



UNIVERSITY OF CALIFORNIA LOS ANGELES
DEPARTMENT OF NEUROSURGERY

RESIDENT TRAINING PROGRAM
POLICIES AND PROCEDURES

2012-2013

RESIDENT TRAINING POLICIES AND PROCEDURES
REVISED JULY 17, 2012

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UCLA NEUROSURGERY RESIDENT TRAINING POLICIES AND PROCEDURES

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ABNS DEFINITION OF NEUROSURGERY

NEUROLOGICAL SURGERY Constitutes a medical discipline and surgical specialty that provides care for adult and pediatric patients in the treatment of pain or pathological processes that may modify the function or activity of the central nervous system (e.g. brain, hypophysis, and spinal cord), the peripheral nervous system (e.g. cranial, spinal, and peripheral nerves), the autonomic nervous system, the supporting structures of these systems (e.g. meninges skull & skull base, and vertebral column), and their vascular supply (e.g. intracranial, extracranial, and spinal vasculature).

Treatment encompasses both non-operative management (e.g. prevention, diagnosis – including image interpretation – and treatments such as, but not limited to neurocritical intensive care and rehabilitation) and operative management with its associated image use and interpretation (e.g. endovascular surgery, functional and restorative surgery, stereotactic Radiosurgery, and spinal fusion – including its instrumentation).

PROGRAM DESCRIPTION

SCOPE

These policies and procedures apply to all resident physicians participating in the Neurosurgery Residency Program under the authority of the David Geffen School of Medicine at UCLA. These same policies and procedures apply to all full-time and clinical faculty participating in the education and training of the resident physicians.

MISSION STATEMENT

To provide exemplary patient care while creating permanent solutions to neurological illness through pioneering scientific research and to foster an outstanding and diverse training environment for neurological surgeons of the future.

UCLA NEUROSURGERY PROGRAMMATIC GOALS AND OBJECTIVES

1. Maintain a scholarly environment which is committed to the education and training of neurosurgery resident physicians.
2. Maintain the accredited status of the program throughout the education period of the trainees.
3. Provide a safe and clean working environment for trainees.

GOALS FOR THE UCLA DIVISION OF NEUROSURGERY RESIDENCY TRAINING PROGRAM

1. To graduate men and women who possess the attributes of fine physicians, both in personal character and in clinical competence.
2. To provide educational exposure to a program of classroom, laboratory, bedside, clinic and operating room instruction in sufficient quantity and in appropriate balance, to provide competence of a high standard of independent practice in the care of patients.
3. To stimulate the ability to remain abreast of current medical knowledge.
4. To stimulate the residents to be not only specialists in their own field, but generalists in their acceptance of new ideas from other branches of medical as well as other sciences.
5. To stimulate those who have the aptitude and opportunity to pursue investigative medicine in the laboratory so as to contribute to medical progress.
6. To encourage all residents to continue to be teachers of their art and science.

UCLA NEUROSURGERY RESIDENT TRAINING POLICIES AND PROCEDURES

7. To assist and guide them, such that they will be held in high esteem and to exert a beneficial influence upon their patients, their colleagues and society.

The training program is a well balanced and diversified seven year ACGME accredited program including internship and a research experience.

OBJECTIVES (Brief)

NS1

INTERN YEAR – NEUROSURGERY, SURGERY, NEUROLOGY

1. General Patient History Taking
2. General Patient Exam
3. Basic neurology – with specific focus on neurocritical care, stroke, multiple sclerosis, movement disorders, seizure disorders, and rehabilitation.
4. Introduction to the Outpatient Setting and evaluation of non-emergency patients both before and after surgical procedures

NS2

JUNIOR RESIDENT (UCLA)

1. Obtain a pertinent neurological patient history
2. Perform a complete neurological patient exam
3. Know detailed management of neurosurgical patients especially on the wards and through the Emergency Room.
4. Competency in performing ICU invasive procedures
5. Competency in dressing application and care
6. Begin learning basic surgical techniques
7. Understand physiological monitoring techniques and instrumentation
8. Evaluation of acutely-ill neurological patients
9. Introduction to indications and interpretations of various diagnostic tests
10. Introduction to the decision process leading to surgery
11. Be able to give patient presentation at formal teaching rounds
12. Able to supervise/teach interns and medical students

