.D.  
DIRECTOR AND CHAIRMAN

Arthur Day, M.D.  
VICE CHAIR-EDUCATION & PROGRAM DIRECTOR
About the Program

Faculty
The McGovern Medical School at UTHealth Residency Program is comprised of faculty in all segments of neurosurgery, including endovascular neurosurgery and Gamma Knife® radiosurgery. We also have faculty involved in critical care and neurology. This offers a complete resident education in all segments of neurosurgery cases, in and out of the OR.

Case Volume
In affiliation with Mischer Neuroscience Institute, the Program offers one of the largest neurosurgical caseloads in the United States, with more than 4,600 surgical cases per year. This permits a significant resident operative experience, beginning at the PGY-2 level. Residents at all levels typically operate four days a week, with one day spent in a subspecialty clinic specific to the rotation.

Technology
McGovern Medical School at UTHealth is at the cutting edge of technology, with physicians and staff continuously discovering and implementing new treatments and diagnostic tools. Advances used regularly in our Program include state-of-the-art intraoperative robotics, neuroendovascular labs, interoperative CT, Gamma Knife and computer-assisted surgery, including navigation and neuroendoscopy.
The Largest and Most Comprehensive Neuroscience Program in Texas

Mischer Neuroscience Institute is a collaboration between Memorial Hermann-Texas Medical Center and McGovern Medical School at UTHealth. The Institute brings together a team of world-class clinicians, researchers and educators whose insights and research findings are driving innovations in neuroscience. Patients come to MNI from around the world for treatment of rare and common diseases of the brain and spinal cord.

Growth and Expertise
Through MNI, physicians affiliated with Memorial Hermann currently perform more neurosurgical procedures than any other health system in Houston. Not only is the Institute a market share leader in Houston, it is nationally recognized for leading-edge medicine and is consistently ranked among quality benchmarking organizations as a leader in clinical quality and patient safety. MNI was the first center in Texas and one of only a few institutions in the country to fully integrate neurology, neurosurgery, neuroradiology and neurorehabilitation through comprehensive, specialized treatment centers and close collaboration among all involved disciplines.

AT A GLANCE

**Physician Team (includes Neurosurgery and Neurology)**
- Staff Physicians: 72
- Clinical Residents and Fellows: 73
- Medical Students on Rotation: 335
- Research Fellows: 18
- Advanced Practice Providers: 30

**Inpatient Facilities**
- Total Neuro Beds: 162
- Neuro ICU Beds: 38
- Neuro Step-Down Beds (IMU): 15
- Neuro Acute Care Beds: 61
- Neuro Rehabilitation Beds: 23
- Stroke Unit Beds: 12
- Dedicated Operating Rooms: 8
- EMU Beds – Pediatrics: 6
- EMU Beds – Adult: 7

**Research**
- Research Projects in Progress:
  More than 200 Grants Awarded $10.7 million (Neurology and Neurosurgery)
In the last three years, MNI has established a range of clinical and academic programs and has recruited nearly two dozen nationally recognized specialists and subspecialists. The Institute is now home to 10 centers of excellence, supported by a state-of-the-art neuroscience intensive care unit with 38 private rooms and several other dedicated inpatient facilities, to provide a full continuum of care for neurological patients.

The IQ Program
A major part of our mission involves innovation, both to deliver the highest quality care today, and to define new treatments for the future. Our Innovation and Quality (IQ) Program serves to facilitate these goals. Directed by Dong Kim, M.D., and Gigi Hergenroeder, RN, the IQ Program includes principal investigators, biostatisticians, research nurses and coordinators, data managers, programmers, research assistants, and both hospital and clinic administrations. Included in the IQ Program is the Neuroscience Research Repository, a large bio-bank housing patient samples for research.

The IQ Program has two components. First, it works directly with clinicians, using data and detailed feedback to help physicians improve their performance and lead to better patient outcomes. Second, the IQ program provides a platform and support to efficiently conduct a wide range of investigational studies. The result is an active quality program that has given us results that place us among the best programs in the country. We also have a large number of active clinical studies to foster innovation.

* (FY2012 Q1 – FY2014 Q4) provided by Truven Health, formerly Thomson Reuters. Texas Hospital Inpatient Discharge Public Use Data File, [FY2007 Q1—FY2014 Q1] provided by Texas Department of State Health Services, Center for Health Statistics; FY2014 Q2-Q4 discharges estimated by using historical data by hospital. Excludes Normal Newborns and SNF. Expanded Greater Houston consists of 12 counties: Austin, Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, San Jacinto, Walker, Waller and Wharton.
Neuroscience Services

Through its affiliation with the Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center, the Neurosurgery Residency Program at McGovern Medical School at UTH ealth is able to offer residents a wide range of experience at the forefront of medicine. From neuro-oncology to spine surgery, cerebrovascular and endovascular surgery and beyond, the next generation of surgeons has at its fingertips a wealth of opportunities for honing their expertise.

