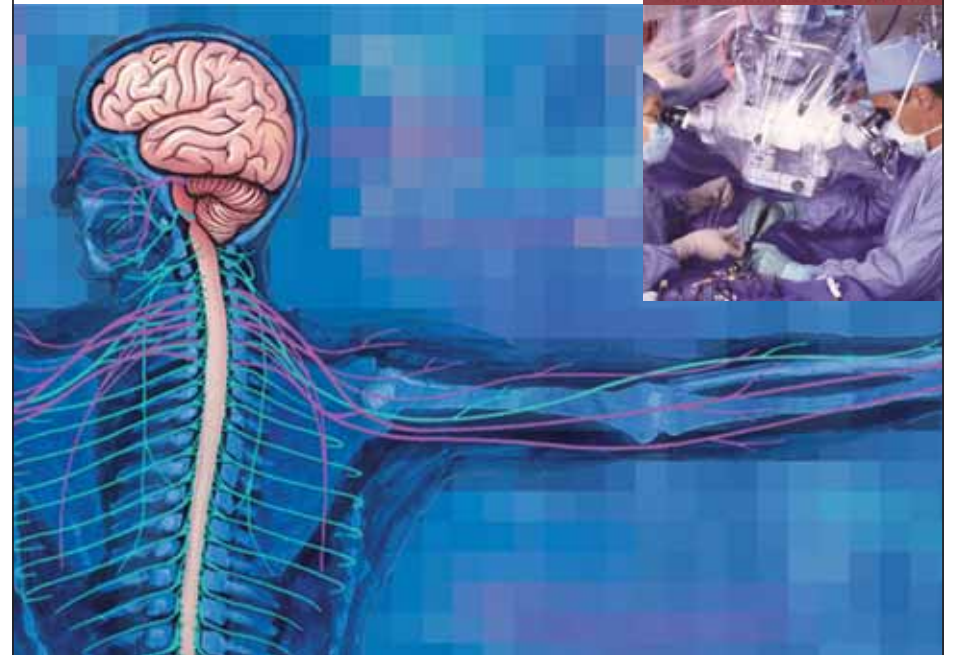
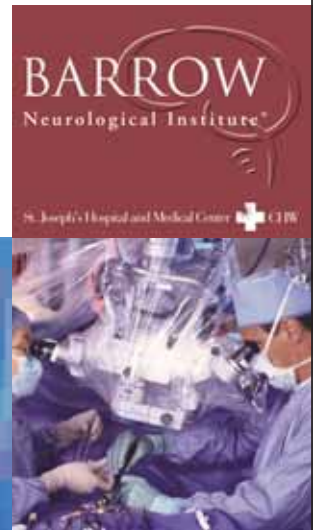


NEUROSURGERY
RESIDENCY
PROGRAM
2008-2009



Neurosurgery Residency Program

St. Joseph's Hospital and Medical Center

Founded by the Sisters of Mercy, St. Joseph's Hospital and Medical Center has achieved worldwide recognition for its contributions to patient care, medical education and research. As a tertiary care teaching hospital licensed for 690 beds, St. Joseph's provides medical and surgical care to all ages and offers specialized programs in oncology, women's services, pediatrics, gerontology, rehabilitation, sports medicine and neurosciences. The hospital's Level 1 Trauma Center provides quality care to critically injured patients. St. Joseph's Hospital is also a major teaching affiliate of the University of

Arizona College of Medicine.

Throughout a century of caring for an ever-expanding community, St. Joseph's has never lost sight of the dedication that inspired its founders. Today its reputation for medical excellence is fueled by a carefully tended balance between the spirit of compassion and state-of-the-art technology.

Barrow Neurological Institute®

Since 1962, neuroscience patients and the professionals who serve them have chosen Barrow Neurological Institute of St. Joseph's for highly skilled care. The unique capabilities, eminent physicians, technological excellence and pioneering research of Barrow are recognized internationally. Each year, patients from across the country and around the world come to St. Joseph's for the specialized care offered at Barrow.

One of the largest full-service neuroscience centers in the Southwest, Barrow houses 11 surgical suites, a 26-bed Pre-Op area, a 44-bed post-anesthesia care area, a 64-bed intensive care unit, a 80-bed intermediate care area, a 52-bed neuro-rehabilitation inpatient unit, a 15-bed epilepsy monitoring unit, subacute rehabilitation unit and outpatient neurology specialty clinics. Barrow is part of St. Joseph's Level 1 Trauma Center for brain and spinal cord injury victims in central Arizona, with nearly 1,000 head and spinal cord injury patients admitted each year.