NS3

SENIOR CLINICAL and ELECTIVE ROTATIONS

Neurology, Neuropathology, Radiology, Interventional Radiology, Functional Neurosurgery/Radiosurgery, and Research

1. Basic neurology – with specific focus on neurocritical care, stroke, multiple sclerosis, movement disorders, seizure disorders, and rehabilitation. Become familiar with technical aspects of performing EEGs and EMGS.
2. Neuropathology – understand basic pathology principles. Learn pertinent immunohistochemistry staining results, complete sets of learning slides
3. Neuroradiology – ability to give diagnostic interpretation of plain x-rays, MRI, CT, Myelogram.
4. Interventional Radiology – begin understanding of indications for and techniques of targeted interventional radiology treatments
5. Functional – gain experience in the surgical management of stereotaxis and functional surgery for movement disorders and pain.

NS4

SENIOR CLINICAL ROTATIONS

Harbor Senior, UCLA Senior, Santa Monica Spine Senior, UCLA Super Senior

1. Establish competency in performing basic craniotomy approaches, including removal of noncomplex brain tumors, spinal surgery, and pediatric neurosurgical procedures.
2. Supervise/teach NS1 residents, interns, and medical students on patient rounds.
3. Teach NS1 residents basic surgical techniques
4. Establish decision-making process leading to operative and non-operative management of patients
5. Obtain competency in interpretation of diagnostic tests
6. Learn leadership techniques from Chief Resident.

NSR

RESEARCH

1. Learn basic scientific approach and techniques
2. Write a research proposal in NIH format. Learn grant writing skills
3. Complete a defined research project
4. Present the research findings at a UCLA Neurosurgical conference, and at a regional or national meeting.
5. Submit research findings for manuscript publication(s)

NS5-7

CHIEF RESIDENT ROTATIONS

VA Chief, Harbor-UCLA Chief, UCLA Chief

1. Primary responsibility for patient management with faculty supervision
2. Hone leadership skills in preparation for academic practice
3. Administrative responsibility for operative and quality assurance data collection
4. Obtain competency in all neurosurgical procedures (not requiring special fellowship training), including complex skullbase tumor, neurovascular procedures, and spine instrumentation.
5. Prepare for independent clinical practice

SUPERVISION Updated July 3, 2012

PROGRAM ADMINISTRATION:

Neil A. Martin, M.D.	Chair and Resident Program Director
Marvin Bergsneider, M.D.	Vice Chair, Clinical Affairs and Associate Resident Program Director
Ulrich Batzdorf, M.D.	Resident Program Ombudsman
Colleen Bruton	Resident Program Administrator

RONALD REAGAN UCLA MEDICAL CENTER:

Neil A. Martin, M.D.	Chair and Resident Program Director
Marvin Bergsneider, M.D.	Vice-Chair, Clinical Affairs and Associate Resident Program Director

Faculty Attendings
Chief Resident
Junior Residents
General Surgery Interns
Medical Students

HARBOR-UCLA MEDICAL CENTER:

Duncan Q. McBride, M.D.	Neurosurgery Chief of Service
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Faculty Attendings
Chief Resident
Senior Resident
General Surgery Residents
General Surgery Interns

WEST LOS ANGELES VETERANS ADMINISTRATION HOSPITAL:

John G. Frazee, M.D.	Neurosurgery Chief of Service
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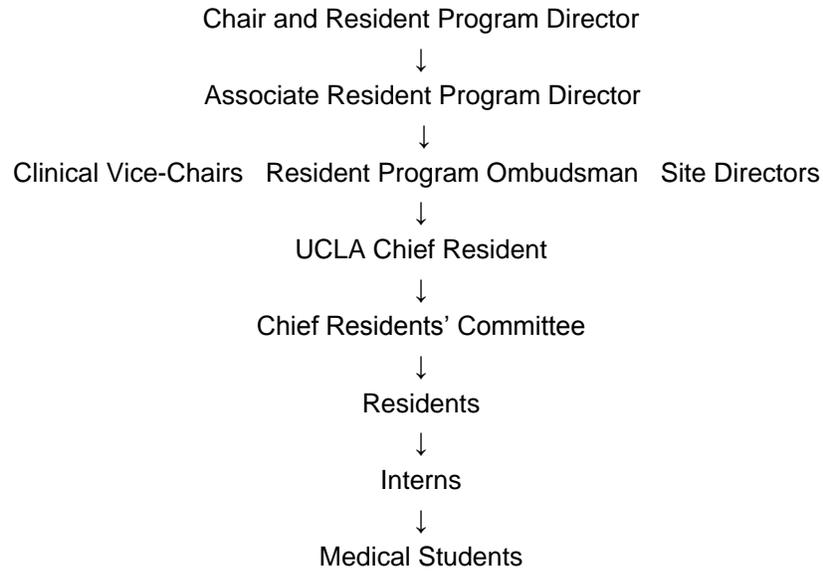
Faculty Attendings
Chief Resident
General Surgery Intern