**Brain Tumor Center**
The medical team at the Brain Tumor Center provides outstanding care for patients with all types of brain tumors. The multidisciplinary group, including oncologists and radiation specialists, offers 400 primary brain tumor patients a year a full range of treatment options, including surgery, chemotherapy and radiation. Physicians at the Brain Tumor Center are all part of the neurosurgery program and are dedicated to training the next generation of residents.

MNI acquired the region’s first Leksell Gamma Knife in 1993. To date, the multidisciplinary team has treated more than 3,400 patients, using the stereotactic radiosurgery instrument to resolve brain tumors and other neurological disorders. MNI and McGovern Medical School are at the forefront of advances to prolong and improve the quality of life for patients with these complex tumors.

**Cerebrovascular and Skull Base Neurosurgery**
The skull base surgical team offers a comprehensive, advanced technological and multidisciplinary approach to diagnose and treat cranial base disorders. MNI is dedicated to providing the highest level of clinical care to our patients by offering the most up-to-date diagnostic and treatment modalities.

We treat more aneurysms and subarachnoid hemorrhages than any other program in the area.

For cerebrovascular diseases, MNI’s multidisciplinary program involves a team of neurosurgeons, interventional neuroradiologists, neurologists and radiation specialists. The program offers a complete spectrum of therapies, including the most effective state-of-the-art surgical and endovascular techniques and technologies, such as a hybrid operating room that enables advanced imaging and multiple procedures to be performed simultaneously.

The MNI Stroke Center was recently recognized as a Comprehensive Stroke Center by The Joint Commission and the American Heart Association/American Stroke Association. Comprehensive Stroke Center Certification recognizes those hospitals that have the specialized infrastructure, staff and training to receive and treat patients with the most complex strokes. They must meet stringent standards and requirements, including advanced imaging capabilities, around-the-clock availability of specialized treatments, and staff with the unique education and competencies to care for complex stroke patients.
Endovascular Surgery
MNI is a leader in endovascular surgery, performing more than 150 endovascular aneurysm repairs annually – more than any other medical center in our area. This team of experts continually develops and tests groundbreaking endovascular surgical technologies and techniques. Our endovascular surgeons are all part of the Vivian L. Smith Department of Neurosurgery and all of them train our residents.

Pediatric Neurosurgery
The team at Children’s Memorial Hermann Hospital and McGovern Medical School at UTHealth are world leaders in pediatric neurosciences. Offering minimally invasive, endoscopic brain surgery and comprehensive diagnosis, evaluation and treatment of a wide range of neurological disorders, they are at the forefront of advancing treatment for pediatric patients.

Functional and Stereotactic Neurosurgery
Specialists in functional and stereotactic neurosurgery provide comprehensive evaluation and care for patients with movement disorders, epilepsy, obsessive-compulsive disorder and certain chronic pain syndromes. Through collaboration between the Mischer Neuroscience Institute and the UT MOVE Clinic, the Movement Disorders and Neurodegenerative Diseases Program has established a track record of outstanding care and excellent outcomes.

The Program offers minimally invasive and highly effective treatment options for many difficult neurological disorders and diseases. Patients with movement disorders refractory to medication, such as Parkinson’s disease, essential tremor and dystonia, are evaluated by a multidisciplinary team of neurosurgery, neurology and neuropsychology specialists to assess whether they are appropriate candidates for a functional intervention.

Spine Center
The highly skilled spine surgeons affiliated with the Mischer Neuroscience Institute and McGovern Medical School perform more than 1,900 surgeries annually in new, state-of-the-art facilities equipped with advanced tools and dynamic imaging systems. The Spine Center offers outstanding care of patients suffering from traumatic spine injury, including the 10 percent to 20 percent of admissions through Memorial Hermann-TMC’s Level I trauma center that involve neurological damage. The Spine Center also offers innovative procedures for relief of back pain, including transforaminal lumbar interbody fusion (TLIF), minimally invasive approaches and disc replacement surgery.
Patients with acute neurological injuries benefit from Memorial Hermann-TMC’s Level I trauma center – one of only two in the area and the busiest in the nation – and from Memorial Hermann Life Flight® air ambulance service, which provides high-quality care and safe air transport for critically ill and injured patients via helicopter and fixed-wing aircraft.

All neurotrauma and critical care faculty are part of the department of Neurosurgery, offering neurosurgical residents dedicated training in these areas. The goal of this training is to prepare residents for fellowships in the future.

The Neurotrauma/Critical Care Program is an international leader in research conducted on innovative treatments following neurotrauma, including participation in several multicenter trials.
Neuroscience Research

With approximately $5 million in research funding per year, McGovern Medical School at UTHealth utilizes diverse approaches to research. Molecular, transgenic and electrophysiological techniques are coupled with state-of-the-art facilities and support services, allowing biomedical studies, translational research, clinical trials, technology development and assessment. Ongoing projects led by our nine Ph.D. researchers cover major areas of neurological diseases, including stroke, aneurysm, spinal cord injury, brain tumor, stem cells, neuroprotection, hypoxic encephalopathy, epilepsy, traumatic brain injury and Parkinson’s disease. Projects are supported by the National Institutes of Health, the Vivian L. Smith Foundation for Neurologic Disease, the American Stroke Association and other granting agencies.