Barrow is home to some of the most sophisticated research programs outside of an academic setting in the southwestern United States.

Physicians, scientists and expert clinical staff come together with a commitment to developing new techniques for the prevention, diagnosis, treatment and rehabilitation of neurological illnesses and injuries. Research pioneered here has led to treatments that are being used around the world.

The leadership of internationally respected physicians keeps Barrow at the forefront of neuroscience. The compassionate expertise of its extensive staff of nurses, technologists, therapists and support personnel is evident in every aspect of care provided.

Part of St. Joseph's philosophy is to offer a full continuum of care for patients from newborns to geriatrics. Barrow is exemplary in this regard as well, with programs that range from neonatal intensive care services for hydrocephalic infants to a specialized outpatient clinic for Alzheimer's patients. Because of the breadth of the Barrow programs and services, it is organized in divisions, each of which represents a number of specializations and subspecializations.

Mission Statement

Barrow Neurological Institute is located on the campus of St. Joseph's Hospital and Medical Center, part of CHW Arizona, in Phoenix, Arizona and is sponsored by the Sisters of Mercy. CHW Arizona is a division of Catholic Healthcare West.

The mission of Barrow Neurological Institute is to provide neuroscience services to metropolitan Phoenix, the Southwest, the entire United States and the international community. This is accomplished through collaborative efforts of the professional areas of Nursing, Clinical Services, Rehabilitation, Basic and Clinical Research, Administrative Support and Medical Education.

The broad spectrum of services includes health promotion, prevention, clinical services, research and education within the community and health care environment.

All areas promote justice, affirm the dignity of each person, enhance quality of life, exercise stewardship of resources, foster the healing ministry of the Church and reflect the values inherent in the Philosophy of the Sisters of Mercy. This creates an environment of mutual support, warmth and compassion in which all persons receive quality health care.

A Commitment To Quality

Barrow Neurological Institute is committed to providing superior health care. The framework for our organization-wide performance improvement plan is achieved through active participation in the Joint Commission on Hospital Accreditation process. Our multidisciplinary team health of care professionals collaborate with

Performance Improvement and Clinical Efficiency teams. In addition, to further comprehend industry indicators, Barrow participates in state and national benchmarking outcome projects and lifesaving research through grants.

Community Service

The Mercy Philosophy is the foundation for the work at St. Joseph's Hospital and Barrow. Each year, critically ill or injured neuroscience patients who would be hard-pressed to afford services on their own receive the gift of renewed hope from Barrow's dedicated physicians and staff.

Barrow is also involved in injury prevention programs. "Think First," a national campaign primarily targeted at students, teaches the public about the prevention of spinal cord and head injuries. This program sponsors an annual injury prevention event with special focus on teaching children and teens to test water depth before diving, in order to prevent spine injuries.

"Helmet Your Head" encourages students to

wear safety helmets when undertaking risky ventures such as skateboarding and bicycling. "Staying Alive" helps high school students educate their peers that a safe driver must be drug and alcohol-free.

The community has given a great deal back to Barrow Neurological Institute through generous donations. Endowments from past patients, community leaders, and fund raising groups contribute to the quality of care, research and educational programs. Such generosity has enabled Barrow to conduct basic and clinical research, pioneer new treatment methods and provide care to many who could not otherwise afford it.

Scheduled Conferences

Day	Conference	Time	Attendance
Each Monday	Pediatric Neurology/Neurosurgery	7:30 am	All Residents
Each Monday	Tumor Board	12:00 Noon	Those Interested
2nd, 3rd & 4th Wednesday	Neuropathology Brain Cutting	7:30 am	All Residents
2nd Tuesday	Morbidity & Mortality Conference	7:00 am	All Residents
2nd & 4th Tuesday	Neurosurgery Journal Club	4:30 pm	All Residents
3rd Tuesday	Neuroendocrine Conference	7:30 am	Those Interested
4th Tuesday	Skull Base Surgery Conference	7:30 am	Those Interested
Each Wednesday	Sonntag Rounds/Board Review	7:00 am	All Residents
Each Wednesday	Epilepsy Conference	12:00 Noon	Those Interested
Each Friday	Neurosurgery Clinical Conference	7:00 am	All Residents
Each Friday	Neuroscience Grand Rounds	8:30 am	All Residents
2nd Friday	Acoustic Neuroma Conference	12:00 Noon	Those Interested
Each Day	Patient Teaching Conference with Sonntag or Spetzler	4:00 pm	All Residents

Application and Matching Information

For information about how to apply to our program, please contact the National Resident Matching Program at 2450 N St. NW Washington, DC 20037, 202-862-6077 or www.nrmp.org. We only accept applications through ERAS (Electronic Residency Application Service).