SANTA MONICA UCLA MEDICAL CENTER:

Langston T. Holly, M.D.	Neurosurgery Chief of Service and Vice-Chair, Clinical Affairs
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Faculty Attendings
Senior Resident
Medical Students

Neurosurgery Resident Program Supervision 2012-2013



NEUROSURGERY HOUSESTAFF SUPERVISION GUIDELINES

Revised July 3, 2012

PURPOSE: These guidelines are established to ensure patient safety, enhance the quality of patient care, and improve the training experience of residents. Consistent with the philosophy of progressively increasing individual responsibility, these guidelines are intended to provide the trainee the opportunity for graded levels of responsibility on the part of the trainee.

SCOPE: These minimal guidelines apply to all residents enrolled in the Neurosurgery Resident Training Program, and attending surgeons of all integrated and affiliated facilities affiliated with the UCLA Neurosurgery Training Program.

FACILITIES: All locations must ensure appropriate supervision for all residents and a work environment that is consistent with proper patient care, the educational needs of the residents, and all applicable program requirements. Please see Program Letters of Agreement (PLA) for Harbor-UCLA Neurosurgery, West Los Angeles Veterans Administration Neurosurgery, and Santa Monica UCLA Neurosurgery for site-specific guidelines.

1.0 DEFINITIONS:

1.1. Resident Program Director is the education leader with full authority and responsibility for the administration of the neurosurgery residency program. The Residency Program Director is responsible for full compliance with standards of accrediting and certifying bodies

1.2. Vice Chief of Clinical Affairs is the faculty member who defines the levels of responsibilities for each year of training by preparing a description of clinical activities residents may perform (Goals and Objectives). The Goals and Objectives must include a specific statement identifying any exceptions for individual residents, as applicable.

1.3. Attending physicians are faculty who have completed an approved training program in neurosurgery or neurology and have been granted institutional privileges to conduct, without supervision, all pertinent aspects of patient care including admission, consultation, relevant operations and invasive procedures, or other defined activities.

1.4. Chief resident physicians are designated by the Residency Program Director and may assume advanced administrative responsibilities necessary for the operation of the residency program. Chief residents are enrolled in the ACGME accredited program but have not completed the full academic program leading to board eligibility. These residents, while quite senior, are not independent and must be supervised by an attending physician. Graduated levels of responsibility may allow a wide range of practice. These residents are completing their final year of training.

1.5. Supervising resident physicians are enrolled in the training program and have, by virtue of demonstrated competence, been granted privileges to conduct, without supervision, hospital admission and discharge, and specified invasive or operative procedures.

1.6. Resident physicians are individuals enrolled in the accredited neurosurgery resident training program and participating in patient care under the direction of supervising practitioners.

1.7. Fellow is a physician enrolled in either an accredited or a non-accredited training program. The Fellow has completed an ACGME-accredited residency and is board-eligible or board-certified. The fellow is a licensed independent practitioner and may function as a supervising practitioner for other trainees.

2.0 Supervision Policy

2.1 General Coverage and Communication

2.1.1. The level of supervision and communication between the attending physician and any resident physician will be sufficient to ensure that the clinical care delivered meets the established community standard of care.

2.1.2. The resident can identify and contact a responsible attending surgeon for a given patient **at all times**.

2.1.3. In the event that an attending surgeon will not be available to provide appropriate supervision, he or she must designate an alternate or covering attending and identify that person to the housestaff.

