685A Advance Neurosurgery

This rotation is not accepting international students

Course Description: The neurological surgery clerkship emphasizes the development of skills in neurological examination, functional neuroanatomy, practical interpretation of neuroimaging and the identification of emergent neurological conditions, as well as the medical and surgical management of cranial, spinal and peripheral nerve disease.

Department: Neurological Surgery

Prerequisites: Completion of basic science course work. Extramural students must be in the final year of undergraduate medical education.

Restrictions: This rotation is not accepting international students Extramural students must be in the final year of undergraduate medical education.

Elective Director: Frank Hsu UC Irvine Medical Center, Department of Neurological Surgery, 101 The City Dr, So., Bldg 3, Rm. 313, Rte 81, Orange, CA 92868-3298 Phone: 714-456-7495 Fax: 714-456-8284 fpkhsu@uci.edu

Faculty: Neurological Surgery Faculty

Course Website: None

Who to Report to on the First Day: Please contact the site coordinator for specific information regarding this course.

Location to Report on the First Day: University Hospital Dept. 52 5th Floor

Time to Report on First Day: Please contact the site coordinator for specific information regarding this course.

Site Coordinator: Meri Dailey, UC Irvine Medical Center, Department of Neurological Surgery, 101 The City Dr, So., Bldg 3, Rm. 313, Rte 81, Orange, CA 92868-3298 Phone: 714-456-7495 Fax: 714-456-8284 Email: medailey@uci.edu

Site: UC Irvine Medical Center

Periods Available: Throughout the year

Duration: 4 weeks

Number of Students: 4 maximum

Scheduling Coordinator: UC Irvine students please email comsched@uci.edu or call (714) 456-8462 to make a scheduling appointment. Please read the following information carefully. Any student enrolled at a U.S. LCME medical school will use VSAS to apply. To apply please refer to this website http://www.meded.uci.edu/elective/extramuralinternational.html

Course Objectives: At the end of this rotation, students will

- The neurological surgery clerkship emphasizes the development of skills in neurological examination, functional neuroanatomy, practical interpretation of neuroimaging and the identification of emergent neurological conditions, as well as the medical and surgical management of cranial, spinal and peripheral nerve disease.
- The student will be able to reliably take a patient history including pertinent neurological review of systems, past medical history, family history and social history.
- The student will be able to reliably perform a general neurological examination including mental status, cranial nerve, cerebellar, Motor, Sensory, and reflex subcomponents.
- The student will be able to reliably calculate the Glasgow Coma Score (GCS) for any given patient.

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• The student will be able to reliably calculate the functional status of any given patient according to the Karnofsky Performance Scale.

• The student will be able to reliably identify and neuroanatomically localize common neurological deficits including lobar lesions, brain stem lesions, myelopathy, radiculopathy, and peripheral nerve deficits.

• The student will be able to become familiar with the common neurological diseases that must be considered in the differential diagnosis of patients presenting with varying combinations of, and time courses for, neurological symptoms and examination findings.

• The student will be able to become familiar with the various tests that are used for neurological evaluation, when these tests are appropriate, as well as their limitations.

• The student will be able to identify the presence or absence of skull fracture, intracranial hemorrhage, hydrocephalus, and/or a lesion causing mass effect on a cerebral neuroimage.

• The student will be able to identify the presence or absence of spinal fracture, spinal cord compression, or a significantly herniated disc on a spinal neuroimage.

• The student will become familiar with the neurocritical care concepts and monitoring techniques for measuring intracranial pressure, cerebral perfusion pressure, and cerebral artery vasospasm, syndrome of inappropriate antidiuretic hormone release, cerebral salt wasting syndrome, diabetes insipidus, and vasogenic cerebral edema.

• The student will become familiar with the medical and surgical management of neurological emergencies, including acute spinal cord compression, elevated intracranial pressure, intracerebral hemorrhage, seizures and stroke.

• The student will become familiar with the basic types of operations performed to assist in the diagnosis and treatment of patients with neurological disease.

• The student will become familiar with ethical and quality of life issues including, loss functional independence, alterations in body image, issues surrounding limitation or withdrawal of care decisions, informed consent, and organ donation, that are inherent in major neurological illness and injury as well as neurological surgery.