If you would like more information about Barrow Neurological Institute or have any questions about the residency program not covered in this packet, please contact Leah

Plush, Neurosurgery Program Coordinator, Barrow Neurological Institute, St. Joseph's Hospital and Medical Center, 350 West Thomas Road, 240 Building, 2nd Floor, Phoenix, AZ 85013, 602-406-3196, Fax 602-798-9506, Leah.Plush@chw.edu, www.thebarrow.com, www.stjosephs-phx.org

Neurosurgery Services Overview

The Division of Neurological Surgery's internationally recognized physicians perform surgery in 11 technologically advanced operating suites. Neuroanesthesiology at Barrow complements neurosurgery by providing comfort, immobilization and sophisticated monitoring of the patient's neurological functions. One such procedure is "cardiac standstill," pioneered at Barrow to repair difficult aneurysms by lowering body temperature, stopping the heart and recirculating the blood during delicate operations.

Barrow is proud of its reputation as a medical research facility. Surgical procedures pioneered at Barrow laboratories have been applied as lifesaving measures for many patients treated here and elsewhere. Researchers in the Dr. Loyal and Edith Davis Neurosurgical Research Laboratory are devoted to learning more about the causes and treatments of a wide range of disorders, such as stroke, aneurysm, spinal cord injury and hydrocephalus.

Cerebrovascular and Skull Base Neurosurgery

Barrow is one of the major clinical, teaching and research centers in the world for the treatment of cerebrovascular disorders. Patients with aneurysms, vascular tumors, malformations, occlusions and ischemia receive expert surgical and post-operative care at Barrow.

Functional and Stereotactic Neurosurgery

This section has received world-wide attention for its pioneering techniques in the surgical treatment of epilepsy and chronic pain. Advances in stereotactic surgery – precisely targeted microsurgery using computerized tomography (CT) scan, magnetic resonance or three dimensional planning techniques for guidance – allow minimally invasive procedures.

Stereotactic Radiosurgery, including the CyberKnife, Gamma Knife, Linear Accelerator and the Peacock System are changing the way the world thinks about neurosurgery. Some patients with benign and malignant brain tumors and cerebrovascular malformations may benefit from these less invasive approaches.

Research is underway on stereotactic implants of ferromagnetic seeds, infusion of drugs and

chemicals, and surgery to reduce the symptoms related to Parkinson's disease, multiple sclerosis and trauma.

Pediatric Neurosurgery

This section performs delicate procedures to treat children with brain and spinal cord injuries and disorders. Each year, over 300 surgeries help children with complex and rare conditions such as hypothalamic hamartoma, spina bifida, cerebral palsy, craniofacial abnormalities, brain tumors and head injuries. The Pediatric Neurosurgical Research Laboratory has also made important strides in the study of hydrocephalus.

The Spine Section

This section is dedicated to the care of patients with spinal disorders, such as spinal cord injuries and the removal of obstructions, degenerative diseases, tumors and infections. Barrow's clinical research findings on acute spinal cord injuries have been heralded as landmarks in treatment techniques.

Tumor Service

This section is dedicated to treatment of patients with tumors of the brain, skull base, spinal cord, and of the spine. Several hundreds of patients are treated each year through a multidisciplinary and multimodality approaches using cutting edge technology which includes endoscopy, frameless stereotaxy and stealth navigation, intraoperative MRI, and functional MRI. The tumor board meets on a weekly basis and consists of neurosurgeons, neurooncologists, radiation oncologists and tumor biologists to offer comprehensive care for our patients. Dedicated multidisciplinary surgical teams exist for complex skull base lesions, acoustic neuromas and hypothalamic hamartomas.