2.1.4. Ambulatory (outpatient) care: Pursuant upon hospital and practice stipulated policies, an attending physician will provide direct or indirect supervision of patient care. The supervising physician will provide oversight of indirect supervision, with review of encounters with feedback provided after care is delivered

2.1.5. Inpatient admissions:

2.1.5.1. An attending physician or supervising resident physician will be notified of the admission and such notification will be documented in the admitting resident physician's admission note.

2.1.5.2. An attending physician will personally see and evaluate each assigned inpatient admission within twenty-four (24) hours of admission, and provide oversight by co-signing the resident physician's admission note or create their own documentation.

2.1.6. Inpatient Care:

2.1.6.1. Resident physicians should maintain ongoing communication **at least one (1) time per day** with the designated attending physician or supervising resident physician.

2.1.6.2. The attending physician should document such communication by co-signing the resident physician's progress note, or the resident will include in the progress note that the case has been discussed with the attending physician.

2.1.7. It is understood that there is a **mutual responsibility** on the part of both the attending physician and resident physician to recognize the need for increased communication, and attending physician interaction in the following circumstances:

- limited experience of the resident
- increased acuity of the patient's condition (e.g. transfer to intensive care unit, need for higher level of clinical care, etc.)
- higher risk of complication or mortality associated with the clinical intervention being considered

2.1.8 Lines of Supervision and Communication

2.1.8.1. Consistent with the philosophy of graded levels of responsibility, it is expected that the resident physician will directly communicate with, and be, in turn, supervised by the most senior supervising resident on their assigned surgical team.

2.1.8.2. It is expected that the most senior supervising resident physician will directly communicate with the designated attending physician.

2.1.8.3. In urgent or emergent situations, immediate communication with the attending physician by any resident on the team is expected.

2.2 Graduated Levels of Responsibility

Residents earn progressive responsibility for the care of the patient as part of the training program. The attending physicians determine which residents will be allowed to perform specific clinical tasks within their assigned level of responsibility based on technical skill, professional judgment, and knowledge. The primary consideration in determining level of responsibility is effective and efficient patient care.

2.3 Invasive Procedures and Operations

2.3.1 Invasive Procedures: An invasive procedure is defined as a procedure with more than minimal risk that is performed outside of the operating room or interventional radiology suite.

2.3.1.1. Direct Supervision: An attending physician or supervising resident physician will be physically present during all critical and key portions of invasive procedures.

2.3.1.2. Indirect Supervision:

2.3.1.2.1. If an attending physician is not physically present within the hospital or other site of patient care, he or she must be immediately available by means of telephonic and/or electronic modalities, and must be available to provide or arrange direct supervision if needed.

2.3.1.2.2. A supervising resident physician must be physically within the hospital or other site of patient care, and will be immediately available to provide direct supervision during the entire procedure.

2.3.2 Operations: An operation is defined as any procedure with more than minimal risk that is performed in the operating room or interventional radiology suite.

2.3.2.1. Direct Supervision:

2.3.2.1.1. An attending physician will provide direct supervision of supervising residents for all key portions of operations.

2.3.2.1.2. The attending physician or supervising resident will provide direct supervision of resident physicians during the operative procedure.

2.3.2.1 Indirect Supervision: An attending physician will provide indirect supervision, and be immediately available for direct supervision, of supervising residents for all non-key portions of operations.

2.3.2.2 The attending physician, supervising resident, resident physician, or Service Physician's Assistant or Nurse Practitioner will be physically present with the patient for all operations.

2.3.2.3 In the event that an attending physician is not physically present for an operation, the supervising resident physician will ensure that appropriate documentation of the attending physician's notification and approval of the operation was obtained prior to proceeding with the operation.

2.3.2.4. An attending physician, supervising resident, or Service Physician's Assistant will see and evaluate each patient prior to the operation and ensure that appropriate documentation of a preoperative note has been performed.

2.3.2.5. An attending physician is not required to be present during opening and closing of the surgical field unless the opening or closing is considered a critical or key portion of the operation.

2.3.3. An attending surgeon, supervising resident, or Service Physician's Assistant or Nurse Practitioner will ensure that an appropriate and adequate informed consent has been obtained and documented in the medical record.

2.3.4. An attending surgeon, supervising resident, or Service Physician's Assistant or Nurse Practitioner will ensure that appropriate documentation of the procedure has been included in the medical record at the time of the procedure or operation.

