

Description of Training Program Covering Each Specific Year

PGY1

The neurosurgical resident begins his/her training from the PGY1 level with the Department of Neurosurgery. The year is divided into two six-month blocks. One block is assigned to expose the resident to other surgical and non-surgical disciplines. Rotations may vary from year to year but are currently assigned as follows in one month rotations: 1) Plastic Surgery; 2) Otorhinolaryngology; 3) Surgical ICU; 4) Trauma Service; 5) Cardio Thoracic Surgery; 6) Anesthesia. The second six month block is assigned to the neurosurgical service at University Hospital and includes exposure to the assigned to the neurocritical care service, consultation service, ward service and the operating room. The resident is expected to participate in all educational conferences and to take the American Board of Neurological Surgery primary written exam for non-credit only. The resident is expected to participate in outpatient clinics of the neurosurgical faculty and the Chief Resident's clinic.

PGY2

The second year is divided into two six month blocks. The first six months are spent as a junior resident on the neurosurgery service at UHS. During this year, the resident begins to learn protocols for preoperative evaluation, surgical set-up and begins to assist in selected cases. As the resident progresses he/she is given the appropriate operative responsibilities.

The second six month block consists of resident service at the Veteran's Administration Hospital. The resident works closely with the site's program director and first assists in all surgical cases and attends all clinics. The resident is responsible for the preoperative work-up and preparation of the patients as well as all postoperative management. The resident is expected to attend all educational conferences and to take the American Board of Neurological Surgery primary written examination for self evaluation.

PGY3

The first six months of the third postgraduate year are spent at the CHRISTUS Santa Rosa Children's Hospital (CSRCH) where the experience is solely concentrated to the introduction of the management of the pediatric neurosurgical patient. The Pediatric Neurosurgery Service is staffed by two Board Certified Pediatric Neurosurgeons who manage the entire gamut of neurosurgical pediatric problems and diseases. During these six months, the resident works closely with the faculty and is responsible for first call duties while abiding to the 80 hour work week guidelines. The resident is responsible for the preoperative evaluation and preparation of the patients as well as the postoperative care of all neurosurgical in-patients. The resident attends to all of the outpatient clinics and responds to emergency neurosurgical consults.

Three months of the second half of the PGY3 year are spent rotating with the Neuropathology Service at UTHSCSA. During the three months spent in this discipline, the resident:

1. Gains an understanding of the basic pathological processes (general pathology).

2. Gains an understanding of the basic processes peculiar to the pathology of the nervous system, such as Wallerian degeneration and regeneration, trans-synaptic degeneration, demyelination, tumors.
3. Learns the anatomy and functions of the regions, tracts and nuclei of the CNS, taking advantage of the material at hand for brain-cutting and anatomic dissection.
4. Learns to recognize and interpret evidence of gross and microscopic disease of the nervous system, and acquire an understanding of the causes and mechanisms of the changes.
5. Learns to correlate clinical and pathological findings related to the nervous system, and to relate these to findings in other systems.
6. Becomes familiar with basic neuropathological and neuroanatomic texts, and learn to locate and analyze pertinent literature.
7. Gains an appreciation for the diagnostic contribution made by the neuropathologist, and for the factors which may limit this contribution in some situations, e.g., the problems of small specimens or sampling error in the assessment of tumors.
8. Gains some familiarity with neuropathological research, and with the contributions to neurosurgical research made with neuropathological techniques.

Three months of the second half of the PGY3 year are spent with the Neuroradiology Service under the supervision and direction of 3 staff neuroradiologists. The residents are exposed to a concentrated study of the clinical and basic science principles of neuroradiology. The residents attend to neuroradiologic procedures (cerebral angiograms, myelograms, etc) as well as scheduled daily readings of CAT scans and MRI scans of the University Hospital and outpatient population. The resident is expected to be present and assist the staff neurointerventionalist in all endovascular cases.