Endovascular Service

Endovascular procedures are performed in the angiographic suite (located in the x-ray department), rather than the operating room. A team approach involving neurosurgery, neuroradiology, and neurology combined with the use of the highest quality angiographic equipment is essential for optimal results. Endovascular procedures are often used to visualize blood vessels through cere-

bral angiography, to open clogged or narrowed arteries, to stabilize weak and bulging vessels or to seal specific blood vessels before surgery to minimize bleeding during the operation.

Additional Neurosurgery Services

Neuroradiology

Barrow is a leader in the development of new diagnostic imaging techniques. The staff at Barrow developed a magnetic resonance imaging (MRI) procedure to diagnose carotid artery blockage that is now used in more than 1,000 hospitals worldwide. In addition to MRI and magnetic resonance angiography (MRA), clinical services include traditional cerebral angiography, myelography, computerized tomography (CT), and highly sophisticated combinations of these techniques.

Neuroradiology is used in interventional treatments, as well. Also known as “endovascular therapeutic neuroradiology,” the interventional procedures involve the insertion of materials into the blood vessels. Once introduced, the tiny materials can be used to decrease or increase the supply of blood through a given vessel. Because of the highly technical nature of the products used, this specialty is available only in advanced neuroscience centers such as Barrow.

Neuroscience Research

Outstanding neuroscientists from around the world are an essential part of Barrow’s research and teaching programs. Adjacent to the original Barrow building is the Neuroscience Research Center. At over 70,000 square feet, the Neuroscience Research Center is dedicated to the clinical advances of neuro-

science treatment, illness and injury.

Backed by generous external funding, their efforts have resulted in promising studies on a variety of fronts. Individual laboratories are dedicated to investigations in the fields of molecular neurobiology, genetics, neurochemistry, neuropsychology, motor systems and pain research.

Neuropathology

Patient services are enhanced by the availability of on-site diagnostic services for specimens biopsied during neurosurgical procedures and for biopsies of nerve and muscle. Such specimens are also sent to Barrow for analysis from institutions across the country. Ongoing research investigations include the causes of nerve disease in patients with diabetes and methods for determining the prognosis of patients with brain tumors.

Radiosurgery

The CyberKnife, a new radiosurgery technology, has revolutionized the treatment of intracranial and extracranial lesions. This technology allows lesions anywhere in the body to be targeted precisely and accurately. The CyberKnife is used to treat vascular abnormalities; malignant and benign tumors; and cancers in the brain, spine, chest, and abdomen.

The CyberKnife expands Barrow’s suite of radiosurgery and radiation therapy technologies and enables Barrow clinicians greater flexibility in customizing the optimal treatment for each patient.



The campus of St. Joseph’s Hospital and Medical Center and Barrow Neurological Institute. The inset above is the new Neuroscience Tower.

Resident Call Schedule

PGY Level	Number Calls/Month	Weekend/Holiday	Fridays
6	0	0	0
5	2	1	1-0
4	3-4	1	1-0
3	5-6	2	1 each
2	6-7	2-3	1-3

Salary & Benefits (applies only to the 2008-2009 Academic Year)

PGY-1	\$46,550.40	PGY-5	\$55,057.60
PGY-2	\$48,339.20	PGY-6	\$57,075.25
PGY-3	\$50,564.80	PGY-7	\$61,505.60
PGY-4	\$53,081.60		

Benefits

- Medical insurance for resident and dependents
- Dental insurance for resident and dependents (two plan options offered)
- Vision care, including eye exams, frames, lenses and contacts
- Health care reimbursement accounts
- Dependent care reimbursement accounts
- Life insurance to 3x annual salary at no cost
- Long term disability insurance at a maximum allowable of 66 2/3% of monthly base salary
- Worker’s compensation insurance
- Malpractice insurance
- Maternity leave in accordance with Federal Family and Medical Leave Act of 1993, residents are eligible for Maternity Leave consisting of six (6) weeks paid time off with continuation of full benefits
- Paid vacation consists of 23 days (includes weekends) each year with additional time for educational conferences.
- U.S. Saving Bonds available through payroll deduction
- Credit union available to residents and their immediate family members
- Housing (a limited number of on-campus apartments are available for rent on a first-come, first-serve basis)
- Notary service, free to all residents is available
- Loan deferrals
- Concierge Service
- 403B retirement plan with matching

Procedures Performed at Barrow Neurological Institute

Procedure	2007	Procedure	2007
Tumor	558	Spine	2,013
Vascular	1,020	Peds	245
Shunts	499	Endovascular	990
Functional	399	Stereotactic Radiosurgery	418
		Total Cases	6,142