When a patient is admitted to the hospital, he or she is asked to participate in the Neuroscience Research Repository (NRR). With an affirmative response, we can take de-identified clinical data coupled with tissue samples (blood, cerebrospinal fluid, tumors) for research purposes. For example, by using the NRR to collect DNA samples and obtain detailed family histories on intracranial aneurysm patients, Dr. Dong Kim was able to identify a gene mutation present in a subset of patients who develop intracranial aneurysms. The NRR is used in many subspecialty areas of neuroscience and is an invaluable resource for research.

Besides collaborative efforts within the department and institution, McGovern Medical School strongly encourages faculty members to connect with scientists worldwide to exchange information and knowledge, to establish effective collaborations in a wide range of disciplines, and to facilitate a concerted interdisciplinary and international effort in scientific explorations.
# Residency by Year

## Rotations
There are nine clinical services within our Residency Program, each covering specific clinical material and led by dedicated faculty:
1. Critical Care – Vascular and Trauma (brain and spine)
2. Spine – Trauma
3. Spine – Elective and degenerative
4. Cranial
5. Cerebrovascular (open and endovascular)
6. Pediatrics
7. CHIEF Service
8. Acute Care
9. Memorial Hermann Southwest Hospital

## PGY Levels

### PGY-1
The goal of year one as a neurosurgery resident at McGovern Medical School at UTHealth is to gain a comprehensive understanding of the concepts of neurocritical care. This will provide the individual neurosurgeon with the ability to take care of the basic critical care issues related to the nervous system and all of the critical care issues that arise in patients undergoing neurosurgical treatment.

PGY-1 is comprised of an entire year learning directly from our five fully trained neurointensivists in neurosurgical critical care, with a four-month focus on cerebrovascular care and four months covering neurotrauma. Another four months is spent on the acute care service. Every other weekend is spent on the Neurosurgery service participating in surgical cases.

This intensive year in the Neuro-ICU will allow each resident to track toward completing an infolding fellowship in neurocritical care by the end of the residency.

<table>
<thead>
<tr>
<th>YEAR **</th>
<th>JULY TO DECEMBER</th>
<th>JANUARY TO JUNE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGY-1A</td>
<td>Neurocritical Care (CV)</td>
<td>Neurocritical Care (T)</td>
</tr>
<tr>
<td>PGY-1B</td>
<td>Acute Care</td>
<td>Neurocritical Care (CV)</td>
</tr>
<tr>
<td>PGY-1C</td>
<td>Neurocritical Care (T)</td>
<td>Acute Care</td>
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<tr>
<td>PGY-2A</td>
<td>Pediatrics</td>
<td>Cranial Jr</td>
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<tr>
<td>PGY-2B</td>
<td>Night Float</td>
<td>Neurology</td>
</tr>
<tr>
<td>PGY-3A</td>
<td>Cranial Jr</td>
<td>Spine-Elective</td>
</tr>
<tr>
<td>PGY-3B</td>
<td>Spine-Elective</td>
<td>Night Float</td>
</tr>
<tr>
<td>PGY-4A</td>
<td>Cranial Sr</td>
<td>Cerebrovascular</td>
</tr>
<tr>
<td>PGY-4B</td>
<td>Cerebrovascular</td>
<td>Cranial Sr</td>
</tr>
<tr>
<td>PGY-5A</td>
<td>Research (clinical or basic)</td>
<td></td>
</tr>
<tr>
<td>PGY-5B</td>
<td>Research (clinical or basic)</td>
<td></td>
</tr>
<tr>
<td>PGY-6A*</td>
<td>Admin Chief</td>
<td>CHIEF</td>
</tr>
<tr>
<td>PGY-6B*</td>
<td>CHIEF</td>
<td>Admin Chief</td>
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<tr>
<td>PGY-7A</td>
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<td></td>
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<tr>
<td>PGY-7B</td>
<td>Elective</td>
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</tr>
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</table>

*PGY-6 - Administrative Chief Resident Year
** Transitioning from 2 residents per year, to 3 per year
**PGY-2**

The PGY-2 year consists of several two-month blocks in the following subspecialties: Spine – Trauma, Night Float, Cranial Jr, and Neurology, and two three-month blocks on Pediatrics.

The junior Spine – Trauma rotation provides the first of several concentrated and systematic exposures to the management of spinal disorders.

The junior Cranial rotation gives early exposure to a variety of cranial procedures. Residents spend quality time early in residency, rotating with the Department Chair and Program Director.

The Pediatrics rotation provides an exposure to understanding concepts of pediatric neurosurgery.

The goal of the Neurology rotation is for the resident to develop the clinical skills, professional attitudes, and knowledge base for the practice of consultation-based neurology through exposure to neurological disorders and approach to the neurological patient. The experience prepares the resident to appreciate the full spectrum of neurological illness, especially that which is nonoperative, and the role of neurosurgery within these disorders, if any.