**Key Topics:**

- Neuroanatomical localization
- Alteration in consciousness
- Functional and quality of life impact of disease and injury
- Ethical implications of surgery, as well as neurological disease and injury
- Basic practical interpretation of neuroimaging
- Recognition and management of neurological emergencies
- Traumatic brain and spine/spinal cord injury along with neurocritical care
- Cerebrovascular disease
- Neuro-Oncology
- Degenerative spine disease

**Competencies:**

- Neurological history
- Neurological examination
- Neuroanatomical localization
- Common tests utilized to evaluate neurological disease
- Basic interpretation of neuroimaging
- Differential diagnosis of neurological presentations and findings
- Identification and treatment of neurological emergencies
- Role of surgery in neurological disease
- Appreciation & familiarity with concepts & techniques unique to neurocritical care
- Professional and ethical approach to patients and families
Attitudes and Commitments:

- An understanding of the integrity, commitment, and work ethic required to become an effective and successful neurological clinician.
- An organized, rational, systematic and thorough approach to patient evaluation and diagnosis.
- The need and means to effectively manage the complexities of our existing health care system, policies and procedures in order to maximize the potential outcome for our patients in the setting of urgent medical conditions.
- An understanding of the importance of multidisciplinary and multi-departmental integration and cooperation for optimizing care for patients with complex disease.
- An understanding of the importance of new and often expensive technology in advancing the diagnosis and treatment of neurological disease.
- An understanding of the critical importance of compassion, effective communication, and the highest ethical standards in assisting patients and families with the major issues and decisions surrounding high-risk surgery as well as major neurological disease and injury.
- An understanding of the great promise that advancing basic neuroscience holds for further advancements in translational clinical neuroscience.
- A willingness to emulate the neurosurgical faculty when it comes to integrity, work ethic, professional and ethical behavior, and personal commitment to learning as well as individual patient care.

Educational Activities:
The neurological surgery clerkship is four weeks in length. It includes daily inpatient ward and neuroscience intensive care unit service exposure for work and educational rounds and patient care. On the inpatient service, each student will be fully integrated into the overall house officer and physician assistant team. They will participate in inpatient and emergency room consultations during regular working hours, and will follow and write progress notes on cases assigned to them. Each four week group will be assigned to one neurosurgical faculty mentor. They will meet with this mentor as a group at least once per week. They will accompany that mentor to his or her outpatient ambulatory clinic as well as the operating room for any scheduled surgical case. On days where their mentor is not scheduled for clinic or surgery, the students may attend the clinic or surgery of one of the other department attendings after having completed their inpatient service responsibilities. Wednesday is an academic day for the department and attendance at all didactic and Socratic teaching conferences for the day is mandatory, as is attendance at the weekly meeting with the rotation mentor. The assigned faculty mentor will be responsible for completing the student evaluations for each rotation with input form the service residents, the service PA’s, and the other neurosurgical faculty. Both a pre-test (given at the start of the rotation) and a post-test (given at the conclusion of the rotation) will be administered to assess the effectiveness of the rotation in meeting our educational goals and our responsibility to our students.

Wednesday Academic Schedule:
7:00-8:00 M&H Bldg 56 Suite 400
7:30-9:00 Neuroradiology Bldg 22A room 2107
9:00-10:00 Neurology Grand Rounds Bldg 22A room 2107
10:00-11:00 Neurosurgery Grand Rounds Bldg 22A room 2107
11:00-12:00 Neuroscience course Bldg 56, Suite 400
12:00-1:00 Noon Conference Bldg 56, Suite 400
2:00-2:30 Case Conference Bldg 56, Suite 400
4:00-5:00 Brain Tumor Board University Hospital 3636
5:00-6:00 Stroke Conference Radiology Conf. Rm

What Students should do to Prepare for the Rotation: Review the elements of the neurologic history and examination. Review basic neurology from your core course material. Brush up on neurophysiology and neuroanatomy (see references below for recommended sources)
Clinical Responsibilities of the Student:
The patients of the assigned faculty mentor for that month will be divided among the students rotating on the clerkship. Any new patients for the faculty mentor will be followed by the medical students along an equitable division based on an equal distribution of case load. A student who performs an emergency room or inpatient consultation will be expected to continue to follow that patient through discharge or rotation off the clerkship. Each student will have the option of following additional patients when they have observed their surgery. The assigned faculty mentor will assume the responsibility of insuring that the case load assigned to any student clerk does not become excessive as well as insuring the clinical balance of the pathological diagnoses assigned to each student. Throughout the rotation, the students will be under the direction and supervision of the surgical residents and the neurosurgical faculty. The dedicated departmental PA’s will also assist and guide the students whenever possible. The skills necessary to accomplish the clerkship’s educational objectives will be taught in didactic lecture, weekly departmental chairman’s & faculty mentor conference, & at the bedside in coordination with the inpatient neurosurgical team