Neurosurgery Rotation Schedule 2008-2009

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL	MAY	JUNE
Chief	Neurovascular Chief (4)				Spine Chief (4)				Other Chief (4)			
	Spine Chief (4)				Other Chief (4)				Neurovascular Chief (4)			
	Other Chief (4)				Neurovascular Chief (4)				Spine Chief (4)			
PGY-6	Research (12)											
	Research (12)											
PGY-5	RCH (2)		Neurosurg (2)				Research (3)			NS (1)	RCH (1)	
	RCH (1)	NS (1)	Research (3)			Neurosurgery (5)				Research (2)		
	NS (1)	RCH (2)		NS (2)		RCH (2)		NS (2)		RCH (2)		NS (1)
PGY-4	Neurosurgery (3)			Selective Spec Clinic (3)			NS (1)	RCH (2)		Neurosurgery (3)		
	Selective Spec Clinic (3)			Neurosurgery (4)			Rch (1)		Neurosurgery (4)			
	Neurosurgery (3)			Rch (1)	Neurosurg (2)		Selective Spec Clinic (3)			Neurosurgery (3)		
PGY-3	Pediatrics (3)			Neurosurgery (3)			Endovascular (3)			Spetzler's Service (3)		
	Endovascular (3)			Spetzler's Service (3)			Pediatrics (3)			Neurosurgery (3)		
	Spetzler's Service (3)			Pediatrics (3)			Neurosurgery (3)			Endovascular (3)		
	Neurosurgery (3)			Endovascular (3)			Spetzler's Service (3)			Pediatrics (3)		
PGY-2	Neurosurgery (12)											
	Neurosurgery (12)											
	Neurosurgery (12)											
	Neurosurgery (12)											
	Neurosurgery (6)			Neurology (3)			CC (1.5)		T (1.5)			
PGY-1	Neurosurgery (6)			CC (1.5)		Trauma (1.5)		Neurology (3)				
	Neurology (3)			CC (1.5)	Trauma (1.5)		Neurosurgery (6)					
	CC (1.5)	Trauma (1.5)		Neurology (3)			Neurosurgery (6)					

Faculty



Robert F. Spetzler, M.D., F.A.C.S.
Director, Barrow Neurological Institute
Chairman, Division of Neurological Surgery



William White, M.D.
Chief, Surgical Endocrinology



Peter Nakaji, M.D.
Medical Director, Neurosurgical ICU



Volker K.H. Sonntag, M.D.
Vice Chairman, Division of Neurological Surgery
Director, Neurosurgery Residency Program Chief, Spine Section



Kris Smith, M.D.
Chief, Section of Gamma Knife



Ruth Bristol, M.D.
Staff Neurosurgeon



Joseph D. Zabramski, M.D., F.A.C.S.
Chief, Section of Cerebrovascular Surgery



Cameron McDougall, M.D.
Chief, Division of Endovascular Neurosurgery



Taro Kaibara, M.D.
Neurosurgeon



Brian Fitzpatrick, M.D.
Chief, Section Neurological Trauma-Scottsdale



Harold L. Rekate, M.D., F.A.C.S., F.A.A.P.
Chief, Pediatric Neurosurgery



Raj Singh, MD
Director, BNA Rehabilitation Institute of Scottsdale



Frederick Marciano, M.D.
Director of Clinical Neuroanatomy Laboratory



Randall Porter, M.D.
Chief, Interdisciplinary Skull Base Section



Gregory Humphrey, MD
Associate Director, Barrow Neurosurgical Associates NeuroSpine and Rehab Center



Curtis Dickman, M.D.
Associate Chief, Spine Section
Director, Spinal Research



Frank Barranco, M.D.
Associate Medical Director, Surgical Neuroendocrine Section



David Fiorella, MD
Staff, Interventional Neuroradiologist



Nicholas Theodore, MD
Director, Neurotrauma
Associate Program Director, Neurosurgery Residency



Felipe Albuquerque M.D.
Associate Chief, Division of Endovascular Neurosurgery



Andrew G. Shetter, M.D., F.A.C.S., F.A.C.P.M.
Chief, Section of Functional and Stereotactic Neurosurgery
Director, Atkinson's Pain Research Laboratory



Stephen Papadopoulos, M.D.
Director, Outpatient Spine Care Center
Director, Image-Guided Surgery