On Night Float, the resident will have increased responsibility in the management of the emergent neurosurgical patient presenting to the ER or in transfer and the perioperative management of in-hospital urgencies and emergencies.

**PGY-3**

The PGY-3 year consists of three three-month blocks rotating in Spine – Elective, Spine – Trauma, and Cranial. There is an additional three-month block on Night Float.

The Cranial rotation has a primary focus in independently performing fundamental procedures in general neurosurgery. Basic principles are taught and significant portions of surgeries in subspecialty areas are performed, including epilepsy, functional and tumor neurosurgery.

The mid-level spine resident is expected to attain competency in the performance of straightforward spinal procedures at all levels of the spine. The resident will have exposure to spinal trauma injuries and will participate in many elective spine surgeries, gaining further understanding of degenerative spine diseases.

**PGY-4**

The PGY-4 year consists of two three-month blocks on Cranial and MH-Southwest rotations, and one six-month Cerebrovascular block.

The Cerebrovascular rotation prepares the neurosurgical trainees to be competent in the complete range of endovascular and surgical neurovascular interventions to treat tumors and vascular diseases affecting the nervous system. Elective and more focused subspecialty rotations begin after the residents have achieved core competence in neurocritical care, pediatrics, cranial and spine surgery.

New for the 2017-2018 year, each Resident will spend three months at Memorial Hermann Southwest Hospital, a satellite campus to our main clinical operations in the Texas Medical Center. This rotation exposes the resident to a general neurosurgery practice at the community hospital.
**PGY-5**
The research year (PGY-5) will be a dedicated basic or clinical science academic training experience chosen by the resident, to be approved on an individual basis. Residents are also encouraged to submit abstracts for oral presentations at national neurosurgical meetings; the department supports a minimum of one trip a year for each resident for oral presentations at national neurosurgical meetings.

The final two years (PGY-6, 7) will allow significant resident autonomy and the possibility of a certified infolding fellowship or additional research time.

**PGY-6**
PGY-6 residents will spend a full year on the neurosurgical chief-of-service rotation at Memorial Hermann-TMC, emphasizing tumor, neuro-oncology, cerebrovascular and other disorders, and their surgical treatments. Participants will spend this time as chief residents and are responsible, on an alternating basis (switching every other week with their service counterpart PGY-6 co-chief), for the administration of the service and the smooth functioning of the operating room schedule.

**PGY-7**
The PGY-7 year is spent exclusively pursuing focused area(s) of clinical interest or research. This year offers a broad opportunity to finely tune one’s operative skills and provide oversight for the entire management of the patient population on the service. The year can be comprised of a combination of various elective rotations or can be tailored to allow the resident to pursue an infolded fellowship.

**Facilities**
Founded in 1925, Memorial Hermann-Texas Medical Center is a private, nonprofit, nonsectarian teaching institution. It serves as the primary teaching hospital for McGovern Medical School at UTHealth. It was the first hospital to open in the world-renowned Texas Medical Center.

As one of only two certified Level I trauma centers in the Greater Houston area, the hospital provides 24-hour emergency and trauma care to more than 40,000 patients a year. Memorial Hermann Life Flight® air ambulance service operates a fleet of six helicopters, providing emergency rescue and air transport services to a multi-county area.

The adult neurosurgical service at Memorial Hermann-TMC is located on the 5th and 7th floors in the Jones Pavilion of the hospital. The 5th floor contains a 48-bed patient care unit. The 7th floor is a 38-bed neurosurgical intensive care unit, the second largest in the nation. This advanced setting allows our physicians to work in collaboration with nursing and other hospital staff to provide comprehensive critical care management around the clock for critically ill patients.

Pediatric neurology and neurosurgery patients are cared for at Children’s Memorial Hermann Hospital, at the Children’s Neuroscience Center.

Residents started rotating at Memorial Hermann Southwest in July 2017, and the hospital is now on the rotation list for senior residents.
Benefits

Paid Leave
- Vacation: three weeks for all PGY levels per contract year
- Sick Leave: 12 working days per contract year with a rollover cap of 30 working days, accrues 1 day per month
- Educational Leave: seven days per contract year

Insurance Programs at No Cost to Resident
- Comprehensive medical care plan
- Dental insurance
- Vision insurance
- $100,000 basic life insurance
- Disability insurance - Parts A & B
- Accidental death and dismemberment insurance
- Professional liability insurance

Other Benefits
- Dependent medical, dental and vision insurance available at group rates
- Supplemental disability insurance - Part A
- Paid and unpaid leaves of absence
- Tax-deferred annuity plans
- Uniforms and badges at no cost
- Paid membership in Harris County Medical Society and Texas Medical Association

Resources Provided by Program
- Start-up library
- Pair of surgical loupes
- Lead aprons
- Spine and skull models
- Annual book stipend
- Paid conference attendance
- Other travel (as approved)

Resident and Fellow Stipends
2017-2018 Academic Year

<table>
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<tr>
<th>PROGRAM YEAR</th>
<th>ANNUAL</th>
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<td>$ 65,932</td>
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<td>PGY-7</td>
<td>$ 68,155</td>
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</tbody>
</table>

Conferences

Grand Rounds
Neurosurgery Grand Rounds were designed with resident education as the primary focus. They are held in the Medical School Building, on Thursdays at 8 a.m. The sessions are divided into recurring topics, including neuroradiology, neurology, neuro-oncology, epilepsy, neuro-ophthalmology, neuroendocrinology and neuropathology.