2.3.5. The attending surgeon will be present and participate in the pre-surgical Time-Out

3.0 CHIEF RESIDENT RESPONSIBILITIES

- Advocate high quality patient care
- Assume a leadership role
- Responsible for the accuracy and timeliness of resident team medical and training records insuring that residents complete consult, operative, and discharge reports within the UCLA required guidelines
- The Chief Resident insures that residents keep current and accurate records of their duty hours
- Insure that each institution's (UCLA, Harbor, VA, Santa Monica) cases are tallied monthly
- Responsible for the accuracy of the on-call schedules
- The Harbor Chief Resident is responsible for the accuracy and distribution of the Harbor-UCLA moonlighting schedule
- Maintenance and accuracy of the resident vacation schedule
- Supervision of subordinate physicians, including interns (PGY-1), and medical students.
- Record and maintain Quality Assurance data, keep accurate and up-to-date information in the QA database, and present data at the monthly QA conference.
- Insure residents attend didactic conferences
- Insure NS1, PGY1, and Medical Students attend ICU teaching rounds
- Insure PGY1s have sufficient experience in the operating room
- Liaison with nursing team, assuming a leadership role in Care Coordination meetings
- Maintain a professional relationship with physician extenders and support staff
- Manage/Supervise the activities of Service Physician's Assistants or Nurse Practitioners
- Manage and administrate the clinical service and outpatient services at Harbor-UCLA and West Los Angeles VA.

TRAINEE ELIGIBILITY AND SELECTION Updated August 10, 2011

PURPOSE: To define eligibility criteria for the selection of trainees for enrollment in the Neurosurgery Residency Program.

POLICY:

I. Eligibility

To be eligible to enroll in the Neurosurgery Resident Training Program, applicants must fulfill the following criteria:

1. A diplomate of a medical school in the United States or Canada which has been accredited by the Liaison Committee on Medical Education (LCME) or;
2. A graduate of a college of osteopathic medicine in the United States accredited by the American Osteopathic Association (AOA).
3. Graduates of medical schools located outside of the United States or Canada must obtain certification from the Education Council for Foreign Medical Graduates (ECFMG) and a letter of evaluation from the Medical Board of California indicating that they are eligible to participate in postgraduate training.
4. Eligible to obtain medical licensure in the State of California by virtue of successful completion of the United States Medical Licensing Examination (USMLE), Parts I and II, by the first day that postgraduate training is to begin with successful completion of USMLE, Part III by the end of the Surgical Intern year.

I. Selection

1. The selection of trainees for first-year training positions will be made via participation in the National Resident Matching Program (NRMP).
2. Applicants will submit, via the Electronic Residency Application Service (ERAS), the following information, which will form the basis for selection:
 - a. CAS Common Application Form
 - b. Personal Statement demonstrating appropriate written communication skills
 - c. Medical school transcript
 - d. Letter of recommendation from the Dean, or his designee, of the applicant's medical school
 - e. Letters of recommendation from four (4) faculty members of the applicant's medical school or clerkship rotations. Two (2) letters must be from faculty members with clinical responsibilities and appointment to a department of surgery or a surgical subspecialty.
 - f. Examination scores from the USMLE, Part I, and, if available, Part II at the time of application.
 - g. 2 X 2 inch color photograph of the applicant (to include head and shoulders only).
 - h. Curriculum Vitae
3. Applicants are selected to receive an invitation to interview after applicant file review by the Neurosurgery selection committee comprised of faculty, chief residents, and education office administrators.
4. Applicants will select one of three interview dates which are filled on a first come basis. Each applicant will be separately interviewed by several small groups of Neurosurgery faculty or residents. Each interview will be twenty (20) minutes.
5. In the setting of the interview, faculty members will refrain from discussing an applicant's age, race, sex, religion, sexual orientation or marital status.
6. Participating faculty and residents meet to determine the rank order of applicants following the final date of interviews.
7. In the case of vacancies following the match, applicants may be interviewed at any time. The residency director will decide whether to offer a position specifying the post-graduate year at the time of hire. The applicant must provide a competency-based evaluation of satisfactory performance from his previous program.

PARTICIPATION IN THE EDUCATIONAL PROGRAM Updated August 10, 2011

PURPOSE: To establish and communicate expectations for both faculty and trainees regarding participation in the educational program.