Neurosurgery Residents



PGY7
Elisa Beres, M.D.
University of Virginia



Steve Chang, M.D.
University of North Carolina



Peter Maughan, M.D.
University of Utah



PGY6
Udaya Kakarla, M.D.
Indiana University



Andrew Little, M.D.
University of California, Irvine



PGY5
Brendan Killory, M.D.
Columbia University



Francisco Ponce, M.D.
University of Chicago



Scott Wait, M.D.
East Carolina University



PGY4
Giac Consiglieri, M.D.
USC, Keck School of Medicine



Mark Garrett, M.D.
Emory University School of Medicine



Rasha Germain, M.D.
USC, Keck School of Medicine



PGY3
Adib Abba, M.D.
University of Pittsburgh



Richard Lochhead, M.D.
Columbia University



Timothy Uschold, M.D.
Duke University



David Wilson, M.D.
Columbia University



PGY2
Justin Clark, M.D.
University of Michigan



Kate Cronk, M.D.
Columbia University



David Fusco, M.D.
Columbia University



Mark Mahan, M.D.
Columbia University



PGY1
James Kalyvas, M.D.
Columbia University



Sabareesh Natarajan, M.D.
PGIMER



Mark Oppenlander, M.D.
University of Michigan



Laura Snyder, M.D.
Jefferson Medical College

Neurosurgery Residency Program Overview

The Neurosurgery Residency Program requires a seven year commitment.

An integral part of St. Joseph's Hospital and Medical Center, the Barrow Neurological Institute, encompasses six divisions: Neurological Surgery, Neurology, Neuro-anesthesiology, Neurobiology, Neuropathology, and Neuroradiology. The objective of the Barrow is to foster excellence in patient care, education and research. These goals are pursued vigorously by the staff of the Division of Neurological Surgery with 19 full-time, board-certified Neurosurgeons, 23 Residents, 6 Clinical Fellows and several Research Fellows.

The Residency Program in Neurological Surgery is rigorous and fully accredited by the Accreditation Council for Graduate Medical Education. Four applicants a year are selected through the National Resident Matching Program (NRMP). Successful applicants are prepared to assume both academic and clinical leadership roles in Neurosurgery.

The residency program in neurosurgery consists of 84 months of training in fundamental skills, clinical neurosurgery and research. The intern year is under the auspices of the Neurosurgery Residency Program Director of Barrow Neurological Institute. The PGY1 year is dedicated to training in skills fundamental to becoming a neurosurgeon. Three months of the PGY1 year is spent on the neurology service at the Barrow, fulfilling the first Neurosurgery Board requirement. Five years are dedicated to clinical neurosurgery training, including rotations in endovascular and vascular surgery, or electives. In addition to the core neurosurgical training, eighteen months of training is devoted to further laboratory research or other electives.

Residents develop their clinical skills by caring for patients in need of the entire spectrum of neurological surgery: trauma, cerebrovascular, spine, neoplastic, functional and pediatric. The

breadth of the clinical experience available to residents is reflected by the volume of patients at the Barrow.

Academic activities are an integral part of the program. Residents are encouraged to participate in ongoing research in either the microsurgical, cerebrovascular, pediatric, pain, or spinal injury neurosurgical laboratories and to design their own research projects. Residents can also participate in a wide range of basic neuroscience laboratories in the Division of Neurobiology. Residents are expected to prepare papers for publication and for presentation at national and international meetings. Regularly scheduled clinical and research conferences feature invited experts as well as provide a forum for residents to present their work to a constructively critical audience.

The clinical and research environment of the Division of Neurological Surgery is further enriched by three fellowships (there are 2 positions per program). Clinical fellowships include a six month research rotation, active participation in resident teaching and are available to applicants with an interest in sub-specializing who have finished their residency. The cerebrovascular/skull base fellowships is one-year in duration and offers comprehensive hands-on experience in skull base procedures, extra and intracranial vascular surgery. Spine fellows acquire a breadth of preoperative and postoperative training encompassing all complex spinal disorders. Endovascular fellows receive advanced training in diagnostic and therapeutic endovascular surgical neuroradiology procedures. Fellowship alternate between a six-month clinical and a six-month laboratory rotation, in addition to contributing to resident education.

Medical students are invited to apply for four week Neurosurgery electives in September, October and November of their senior year. The