Neurological Surgery Residency Program
Columbia University Medical Center
Goals and Objectives NS 2

Upon completion of the NS 2 year, NS residents will be expected to meet the following educational goals and objectives:

**Patient Care**
- Take a thorough history and performing an appropriate examination in order to localize a lesion in the nervous system and provide a differential diagnosis
- Document findings, differential diagnosis, and a plan of management in the medical record
- Utilize and interpret laboratory and imaging studies appropriately
- Demonstrate knowledge of nonoperative and operative alternatives
- Make regular rounds, demonstrating knowledge of the patients
- Develop the skills necessary to recognize postoperative complications
- Assess and participate in care of patients with neurosurgical pathology
- Develop the knowledge, attitudes and skills needed to formulate principles and assess, plan, and initiate treatment of patients with surgical and medical problems
- Assess, participate and develop expertise in the care of patients with surgical and medical emergencies, multiple organ system trauma, and nervous system injuries and diseases
- Gain experience in the care of critically ill surgical and medical patients
- Participate in the pre-, intra-, and post-operative care of surgical patients
- Develop basic surgical skills and an understanding of surgical anesthesia, including anesthetic risks and the management of intra-operative anesthetic complications
- Develop the knowledge, attitudes and skills needed to formulate principles and assess, plan, and initiate treatment of patients requiring endovascular treatment

**Develop procedural expertise in the following areas:**
- Assist in the Operating Room, developing ability to handle tissues appropriately; take direction well; anticipate surgical maneuvers; make reasonable suggestions at appropriate times; perform as a team member
- Set up surgical microscope
- Lumbar puncture
- Insertion of ventricular and lumbar drain, ICP monitors, Ommaya Reservoir
- Application of skeletal traction
- Positioning of patients for cranial, spinal or peripheral nerve surgery; sterile prep
- Ability to use various head rests for cranial surgery
- Burr hole drainage of subdural hematoma
- Basic stereotaxis
- V-P shunt placement

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Jeffrey Bruce, MD, Residency Director
Medical Knowledge
- Demonstrate a working knowledge of the normal anatomy and physiology of the nervous system
- Demonstrate a working knowledge of the effects of mass lesions, raised ICP, head injury, infection, cerebral edema, ischemia, seizures, hydrocephalus, spinal cord and nerve root compression on patients
- Demonstrate a working knowledge of neuroradiology as applicable to neurologic disease processes as well as normal anatomy
- Demonstrate a working knowledge of techniques in neuropathology and their application to neurologic disease
- Demonstrate an understanding of pharmacology appropriate to disease of the nervous system
- Demonstrate an understanding of the problems and treatment involved with ICU patients
- Demonstrate an understanding of basic general surgical principles and emergency care

Laboratory Skills
- Demonstrate the ability to select a topic suitable for research
- Demonstrate knowledge of the scientific method
- Demonstrate an understanding of the techniques necessary to evaluate the selected research topic
- Demonstrate an ability to prepare an abstract, present a paper orally, and prepare a scientific manuscript

Practice-based Learning and Improvement
- Application of evidence-based practice

Interpersonal and Communication Skills
- Work in a cooperative and sensitive manner with other healthcare personnel
- Give and receive advice in an objective, mature manner
- Communicate with patients and their families, explain disease processes and treatment options, including benefits, risks, and possible complications in terms each individual can comprehend

Professionalism
- Respect each patient's right to privacy
- Demonstrate sensitivity to the sexual, ethnic, cultural and religious characteristics of patients and their families
- Provide support and compassion care to patients and their families
- Demonstrate knowledge of the ethical and legal aspects of neurosurgery
- Be honest, reliable, and respectful in working with patients and colleagues

Systems-based Practice

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• Understand principles of cost effective practice