

## 685A Neurosurgery — Sub-Internship

This rotation is not accepting international students

**Course Description:** The Department of Neurological Surgery sub-Internship is a four (4) week, hands-on rotational experience emphasizing the development of clinical skills in neurological examination, strategies in patient care management, functional neuroanatomy, neuropathology, practical interpretation of neuroimaging, identification of emergent neurological conditions, as well as the fundamental skills of medical and surgical management of cranial, spinal and peripheral nerve disease.

Students experience a patient-care team approach, with the expectation that the student follows their patients, participates in operative cases, presents at teaching conferences as well as call. The subintern has an opportunity to follow residents on consults in the ER, Neuro-ICU and inpatient rounds. Duty hours are subject to the medical student duty hours.

The Department of Neurological Surgery consists of a diverse subspecialty faculty featuring, neurotrauma, functional, epilepsy, skull base neurosurgery and spine. The sub-intern has contact with faculty members on a daily basis. Faculty members enjoy and welcome medical students and guarantee an in-depth experience in neurosurgery.

The sub-internship is an advanced medicine experience for medical students who have already completed their basic clinical rotation in medicine. We accept sub-interns year-round.

The weekly schedule consists of daily rounds with the patient-care team, followed by participation in the operating room with an assigned faculty member. The sub-intern is assigned to different faculty members each week for the full subspecialty experience. The sub-intern also participates in an outpatient clinic setting. The sub-intern receives a first-hand experience of what to expect as a neurosurgery resident, but also as an attending in an academic setting.

Conferences are scheduled every Friday from 7 a.m. to 12 p.m. Attendance is mandatory at all conferences. Sub-interns also participate in journal club, didactics and quality improvement and safety conferences. A 20- to 30-minute presentation on a topic of the sub-intern's choice is required on the last week of the subinternship. This topic should be relevant to your subinternship experience.

**Prerequisites:** None required. We encourage completion of basic surgical and medical rotations in medical school to make the most out of this rotation.

**Restrictions:** This rotation is not accepting international students.

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

- Develop 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.
- Reliably take a patient history, including pertinent neurological review of systems, past medical history, family history and social history.
- Reliably perform a general neurological examination, including mental status, cranial nerve, cerebellar, motor, sensory, and reflex subcomponents.

- Reliably calculate the Glasgow Coma Score (GCS) for any given patient.
- Reliably calculate the functional status of any given patient according to the Karnofsky Performance Scale.
- Reliably to identify and neuroanatomically localize common neurological deficits including lobar lesions, brain-stem lesions, myelopathy, radiculopathy and peripheral nerve deficits.
- Become familiar with 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.
- Become familiar with various tests that are used for neurological evaluation, when these tests are appropriate, as well as their limitations.
- 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.
- Be able to identify the presence or absence of spinal fracture, spinal cord compression or a significantly herniated disc on a spinal neuro-image.
- Become familiar with neurocritical care concepts and monitoring techniques for measuring intracranial pressure, cerebral perfusion pressure, cerebral artery vasospasm, syndrome of inappropriate antidiuretic hormone release, cerebral salt-wasting syndrome, diabetes insipidus, and vasogenic cerebral edema.
- Become familiar with the medical and surgical management of neurological emergencies, including acute spinal cord compression, elevated intracranial pressure, intracerebral hemorrhage, seizures and stroke.
- Become familiar with the basic types of operations performed to assist in the diagnosis and treatment of patients with neurological disease.
- Become familiar with ethical and quality-of-life issues including the loss functional independence, alterations in body image, issues surrounding limitation or withdrawal-of-care decisions, informed consent, and organ donation, which are inherent in major neurological illness and injury, as well as neurological surgery

#### **Competencies:**

- Neurological history
- Neurological examination
- Neuroanatomical localization
- Common tests used 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 and familiarity with concepts and 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 healthcare system and 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 multidepartmental 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.
- 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.