Resident Curriculum Conference
In the Resident Curriculum Conference, led by Dr. Day, residents prepare and review all aspects of neurosurgical knowledge and evidence. Also in attendance are physician assistants, medical students and nurse practitioners. Each topic is reviewed once every two years, so each resident will have completed each cycle three times by graduation.

Visiting Professor Lecture Series
Throughout the year, the department hosts prominent figures in the field of neurological surgery lecturing on their areas of interest.

Visiting professor days usually consist of a pre-dinner with residents only, highlighted by a one-hour lecture, followed by a private educational session, one on one with the speaker and residents.
Neurosurgery Accreditation

Throughout the history of the Neurosurgery Residency Program, the department of Neurosurgery has made significant accomplishments. In 2010, after just three years as a Program, the Accreditation Council for Graduate Medical Education (ACGME) granted us the maximum accreditation and also approved an additional residency position. In 2016, the Program was approved for a resident complement increase and now currently accepts three residents per year for seven years of training.

Board Exam Requirements

All residents are required to take the American Board of Neurological Surgery primary written examination on an annual basis. Satisfactory progress must be shown before the resident advances to the next level of training. The examination must be passed for credit prior to the chief residency year.

The Neurosurgery Residency Program also holds “mock” oral boards to assist in examination preparation for our residents.

Recognition for the resident who achieves the highest primary exam score is given at the end-of-year ceremony. In addition, the Program offers an award for the resident who has been the biggest team player each year.

Why Houston?

As the fourth largest city in the country, Houston is filled with great diversity. Nestled among meandering bayous, towering pines and verdant parkland, Houston is a character-rich “third coast” city that roughly 6 million people call home.

The weather in Houston is favorable. With an average winter temperature of 55 degrees, opportunities for outdoor recreation take place all year round.

Locals and visitors also converge on the Museum District for afternoons exploring the area’s 19 art- and culture-filled institutions. Houston is one of the few U.S. cities to boast resident companies in all major performance disciplines: symphony, ballet, opera and theater. For those who enjoy dining out, Houston’s culinary scene is vibrant and nationally acclaimed, with world-class chefs preparing foods hailing from all cultures and influences.

Extracurricular

McGovern Medical School at UTHealth hosts numerous resident events each year to increase camaraderie and just have fun! These events include the annual Christmas Party, Post ABNS Exam Party, Graduation Dinner and other planned social events to let loose outside the auspices of the Program.

Each year, the neurosurgery residents and clinical faculty come together for the Annual Texas Neurosurgery Residency Training Programs Conference, a one-day educational conference created for participants to display and discuss current research projects.
Neurosurgery Centers of Excellence

Cerebrovascular Disease and Stroke  
Critical Care and Neurotrauma  
Neuromuscular Disorders  
Neuro-oncology  
Neurorehabilitation  
Pediatric Neurosurgery and Neurology  
Restorative Neurosurgery and Neurology  
Spine Surgery

MNI Facts

- The first neurosurgery center to offer all advanced modalities of treatment – expert microsurgery, interventional neuroradiology/endovascular surgery and Gamma Knife radiosurgery – for complex lesions.
- The first center to discover a genetic mutation linked to intracranial aneurysms.
- The first and only hospital in Texas to receive Joint Commission designation as a Comprehensive Stroke Center.
- The first center to conduct a national, multicenter trial for hypothermia in head injury.
- The first facility in Houston and one of the first in the United States to test the clot-dissolving drug tPA for acute stroke.
- The first center in Houston to test and prove the efficacy of three disparate treatments for stroke prevention: carotid surgery; administration of antiplatelet drugs, including aspirin; and patent foramen ovale closure.
- One of the first centers in the nation to offer MR-guided laser interstitial thermal therapy (MRgLITT) using the Visualase™ system for the treatment of well-delineated focal epilepsies.

How to Apply

Residency

Applications are submitted strictly through the Electronic Residency Application System (ERAS) using the National Residency Match Program (NRMP).

Application Requirements:
- USMLE Step 1 and a minimum passing score of 200
- Three letters of recommendation (preferably from other academic neurosurgeons)
- Research experience is preferred, but not required.

McGovern Medical School at UTHealth accepts International Medical Graduates (IMG) who meet the qualifications listed, in addition to completing USMLE Steps 1, 2 and 3, all with a minimum score of 200, and having a valid ECFMG Certificate.

Fellowships

McGovern Medical School currently has fellowships in Combined Open Cerebrovascular/Endovascular Neurosurgery; Neuroendovascular Surgery; and Spinal Neurosurgery and Peripheral Nerve Surgery.