During the three months spent in this discipline, the resident:

1. Acquires a systematic approach to the interpretation of imaging studies (CT, MRI, fMRI, MR Spectroscopy, PET, MEG, angiography, radionuclide studies, and ultrasound).
2. Becomes familiar with the vascular and internal anatomy of the CNS as revealed by various imaging studies.
3. Learns the advantages, disadvantages and limitations of available imaging techniques for the study of lesions affecting the nervous system.
4. Acquires a detailed knowledge of the complications associated with invasive imaging procedures used to assess lesions of the nervous system.
5. Familiarizes him/herself with the scope and role of endovascular neurosurgery.
6. Acquires an appreciation for the role of neuroradiology in the multi-disciplinary approach to patients with neurological disorders.

PGY4

At the beginning of the resident's third year in the Neurosurgery program, opportunity is given for six months of elective rotations (two rotations). By allowing elective time

midway through the residency, the resident is allowed and encouraged to explore areas of interest in the neurosurgical field. During this time, the resident may spend 3 months in a Neuroendovascular Rotation under the supervision of Dr. Christopher Koebbe, a member of the Department of Neurosurgery. During the three months spent in this discipline, the resident:

1. Performs the pre-procedure evaluations of patients and analyze the indication and appropriateness criteria of the different neuroendovascular procedures.
2. Acquires a basic knowledge of neuroangiographic anatomy.
3. Becomes familiar with the radiographic technical principles involved in neuroangiography and with the Special Procedures Room protocols.
4. Gains a basic understanding of the radiation safety principles that apply to neuroangiography
5. Gains an appreciation of the basic principles of angiographic equipment, catheterization techniques and contrast agents used in diagnostic and interventional procedures.
6. Is able to interpret the angiographic images and elaborate a preliminary diagnosis.
7. Coordinates the short-term and long-term post procedure care for patients undergoing neuroendovascular procedures.

Based upon the resident's specific career goals and research interests, an additional elective rotation maybe undertaken for three months and incorporated beginning with this PGY4 year. Elective time may be spent intramurally in any one of the following areas: endovascular, spine, functional and epilepsy neurosurgery, vascular neurosurgery, or neurocritical care. Extramural rotations can be arranged with prior approval of the Program Director and the ABNS.

The resident may take time to attend surgico-anatomical workshops conducted by the faculty. These are aimed at teaching the resident surgical cranial and spinal approaches in cadavers and models. The residents have at their disposal, a fully equipped microsurgical laboratory station with a state-of-the-art surgical operating microscope and microinstrumentation. Live animal surgery can be scheduled through the neurosurgical research lab. This experience allows the resident the ability to sharpen and refine their microsurgical skills by performing vascular surgery (patching, end-to-end anastomosis, side-to-side anastomosis, bypass grafts) and peripheral nerve surgery (various grafting methods). The goal is to familiarize the resident to more complex neurosurgical procedures.

The second half of this year is spent as at the University Hospital. In addition to increasing levels of responsibility, the resident works closely with the Chief Resident in managing the service. He/she is expected to partake increasing levels of educational activities of the junior residents, rotating residents and medical students. At this stage, the resident begins to prepare for the upcoming research year and should formulate a reasonable and achievable research plan.

PGY5

The PGY5 year is designated as the primary research year. Beginning in year NS4, potential areas of interests are begun to be defined and explored with the resident. The resident will have several options from which to pick an area of concentrated basic science research: cerebral neuroprotection, mechanisms of injury during perfusion and reperfusion and ischemia, systemic hyperthermia and its effects on cerebral function microcirculation and autoregulation, pial window model for study of traumatic brain injury, brain tumor cell cultures, spinal cord injury, craniofacial research including genetic analysis of craniosynostosis, exploration of neuroprotective signaling, mitochondrial response to stress and neurodegenerative conditions, neurorestorative potential of stem cells, stroke, and Freidreich's Ataxia and gp120 induced neuronal signaling. Under the direction of Dr. Digicaylioglu, a project is chosen and a 12 month time line is selected for the culmination of this project. It is expected that the resident will become the principal author of at least one publication in the area of research chosen by the resident. The overall goal is to expose the resident to mechanisms of neuro-degeneration and become familiar with techniques of molecular biology, genetics, cell culture and pial window, insight into academic drug development, spinal cord injury model (NYU), stroke model in mice and generation, induction and grafting of stem cells. By working closely with Dr. Digicaylioglu, the resident will gain a greater insight into the rigorous, technical and statistical aspects of scientific research. Opportunity will be given to residents to attend national meetings such as the RUNN course and attend a specialty meeting in their area of research.