#### **Friday Academic Schedule**

7-8 a.m. — Brain Tumor Conference, Douglas Hospital, 3<sup>rd</sup> Floor, Pathology Suite, Room 3636

8-9 a.m. — Neurology Grand Rounds, Bldg. 200, 2<sup>nd</sup> Floor, Suite 212

9-10 a.m. — Neurosurgery Grand Rounds, Bldg. 200, 2<sup>nd</sup> Floor, Suite 212

10-noon — Resident Didactic Conference, Bldg. 200, 2<sup>nd</sup> Floor, Suite 212

**Clinical Responsibilities of the student:** The patients of the assigned faculty mentor for the month are divided among the students rotating through the clerkship. Any new patients for the faculty mentor are 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 is expected to continue to follow that patient through discharge or until completing the clerkship.

Each student has the option of following additional patients whose surgery they have observed. The assigned faculty mentor assumes the responsibility of insuring that the case load assigned to any sub-intern does not become excessive, and to ensure the clinical balance of the pathological diagnoses assigned to each student.

Throughout the rotation, students are under the direction and supervision of the surgical residents and the neurosurgical faculty. The dedicated departmental physician assistants also assist and guide the students whenever possible. The skills necessary to accomplish the clerkship's educational objectives are taught in didactic lecture, the weekly departmental chairman and faculty mentor conference, as well as at the bedside in coordination with the inpatient neurosurgical team

**Patient Care Responsibility:** Please see above.

**Duty Hours:** For all medical student rotations at UC Irvine Medical Center, Long Beach Memorial Medical Center, the VA Long Beach Healthcare System, CHOC Children's Hospital of Orange County and outlying clinics affiliated with the UC Irvine School of Medicine:

- Duty hours are limited to 70 hours a week averaged over four weeks, including all in-house call. Sub-Internship and intensive care unit clinical rotations are excluded from this policy, but hours will not exceed the resident work hours.
- Student physicians must receive one (1) day in seven (7) free of all educational and clinical responsibilities averaged over a four-week period.
- In-house call must not exceed more than every fourth night, averaged over a four-week period.
- Continuous on-site duty, including in-house call, must not exceed 16 consecutive hours.
- During shift work, shifts should not be longer than 12 hours.
- There should be a 10-hour rest period provided between all daily duty periods and after in-house call. Adequate time for rest and personal activities must be provided.
- Duty hours do not include readings, preparation and other study time, whether spent in the library or away from duty site.
- Violations of this policy should be reported to the course director and subsequently forwarded to the Educational Affairs office.
- This policy covers all medical students who rotate through the University of California, Irvine.

**Procedures to be learned by the student:** Caseload permitting, students learn lumbar puncture, arterial lines, intravenous lines (central and peripheral), intracranial monitors and ventriculostomies, as well as basic surgical techniques.

**Official grading policy:** Eighty percent of the rotation grade is determined by the assigned faculty mentor's evaluation of the student's performance during the clerkship. The faculty mentor will solicit input from the other neurosurgical faculty members 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 is determined by the student's post-test score at the end of the clerkship. The final grade is reported by the clerkship director on a Student Narrative Evaluation Form. This record includes 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 is responsible for transmitting the evaluation form to the appropriate Schol of Medicine administrator.

**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 also is considered for students who on his or 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 percent to 80 percent). 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 also 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.

**Incomplete:** This grade is normally restricted for students who for good cause, 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" is permanently recorded on his/her transcript. .

**Elective Director:** Sumeet Vadera, MD; UC Irvine Department of Neurological Surgery, Bldg. 200, Suite 210, Orange, CA 92868-3298; phone, 714-456-7495; fax, 714-456-8212; email, svadera1@uci.edu

**Site Coordinator:** Cindy Wang, UC Irvine Department of Neurological Surgery, Bldg. 200, Suite 210, Orange, CA 92868-3298; phone, 714-456-3402; fax, 714-456-8212; email, cindysw@uci.edu

OR

Leslie Wetterings, UC Irvine Department of Neurological Surgery, Bldg. 200, Suite 210, Orange, CA 92868-3298; phone, 714-456-3402; fax, 714-456-8212; email: lweterri@uci.edu.

**UC Irvine students** UC Irvine students must officially enroll for the course by contacting the Scheduling Coordinator via email or phone (714) 456-8462 to make a scheduling appointment.

**Extramural students** enrolled at a U.S. LCME medical school must use VSAS to apply. To apply please refer to this website <https://students-residents.aamc.org/attending-medical-school/electives-and-make-courses/applying-away-electives-vsas/>