If you are interested in applying for a fellowship, you must have completed an ACGME-accredited Residency Program in Neurological Surgery to qualify.

For more information, please contact education coordinator, Brooke Moore, at Brooke.N.Moore@uth.tmc.edu or 713.704.7375.

Visit our website: neuro.memorialhermann.org/residency
Faculty Listing

Leadership

Dong Kim, M.D.
Chief of Neurosurgery and Director, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Professor and Chair, Vivian L. Smith Department of Neurosurgery
Residency: University of California, San Francisco
Fellowship: University of Florida at Gainesville – Cerebrovascular Surgery and Skull Base Tumors

Arthur L. Day, M.D.
Director of Clinical Education and Cerebrovascular Programs, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Vice Chair, Professor and Program Director, Neurosurgery Residency
Residency: University of Florida at Gainesville
Fellowship: University of Florida at Gainesville – Brain Tumor Immunology

H. Alex Choi, M.D.
Director, Neurocritical Care, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: The Neurological Institute of New York
Fellowship: The Neurological Institute of New York – Neurocritical Care

David Sandberg, M.D.
Director, Pediatric Neurosurgery, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Associate Professor, Vivian L. Smith Department of Neurosurgery
Professor and Director, Department of Pediatric Surgery, Division of Pediatric Neurosurgery
Dr. Mamie Rose Professorship in Pediatric Neurosurgery
Residency: Weill Cornell Medical College
Fellowship: Children’s Hospital Los Angeles – Pediatric Neurosurgery

Neurosurgery

Arthur L. Day, M.D.
Director of Clinical Education and Cerebrovascular Programs, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Vice Chair, Professor and Program Director, Neurosurgery Residency
Residency: University of Florida at Gainesville
Fellowship: University of Florida at Gainesville – Brain Tumor Immunology

Yoshua Esquenazi, M.D.
Director of Neurosurgical Oncology, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: McGovern Medical School at UTHealth
Fellowship: McGovern Medical School at UTHealth - Epilepsy Surgery

Albert Fenoy, M.D.
Associate Professor, Vivian L. Smith Department of Neurosurgery
Residency: The University of Iowa
Fellowship: Centre Hospitalier Universitaire de Grenoble, France

Joseph C. Hsieh, M.D.
Clinical Director of Neurosurgery, Memorial Hermann Southeast Hospital
Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: University of Chicago
Fellowship: Cedars Sinai Medical Center in Los Angeles – Complex Spine

Daniel H. Kim, M.D.
Director, Reconstructive Spinal and Peripheral Nerve Surgery, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Professor, Vivian L. Smith Department of Neurosurgery
Residency: Louisiana State University
Fellowship: University of Florida – Spine Surgery

Dong Kim, M.D.
Chief of Neurosurgery and Director, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Professor and Chair, Vivian L. Smith Department of Neurosurgery
Residency: University of California, San Francisco
Fellowship: University of Florida at Gainesville – Cerebrovascular Surgery and Skull Base Tumors

Ryan Kitagawa, M.D.
Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: Baylor College of Medicine
Fellowship: University of Miami, Miller School of Medicine

John C. Quinn, M.D.
Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: Rutgers University Hospital
Fellowships: Weill Cornell Medical Center - Spine and Scoliosis Surgery; University of Virginia Medical Center - Spine Deformity Surgery

Karl Schmitt, M.D.
Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: The University of Texas Medical Branch at Galveston
Fellowship: Yale University-Yale Comprehensive Spinal Fellowship

Nitin Tandon, M.D.
Director, Epilepsy Surgery, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Professor, Vivian L. Smith Department of Neurosurgery
Residency: The University of Texas Health Science Center at San Antonio School of Medicine
Fellowship: Cleveland Clinic – Epilepsy
Endovascular

Spiros Blackburn, M.D.
Associate Professor, Vivian L. Smith Department of Neurosurgery
Residency: Washington University
Fellowships: Emory University - Cerebrovascular Neurosurgery; Mallinckrodt Institute of Radiology at Washington University - Neuroendovascular Neurosurgery

P. Roc Chen, M.D.
Associate Professor, Vivian L. Smith Department of Neurosurgery
Residency: Brigham and Women’s Hospital and Children’s Hospital Boston, of Harvard Medical School
Fellowships: Brigham and Women’s Hospital – Neuro-Interventional Radiology; Barrow Neurological Institute – Cerebrovascular and Skull Base Surgery; Thomas Jefferson University Hospital – Neurointerventional Radiology and Cerebrovascular Neurosurgery

Joseph Cochran, M.D.
Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: Medical College of Wisconsin
Fellowship: McGovern Medical School at UTHealth - Cerebrovascular/ Skull Base/ Endovascular Surgery

Mark Dannenbaum, M.D.
Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: New York University Medical Center
Fellowship: Cleveland Clinic – Vascular; Albany Medical Center – Neuroendovascular

