

VCU Neurosurgery

Competency-based Goals and Objectives

PGY1 Neurosurgery Clinic

Goals: Introduce the first-year resident to the neurosurgery outpatient clinic; gain a familiarity with the evaluation of common neurosurgical diagnosis; instill a sense of professionalism through one on one interaction with the faculty in their respective clinics.

Objectives: Attendance to all scheduled clinics; become proficient with taking a patient history and performing a focused neurologic exam pertinent to patient's diagnosis; develop a differential diagnosis and treatment plan in concert with the attending physician; learn and assist the attending with medical documentation of outpatient clinic visits

PGY1 Neurosurgery Ward Rotation

Goals: Introduce the first year resident to the neurosurgery inpatient ward; gain a familiarity with the evaluation of common post-operative neurosurgical problems; gain experience working in a team environment

Objectives: Become proficient in conducting daily rounds and medical documenting in the EMR; become proficient with writing medical orders; recognize patients with clinical deterioration both medical and neurologic; become proficient in assessing and treating post-operative pain; become proficient in developing discharge plans for simple and complex patients.

PGY1 Neurosurgery ICU Rotation

Goals: Introduce the first year resident to the neuroscience intensive care unit; gain a familiarity with the evaluation of critically ill neurosurgical patients and the common problems this patient population experiences; develop a differential diagnosis and initial treatment plan for the neurosurgery patients in the NSICU; gain experience working in a team environment; develop a basic proficiency with common neurosurgery ICU procedures.

Objectives: Participate with both the neurosurgery team rounds and the intensivist team rounds; perform initial neurosurgery consultations in the ED and hospital and learn case presentation skills; learn basic interpretation of neuro-imaging (x-rays, CTs, MRIs); become proficient with common neurosurgery ICU procedures, i.e. LPs, central lines, arterial lines, ventriculostomies and tracheotomies; learn treatment protocols for spinal trauma, traumatic brain injury, subarachnoid hemorrhage, brain tumors and ischemic/hemorrhagic stroke; become proficient with writing medical documentation and orders in the ICU; develop communication skills with patients, families, nurse, consultants and NS faculty.

PGY1 Surgery Trauma ICU & General Surgery

Goals: Introduce the first year resident to the ICU care of general surgery and trauma patients; gain a familiarity with the evaluation of critically ill general surgery and multi-trauma patients and the common problems this patient population experiences; develop a differential diagnosis and initial treatment plan for these patients; gain experience working in a team environment with the trauma surgery service; develop a basic proficiency with common STICU procedures

Objectives: Participate with trauma surgery team on ICU rounds; perform trauma consultations in the ED and hospital; become proficient with case presentation skills; learn basic interpretation of imaging (x-rays, CTs, MRIs) in trauma patients; become proficient with common STICU procedures, i.e. central lines, arterial lines, feeding tubes and tracheotomies; learn treatment protocols for general surgery diagnosis and trauma diagnosis; become proficient with writing medical documentation and orders in the STICU; develop communication skills with patients, families, nurse, consultants and STICU faculty.

PGY1 Neurosurgery OR

Goals: Introduce the first year resident to the OR environment; gain a familiarity with basic routines and tasks in the OR including documentation, pre and post-operative orders and patient positioning; develop a basic competence with opening and closing incisions

Objectives: Participate with the chief resident and attending surgeon in performing cranial, spinal, functional and peripheral nerve surgeries.

PGY1 Neuro-endovascular Service

Goals: Introduce the first year resident to the endovascular suite; gain a familiarity with basic routines and tasks in the endovascular suite including documentation, pre and post-operative orders and patient positioning; develop a basic competence with arterial cannulation and angiographic anatomy.

Objectives: Participate with the upper-level resident and attending surgeon in performing endovascular surgeries.

PGY1 Neuroradiology

Goals: Introduce first-year residents to neuro-imaging techniques with plain films, CT and MRI; develop a basic competence with interpreting imaging studies and radiographic neuroanatomy.

Objectives: Participate in reading cross section studies with the neuroradiologist.

PGY1 Neurology: Consults

Goals: Introduce the first year resident to the neurology service; develop a basic competence with the neurologic assessments; gain a familiarity with common neurology diagnosis and their workups.

Objectives: Perform the basic routines and tasks on the neurology service including documentation, ordering common diagnostic tests and performing basic neurology procedures.

PGY1 Neurology: EMG & EEG

Goals: Introduce the first-year resident to the use of neurophysiologic testing; gain an understanding of the theory behind these techniques as well as an appreciation of the strength and limitations for these studies in the clinical setting.

Objectives: During this rotation, the residents will participate in EMG/nerve conduction studies with the neurology residents, fellows and attendings, read EEGs with the residents, fellows and attendings and attend the Multi-disciplinary nerve injury clinic.

PGY1 Neurology: Eastern Shore Rotation (Robert Paschal)

Goals: Introduce the first year resident to the practice of neurology in a community based setting; develop proficiency with the neurologic exam and assessments; develop proficiency with common neurology diagnosis and their workups.

