

## **Learning Experience:**

## **Learning Experience Leader:**

## **Synopsis of Learning Experience:**

## **PGY 1 Core Competencies:**

### **Medical Knowledge:**

- 1) The resident must develop a basic understanding of common neurosurgical disease processes, appropriate initial management, and need for neurosurgical consultation.
  
- 2) The resident must demonstrate knowledge of and skills in taking an adequate history and performing a fundamental neurological exam. This should result in logical conclusions regarding the presence of, nature, and location of neuropathology.
- 3) A minimum level of understanding should include:
  - a) Diagnosing changes in level of consciousness, performance of voluntary motor function, and speech.
  - b) Recognizing the significance of cranial nerve changes and their reflection on brain stem function.
  - c) Identifying complaints differentiating spinal cord from spinal nerve injuries.
  
- 4) The resident is to demonstrate a basic understanding of neuroanatomy directed towards localizing lesions seen in the central and peripheral nervous system. A minimum level of understanding should include:
  - a) Sensory, motor and language regions of the brain.
  - b) General divisions of the cranial nerves; e.g. ocular, facial, pharyngeal, and visceral.
  - c) Spinal cord and spinal nerve levels and their association with the spine.
  - d) Peripheral nerve; e.g. brachial plexus, sciatic nerve.
  
- 5) The house officer must apply knowledge of neuroanatomy and neuropathology to decide on appropriate radiographic tests to order. This includes judicious use of:
  - a) Plain X-rays of the skull and spine.
  - b) CT scan of the head and spine.
  - c) Cerebral Angiography and non-invasive angiography techniques.
  - d) Magnetic Resonance Imaging of the head and spine
  
- 6) The resident is expected to demonstrate knowledge of the initial work-up and basic principles in the management of neurological emergencies, such as:
  - a) Closed and open head injuries.
  - b) Intracranial hypertension.
  - c) Acute hydrocephalus.
  - d) Subarachnoid hemorrhage.
  - e) Spine injury.
  
- 7) The resident is expected to demonstrate a basic understanding of the work-up

and management of elective neurosurgical cases, such as:

- a) Supra-and infra tentorial brain tumors.
- b) Pituitary tumors.
- c) Cerebral aneurysms
- d) Temporal lobe epilepsy.
- e) Herniated spinal disks.

**Patient Care:**

- 1) The resident must develop basic techniques in the evaluation and management of neurosurgical disease.
- 2) The resident is expected to demonstrate the ability to perform a basic neurological exam so as to differentiate brain, brain stem, spinal cord, or peripheral nerve pathology.
- 3) The resident is expected to demonstrate the ability to perform basic emergency procedures, such as:
  - a) Immobilization of an unstable spine injury.
  - b) Institution of hyperventilation, osmotic diuresis, and head elevation as initial management concerns in head injury.
  - c) Placement of a burr hole.
- 4) The resident is expected to gain fundamental operative skills in the exposure and closure of neurosurgical wounds, such as:
  - a) Tissue handling during opening of a cranial or spinal wound.
  - b) Suturing techniques in closure of a cranial or spinal wound.
  - c) Exploration of open cranial wounds to determine violation of the galea and/or presence of skull fractures and defects.
- 5) The resident is expected to assist, if appropriate, in common neurosurgical procedures, such as:
  - a) Excision of a herniated spinal disk.
  - b) Evacuation of an intracranial hematoma.
  - c) Decompression of an entrapped peripheral nerve.

**Practice Based Learning and Improvement:**

The resident must participate in neurosurgery quality and performance improvement conference.

**Interpersonal and Communication Skills:**

The resident must maintain effective communications with the patient, family and support staff in an effort to provide optimal, multidisciplinary care of patients with illnesses that require neurosurgical intervention.

**Professionalism:**

The resident is expected to respond to the medical needs of patients under their care while teaching medical students the principles of surgical management of these patients.

**Systems-Based Practice:**

The resident must communicate with other services, therapy staff, and nursing staff in

the day-to-day management of patients on the neurosurgery rotations.