PGY6

During the first six months of the NS5 year, the resident is assigned as Senior Resident to the VA Hospital. The resident is expected to be the primary surgeon in the majority of the cases and to play a major role in the management of the out-patient clinics. Increasing levels of autonomy and responsibility during this rotation, help prepare the resident for his/her Chief Resident year.

The second six months are spent as Senior Resident at the CSRCH. Likewise, he/she is expected to perform and be the primary surgeon in complex pediatric neurosurgical procedures.

PGY7

During the PGY7 year, the resident is assigned the duties of Chief Resident at both the UHS and VA Hospital. The Chief Resident's duties include the overall clinical and administrative services at both institutions. The Chief Resident works closely with the faculty in the selection, scheduling and execution of operative neurosurgical cases. His/her administrative duties include the management of the resident on-call schedule, vacation schedule, conference and national meeting resident attendance. The Chief Resident leads the daily rounds with the junior residents, PAs, nurses, and rotating interns and/or medical students on a daily basis and establishes the management parameters and the plans for in-patient and consultative neurosurgical service.

Policy on Resident Selection and Appointment

Resident Eligibility

As per ACGME Institutional Requirements, applicants for residency training at UTHSCSA must meet one of the following qualifications:

- Graduate of medical school in the U.S. and Canada accredited by the Liaison Committee on Medical Education (LCME) or the American Osteopathic Association (AOA).
- Graduate of an international medical school, meeting one of the following qualifications:
 - Have a currently valid ECFMG certificate or
 - Have a full and unrestricted license to practice medicine in a U.S. licensing jurisdiction.
- Graduate of international medical school who has completed a Fifth Pathway program provided by an LCME-accredited medical school.

All first year residency positions (PGY-1) should be offered through the National Residency Matching Program. When programs do not fill through the match, residents may subsequently be appointed to unfilled positions from the pool of unmatched students, or other sources, as long as they meet institutional standards.

All resident applicants must be subjected to a Security Background Check (please see specific policy) before beginning residency training. Any individuals listed by a federal agency as excluded, suspended, or otherwise ineligible for participation in federal programs (Institutional Compliance Agreement p.6 of 18) are ineligible for residency or fellowship at UTSCSA.

The non-citizen resident must have permanent resident status, J-1 visa, or approved H-1B visa for medical residency position at the UTHSCSA (please refer to the visas policy).

Resident Selection and Appointment

It is the policy of the UTHSCSA and its affiliated hospitals to sustain resident selection processes that are free from impermissible discrimination. In compliance with all federal and state laws and regulations, the University of Texas System Policy, and Institutional Policy, no person shall be subject to discrimination in the process of resident selection on the basis of gender, race, age, religion, color, national origin, disability, sexual orientation, or veteran status.

Residency programs' resident selection committees rank candidates on the basis of the group's assessment of the individual's potential contributions in that particular specialty of medicine. These judgments are based on the applicant's academic performance, the assessment of their faculty as reflected in letters of recommendation, and personal qualities evaluated during the interview process conducted by faculty and resident representatives, including motivation, integrity, and communication skills.

In addition to the guidelines above, the TSBME mandates a **postgraduate resident permit** for all residents entering Texas programs. These rules essentially make it necessary for the resident to demonstrate that he/she will be eligible for permanent licensure in Texas. Residents are expected to be familiar with the regulations at

<http://www.tsbme.state.tx.us>.