Objectives: Attend clinic, evaluate consults and perform lumbar punctures with Dr. Paschall.

PGY1 Neurology: Neuro-Ophthalmology

Goals: Introduce the first-year resident to neuro-ophthalmology and the diagnostic techniques. Gain an understanding of the theory behind these techniques as well as appreciation of the strength and limitations for these studies in the clinical setting.

Objectives: During this rotation the residents will participate in neuro-ophthalmology clinic with the neurology residents, fellows and attendings; participate in the interpretation of the clinical examination and optic pathway testing for patients with pathology affecting the visual pathway.

PGY1 Radiosurgery

Goals: Introduce residents to the principle of radiotherapy and radiosurgery

Objectives: During this rotation the residents will attend the multi-disciplinary brain tumor clinic; participate in creating computerized radiosurgery treatment plans in conjunction with a neurosurgery attending, radiation oncologist and physicist.

PGY2 Junior Resident

The PGY2 residents alternate months as the ICU resident and the OR resident. The ICU resident has primary responsibility of overseeing the neurosurgical critical care issues in the ICU patients and sees

consults throughout the hospital. The OR resident primarily assists the chief resident, but also obtains some independent operative experience with basic procedures.

Goals and objectives

Patient care

- Skillfully evaluate and manage neurosurgical problems.
- Capable of performing a thorough neurologic exam.
- Accurately interpret diagnostic tests, such as plain x-rays, CT scans, MRI scans, EMG and laboratory tests.
- Determine the correct diagnosis.
- Manage post-operative patients.
- Initiate appropriate further evaluation or treatment.
- Provide neuroscience critical care for head injury, stroke and other common diagnosis in the NSICU, including:
 - Traumatic brain injury.
 - Spinal cord injury.
 - Intracranial hemorrhage.
 - Subarachnoid hemorrhage.
 - Elevated intracranial pressure.
- Demonstrate progressive surgical ability.
- Assist with major neurosurgical procedures.
- Attain the basic neurosurgical skills necessary to begin work as a primary surgeon.
- Become proficient with common bedside procedures.

Medical knowledge

- Plan and interpret diagnostic tests, such as plain x-rays, CT scans, MRI scans, EMG and laboratory tests.
- Demonstrate medical knowledge to formulate treatment plans for common neurosurgery diagnoses.
- Demonstrate a firm understanding of the neurophysiology of raised intracranial pressure.
- Participate in neurosurgery conferences.

Practice-based learning

- Use available resources to research interesting or unusual cases that he or she evaluates.
- Present cases that he or she is involved with at the monthly quality assurance conference.

Interpersonal and communication skills

- Demonstrate skills to effectively and compassionately communicate with patients, families and staff.
- Concisely and accurately present case vignettes to upper-level residents and faculty.

Professionalism

- Carry out activities with a high degree of professionalism.
- Attend monthly GME lecture series on the elements of professionalism.

Systems-based practice

- Gain an understanding of the importance of his or her contributions to the health system's smooth functioning by providing timely and proficient consulting services to the emergency department and wards, especially in the context of the Level 1 Trauma designation.
- Gain an appreciation for the value of the consulting and ancillary services provided to neurosurgery patients and resulting improvements in health care delivery.

PGY3 VAMC

The PGY3 resident at the VAMC has surgery 3.5 days per week and 1 full day of clinic. Additionally, they are the primary physician for inpatients on the neurosurgery service.

PGY3 VCU

The PGY3 rotates with neuropathology. They are involved with frozen sections, teaching conference and brain cutting. They complete computerized self-paced learning programs authored by the neuropathologist. They attend the multi-disciplinary brain tumor conference and prepare a monthly pathology/neuroradiology/neurosurgery case conference.

Goals and objectives

Patient care

- Maintain a high level of patient care as outlined for the PGY-2 rotations.
- Acquire specific skills for the evaluation and treatment of neurovascular/interventional patients during the neuroradiology rotation.
- During the pediatric rotation, become proficient with the neurologic assessment and treatment of newborns through adolescents.
- Become proficient with routine neurosurgical procedures such as cervical and lumbar discectomies, CSF shunts, simple peripheral nerve procedures and simple cranial procedures.
- Through the involvement in the subspecialty clinics, have a solid approach for the evaluation of patients with brain tumors, movement disorders, epilepsy, cerebrovascular disorders and peripheral nerve disorders.

Medical knowledge

- Have a firm medical knowledge in the areas of neuropathology and neuroradiology following rotations.
- Participate in neurosurgery conferences.
- Prepare and take the national board written examination for neurosurgery.

Practice-based learning

- Use available resources to research interesting or unusual cases that he or she evaluates.
- Present cases that he or she is involved with at the monthly quality assurance conference.

Interpersonal and communication skills

- Demonstrate a high level of communication skills.

Professionalism

- Carry out his or her activities with a high degree of professionalism.
- Attend monthly GME lecture series on the elements of professionalism.