Children’s Neuroscience

Stephen Fletcher, D.O.
Associate Professor, Division Child & Adolescent Neurology, Department of Pediatrics
Residency: The University of Texas Health Science Center at San Antonio School of Medicine
Fellowship: Dallas Children’s Hospital – Pediatric Neurosurgery

David Sandberg, M.D.
Director, Pediatric Neurosurgery, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Associate Professor, Vivian L. Smith Department of Neurosurgery
Professor and Director, Department of Pediatric Surgery, Division of Pediatric Neurosurgery
Dr. Marnie Rose Professorship in Pediatric Neurosurgery
Residency: Weill Cornell Medical College
Fellowship: Children’s Hospital Los Angeles – Pediatric Neurosurgery

Manish Shah, M.D.
Director, Pediatric Spasticity and Movement Disorder Surgery and Neurosurgery, Children’s Memorial Hermann and Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Assistant Professor, Department of Pediatric Surgery and Neurosurgery
Residency: Washington University/Barnes-Jewish Hospital
Fellowship: Washington University/St. Louis Children’s Hospital – Pediatric Neurosurgery

Neuro-oncology

Angel Blanco, M.D.
Director, Radiation Oncology and Stereotactic Radiosurgery
Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Clinical Associate Professor, Vivian L. Smith Department of Neurosurgery and Department of Neurology
Residency: Washington University School of Medicine

Sigmund Hsu, M.D.
Assistant Professor, Department of Neurology and Vivian L. Smith Department of Neurosurgery
Residency: Weill Cornell Medical College
Fellowship: The University of Texas MD Anderson Cancer Center – Neuro-oncology

Critical Care

Wamda Ahmed, M.D.
Assistant Professor, Department of Neurology and Vivian L. Smith Department of Neurosurgery
Residency: Mount Sinai Hospital Medical Center
Fellowship: Emory University School of Medicine

Ritvij Bowry, M.D.
Assistant Professor, Department of Neurology and Vivian L. Smith Department of Neurosurgery
Residency: New York University Medical Center
Fellowship: McGovern Medical School at UTHealth - Vascular Neurology and Neurocritical Care

Robert J. Brown, M.D.
Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: University of Pennsylvania
Fellowship: Washington University School of Medicine

Jay-Jiguang Zhu, M.D.
Director, Neuro-oncology, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Associate Professor, Department of Neurology and Vivian L. Smith Department of Neurosurgery
Residency: Tufts University School of Medicine in Boston
Fellowship: Massachusetts General Hospital; Harvard Medical School in Boston

Shariq Khwaja, M.D., Ph.D.
Clinical Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: Barnes-Jewish Hospital/Washington University School of Medicine

George Williams II, M.D.
Co-Director, Neurocritical Care, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Associate Professor, Department of Anesthesiology and Vivian L. Smith Department of Neurosurgery
Residency: University Hospitals of Cleveland/Case Western Reserve
Fellowship: Cleveland Clinic Foundation – Critical Care

Jeremy Ragland, M.D.
Assistant Professor, Department of Neurology and Vivian L. Smith Department of Neurosurgery
Residency: Columbia University
Fellowship: Columbia University

S. Roch Chen, M.D.
Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: Tulane University
Fellowship: Johns Hopkins University – Internal Medicine and Neurology

H. Alex Choi, M.D.
Director, Neurocritical Care, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: The Neurological Institute of New York
Fellowship: The Neurological Institute of New York – Neurocritical Care

Shariq Khwaja, M.D.
Clinical Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: Barnes-Jewish Hospital/Washington University School of Medicine

Sigmund Hsu, M.D.
Assistant Professor, Department of Neurology and Vivian L. Smith Department of Neurosurgery
Residency: Weill Cornell Medical College
Fellowship: The University of Texas MD Anderson Cancer Center – Neuro-oncology

Jeremy Ragland, M.D.
Assistant Professor, Department of Neurology and Vivian L. Smith Department of Neurosurgery
Residency: Columbia University
Fellowship: Columbia University

George Williams II, M.D.
Co-Director, Neurocritical Care, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
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Residency: University Hospitals of Cleveland/Case Western Reserve
Fellowship: Cleveland Clinic Foundation – Critical Care

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Director, Radiation Oncology and Stereotactic Radiosurgery
Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Clinical Associate Professor, Vivian L. Smith Department of Neurosurgery and Department of Neurology
Residency: Washington University School of Medicine

Robert J. Brown, M.D.
Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: University of Pennsylvania
Fellowship: Washington University School of Medicine

Jay-Jiguang Zhu, M.D.
Director, Neuro-oncology, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Associate Professor, Department of Neurology and Vivian L. Smith Department of Neurosurgery
Residency: Tufts University School of Medicine in Boston
Fellowship: Massachusetts General Hospital; Harvard Medical School in Boston

Shariq Khwaja, M.D., Ph.D.
Clinical Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: Barnes-Jewish Hospital/Washington University School of Medicine

Sigmund Hsu, M.D.
Assistant Professor, Department of Neurology and Vivian L. Smith Department of Neurosurgery
Residency: Weill Cornell Medical College
Fellowship: The University of Texas MD Anderson Cancer Center – Neuro-oncology