Patient Care Responsibility: Please see above

Call Schedule of the Student: Please see above

Procedures to be Learned by the Student: Caseload permitting, lumbar puncture, arterial lines, intravenous lines (central and peripheral), intracranial monitors and ventriculostomies, as well as basic surgical technique

Percentage of Time Student will Participate in Ambulatory Setting: 20-30%

Conference/Lecture/Small Group Sessions: Mandatory Course Requirements:

- Complete pre-test on first day of rotation (no exceptions)
- Daily inpatient service morning work rounds
- Daily faculty mentor rounds
- Weekly meeting with assigned faculty mentor (1.5 hours)
- Attend all non-Wednesday clinics and operations of assigned faculty mentor
- Wednesday Academic Schedule:
  7:00-8:00 M&M Bldg 56 Suite 400
  7:30-9:00 Neuroradiology Bldg 22A room 2107
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  5:00-6:00 Stroke Conference Radiology Conf. Rm
- Read required reading list attached
- Complete post-test on last day of rotation (no exceptions)
- Complete course evaluation on last day of clerkship (no exceptions)
- Complete faculty evaluation on last day of clerkship (no exceptions)

Course Hours Summary:

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<tr>
<th>Hours</th>
<th>Description</th>
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<tbody>
<tr>
<td>20</td>
<td>Patient care actives</td>
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<tr>
<td>10</td>
<td>Laboratories &amp; Imaging</td>
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<tr>
<td>4</td>
<td>Lecture</td>
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<tr>
<td>12</td>
<td>Conference</td>
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<td>24</td>
<td>Clinic</td>
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8     Grand Rounds
28    Inpatient
46    Preceptorship (surgery)
6     Small Group
28    Ward Rounds
2     Exams
160   Total (including night call)

Content Theme Integration:
- Death and dying
- Decision making
- Ethical problems in medicine
- Evidence based medicine

Required Reading:

Recommend Reading:
- Guidelines for the Management of Severe Head Injury. Brain Trauma Foundation, 1995

Optional:
- MacDonald JD, Greenberg MS. Pocket Neurosurgeon: Top 100 Imaging Diagnoses. CD-ROM PDA Software. WB Sauders, Philadelphia, 2002

Official Grading Policy:
Eighty percent of the rotation grade will be determined by the assigned faculty mentor’s evaluation of

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the student’s performance during the clerkship. The faculty mentor will solicit input from the other
neurosurgical faculty as well as the house officer(s) and neurosurgical PA’s on the inpatient service for
consideration in their evaluation. The student will be evaluated on attendance, participation,
knowledge base, clinical skills, motivation, professionalism, and interpersonal skills. Twenty percent of
the grade will be determined by the student’s post-test score at the end of the clerkship. The final
grade will be reported by the clerkship director on a Student Narrative Evaluation Form. This will
record both positive and negative comments in bullet form as well as the student’s score on the post-
test along with the final grade of honors/pass/fail at the end of the clerkship. The clerkship
administrative coordinator will be responsible for transmitting the evaluation form to the appropriate
administrator at the School of Medicine.

Honors: The grade of honors is awarded for extraordinary day-to-day performance, in which the
student demonstrates superior knowledge and skills in the setting of a superlative work ethic and
exemplary behavior and professionalism. Honors will also be considered for students who on his/her
own initiative undertakes additional supervised responsibilities for patient care or pursuit of some
special project in the field of neurological surgery.

Pass: Pass is the expected level of performance of most students (%75-80%). It excludes students
who demonstrate deficiencies in attendance or participation. It excludes students who demonstrate
inadequate improvement in a deficient fund of knowledge over the course of the clerkship as well as
students who exhibit unprofessional or un-collegial behavior during the rotation. It certainly excludes
students who demonstrate questionable personal integrity or questionable ethical behavior during the
clerkship.

Fail: A failing grade is given for substandard performance on the clerkship in terms of attendance,
participation, behavior, fund of knowledge, clinical skills, or improvement in fund of knowledge and/or
clinical skills over the course of the rotation. If the student fails the elective a grade of “F” will be
permanently recorded on his/her transcript.

Incomplete: This grade is normally restricted for students who for good cause, have failed to complete
part of the clerkship. A student receiving an incomplete must remove the deficiency within 4 rotations,
or the grade will automatically become an F. The Neurological Surgery make-up clerkship cannot be
scheduled concomitantly during participation in another course. If the student fails the elective a
grade of “F” will be permanently recorded on his/her transcript.