Systems-based practice

- Further appreciation for a systems-based practice through participation in multidisciplinary clinics for pediatrics, cerebrovascular disease, movement disorders, brain tumors and peripheral nerve injuries, as well as consultant activities in the pediatric ICU.

PGY4

The PGY4 year is devoted to acquiring surgical skills. Six months are spent on the busy VCU service and the resident goes to the OR on a daily basis. The other six months are spent at the VAMC with clinic 1 day per week and 3.5 operating days.

Begin in the PGY4 year residents take upper level “chief call” from home. On service residents cover the weekdays and the weekend call is rotated between all residents PGY4-6 except for those assigned to the VAMC.

Goals and objectives

Patient care

- Provide a high level of patient care as outlined in all earlier rotations.
- Graduated responsibility consistent with his or her skills for evaluations and surgeries.
- Become proficient with difficult neurosurgical procedures such as spinal trauma, brain tumors, aneurysms and spinal instrumentation.
- Occasionally lead team rounds and teach junior residents and medical students.

Medical knowledge

- Present the pathology conference once a month at the neurosurgery grand rounds.
- Participate in neurosurgery conferences.

Practice-based learning

- Use available resources to research interesting or unusual cases that he or she evaluates.
- Present cases that he or she is involved with at the monthly quality assurance conference.

Interpersonal and communication skills

- Demonstrate a high level of communication skill.

Professionalism

- Carry out his or her activities with a high degree of professionalism.
- Attend monthly GME lecture series on the elements of professionalism.

Systems-based practice

- Gain an understanding of how economic factors affect neurosurgical practice, especially as related to managed care and use of OR resources.

PGY5

The PGY5 year is devoted to a basic science research project or in some cases an “enfolded” fellowship. They rotate in the weekend chief resident call schedule.

Goals and objectives

Patient care

- Provide a high level of patient care as outlined for the earlier rotations.
- Maintain his or her surgical skill by providing OR back-up coverage and resident call coverage as needed.

Medical knowledge

- Devote his or her time to the conception and execution of an original research project.
- Participate in neurosurgery conferences.

Practice-based learning

- Use available resources to research interesting or unusual cases that he or she evaluates.
- Present cases that he or she is involved with at the monthly quality assurance conference.

Interpersonal and communication skills

- Demonstrate a high level of communication skills.

Professionalism

- Carry out his or her activities with a high degree of professionalism.
- Attend monthly GME lecture series on the elements of professionalism.

Systems-based practice

- Gain an understanding of the role of NIH- and industry-sponsored research in academic neurosurgical practice.

PGY6

PGY6 is the chief resident year. These 12 months is spent at VCU and the resident attending the OR on a daily basis and works on the most challenging surgeries.

Goals and objectives

Patient care

- Provide a high level of patient care as outlined for the earlier rotations, as well as manage the complexities of the large clinical service, particularly at the VCU Medical Center.
- Demonstrate proficiency with all major neurosurgical procedures.

Medical knowledge

- Demonstrate a high level of clinical problem solving and thorough knowledge of neurosurgical conditions.
- Instruct the junior-level residents and medical students.
- Actively participate in and lead neurosurgery conferences.

Practice-based learning

- Use available resources to research interesting or unusual cases that he or she evaluates.
- Present cases that he or she is involved with at the monthly quality assurance conference.

Interpersonal and communication skills

- Demonstrate a high level of communication skills.

Professionalism

- Carry out his or her activities with a high degree of professionalism.
- Attend monthly GME lecture series on the elements of professionalism.

Systems-based practice

- Demonstrate effectiveness in leading the team and delegating neurosurgical resources to accomplish it's mission.
- Residents are expected to gain an understanding of how economic factors affect neurosurgical practice especially related to managed care and use of OR resources.

PGY7

Transition to practice resident is board eligible and is credentialed as faculty. They take faculty call one weekend out of eight weekends. They see patients referred to the nurse practitioners clinic. They present their upcoming elective cases to the program director at the Friday morning conference. Faculty is available if there is a challenging case that they would like assistance with.

Goals and objectives

Patient care

- Evaluate, diagnose and treat all neurosurgical ailments.
- Provide a high level of patient care as outlined for the earlier rotations.
- Maintain his or her clinical and surgical skills by providing chief resident weekend call coverage, revolving weekly OR backup and prison clinic coverage.

Medical knowledge

- Devote his or her time to the completion, presentation and publication of an original research project.
- Participate in neurosurgery conferences.

Practice-based learning

- Use available resources to research interesting or unusual cases that they evaluate.
- Present cases that he or she is involved with at the monthly quality assurance conference.

Interpersonal and communication skills

- Demonstrate a high level of communication skills.

Professionalism

- Carry out his or her activities with a high degree of professionalism.
- Attend monthly GME lecture series on the elements of professionalism.

Systems-based practice

- Gain an understanding of the role of NIH- and industry-sponsored research in academic neurosurgical practice.