Jeremy Ragland, M.D.
Assistant Professor, Department of Neurology and Vivian L. Smith Department of Neurosurgery
Residency: Columbia University
Fellowship: Columbia University

George Williams II, M.D.
Co-Director, Neurocritical Care, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Associate Professor, Department of Anesthesiology and Vivian L. Smith Department of Neurosurgery
Residency: University Hospitals of Cleveland/Case Western Reserve
Fellowship: Cleveland Clinic Foundation – Critical Care

Angel Blanco, M.D.
Director, Radiation Oncology and Stereotactic Radiosurgery
Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Clinical Associate Professor, Vivian L. Smith Department of Neurosurgery and Department of Neurology
Residency: Washington University School of Medicine

Sigmund Hsu, M.D.
Assistant Professor, Department of Neurology and Vivian L. Smith Department of Neurosurgery
Residency: Weill Cornell Medical College
Fellowship: The University of Texas MD Anderson Cancer Center – Neuro-oncology

Shariq Khwaja, M.D., Ph.D.
Clinical Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: Barnes-Jewish Hospital/Washington University School of Medicine

Sigmund Hsu, M.D.
Assistant Professor, Department of Neurology and Vivian L. Smith Department of Neurosurgery
Residency: Weill Cornell Medical College
Fellowship: The University of Texas MD Anderson Cancer Center – Neuro-oncology

Jay-Jiguang Zhu, M.D.
Director, Neuro-oncology, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center
Associate Professor, Department of Neurology and Vivian L. Smith Department of Neurosurgery
Residency: Tufts University School of Medicine in Boston
Fellowship: Massachusetts General Hospital; Harvard Medical School in Boston

Shariq Khwaja, M.D.
Clinical Assistant Professor, Vivian L. Smith Department of Neurosurgery
Residency: Barnes-Jewish Hospital/Washington University School of Medicine
## Pain Management

**Ashley Kay Amsbaugh, M.D.**  
Clinical Assistant Professor, Vivian L. Smith  
Department of Neurosurgery  
**Residency:** University of Louisville School of Medicine  
**Fellowship:** University of Louisville School of Medicine - Pain Medicine

**Mark J. Burish, M.D., Ph.D.**  
Assistant Professor, Vivian L. Smith Department of Neurosurgery  
**Residency:** University of California, San Francisco – Neurology  
**Fellowship:** University of California, San Francisco – Pain Management

## 2017-2018 Residents

**PGY 7**  
Sebastian Villarreal, M.D.  
McGovern Medical School at UTHealth

**PGY 7**  
Ali Hassoun Turkmani, M.D.  
Damascus University, Syria

**PGY 7**  
Wesley Jones, M.D.  
Texas Tech University Health Sciences Center School of Medicine

**PGY 7**  
Saint-Aaron Morris, M.D.  
McGovern Medical School at UTHealth

**PGY 6**  
Jessica Stark, M.D.  
Louisiana State University School of Medicine in New Orleans

**PGY 6**  
Daniel Monsivais, M.D.  
The University of Texas Medical Branch at Galveston School of Medicine

**PGY 5**  
Keith Kerr, M.D.  
McGovern Medical School at UTHealth

**PGY 5**  
Stephen Katzen, M.D.  
Texas Tech University Health Sciences Center School of Medicine

**PGY 4**  
Brett Simpson, M.D.  
Chicago Medical School at Rosalind Franklin University

**PGY 4**  
Anthony Divito, M.D.  
University of Cincinnati College of Medicine

**PGY 4**  
Christopher Conner, M.D.  
McGovern Medical School at UTHealth

**PGY 3**  
Cole Lewis, M.D.  
McGovern Medical School at UTHealth

**PGY 2**  
Brad Budde, M.D.  
University of Illinois College of Medicine

**PGY 2**  
Phillip Choi, M.D.  
University of Pittsburgh School of Medicine

**PGY 2**  
Michael Monterey, M.D.  
Michigan State University College of Human Medicine

**PGY 1**  
Quoc-Bao Nguyen, M.D.  
Texas A&M University System Health Science Center College of Medicine

**PGY 1**  
Samantha Parker, M.D.  
Louisiana State University School of Medicine in New Orleans

**PGY 1**  
Hussein Zeineddine, M.D.  
American University of Beirut Faculty of Medicine

## Fellows

**Akinwunmi Oni-Orisan, M.D.**  
Open CV/Endovascular Surgery Fellow, 1st Year

**Rahul Shah, M.D.**  
Neurocritical Care Fellow, 2nd Year

**Niral Patel, M.D.**  
Neurocritical Care Fellow, 2nd Year

**Joshua Botdorf, M.D.**  
Neurocritical Care Fellow, 1st Year

**Brett Sharpe, M.D.**  
Neurocritical Care Fellow, 1st Year

**Kourosh Kahkesgani, D.O.**  
Neurocritical Care Fellow, 1st Year

**Swathi Kondapalli, M.D.**  
Neurocritical Care Fellow, 1st Year

## Notes