POLICY: Ongoing participation in the educational program is the mutual responsibility of the faculty and the trainees. The following expectations are outlined to enhance the educational process.

I. Attendance of Teaching Conferences: Wednesday conferences are an integral component of the educational program. These conferences are compulsory for all residents. Attendance will be documented by personnel signature recorded on the sign-in sheet. The absence of a signature will be regarded as an unexcused absence. Failure to comply with the minimal attendance standards set forth below or the failure to demonstrate an effort to attend conferences may result in probationary action for trainees.

Excused absences will be allowed in the following circumstances:

- 1) Notification of the Neurological Surgery Education Office (310 794 7362) prior to or within 48 hours of the conference date
- 2) Scheduled vacation time
- 3) Approved absence from the program such as meeting travel, interviews, and leaves
- 4) Post-call residents

Ambulatory Patient Care:

Exposure to the continuity established in the preoperative evaluation and postoperative visit(s) is essential to the training of surgical housestaff. For this reason, all trainees to Harbor UCLA Medical Center and West Los Angeles VA Medical Center will attend the outpatient clinic for their service a minimum of one day per week (with the exception of the third Wednesday for the UCLA Neurosurgery education day), unless the trainees' immediate attention is required for other patient care.

Operating Room Experience

All trainees, irregardless of institutional assignment, are expected to attend the operating room.

Trainees are expected to accomplish the following in participating in operative cases:

Prior to the operation, make themselves familiar with the patient's history including diagnostic studies, and have an understanding of the indications for surgery.

Personally examine the patient prior to operation

Document their involvement with a preoperative note.

Consult with the attending physician regarding the operative care to be delivered.

Personally participate in the operation.

Document a summary of the operation in the form of a brief, handwritten operative note.

Personally participate in the immediate in-hospital postoperative care of the patient and document that participation in the form of a postoperative note in the medical record within the first 48 hours after operation.

Participation in the outpatient postoperative care of the patient by personally seeing the patient in the outpatient setting and determining follow-up care.

Invasive Procedures

All trainees must perform, under appropriate supervision, the requisite number of invasive procedures to demonstrate competency. All first-year trainees will be observed during a probationary period until competency has been established by successful performance of the requisite number of procedures. During this probationary period, the following criteria must be met:

All procedures must be performed in the presence of a supervising resident physician or an attending physician.

Each trainee is expected to learn the indications, technical maneuvers, and possible complications of each procedure.

Trainees will provide the patient with informed consent regarding the procedure, and document, either by signed consent form, or by handwritten note that consent was given.

UCLA NEUROSURGERY RESIDENT TRAINING POLICIES AND PROCEDURES

Trainees will document performance of the procedure with a handwritten note in the medical record noting the procedure, indication(s), and their supervising resident or attending physician, anesthetic used, and any complications.

Trainees will maintain a log of procedures completed to document his/her activity.

EDUCATION-RELATED BENEFITS FOR TRAINEES

To support and foster the education of trainees, the Department of Neurosurgery will provide the following items:

Meal Cards

Balances are cleared annually. Meal cards are for UCLA Clinical rotations only. Some funds are assigned to each resident for vacation/emergency coverage. Funds may not be replenished. There are separate meal programs at Harbor-UCLA and West Los Angeles Veterans Administration.

- 1) One pair of surgical loupes
- 2) \$500 annual educational gift beginning in January of the NS1 year. The funds are intended for books but may be used for other neurosurgical essentials with prior approval from the program director.
- 3) Registration and examination fees for Fluoroscopy certification

The Division does not cover/reimburse the following expenses:

- 1) California Medical Board Licensing (application and renewal)
- 2) Personal computers, stethoscopes, or other medical equipment

BOOK RECOMMENDATIONS

General Surgery:

Advanced Trauma Life Support (ATLS) manual, American College of Surgeons
Marino, The ICU Book, 2006

Neurosurgery:

Youmans Neurological Surgery, Sixth Edition, 2011
Greenberg, Handbook of Neurosurgery, Seventh Edition, 2010
Schmidek and Sweet, Operative Neurosurgical Techniques, Fifth Edition, 2006

Neuroradiology:

Castillo: The Core Curriculum: Neuroradiology, 2002

Board Review:

Citow, Comprehensive Neurosurgery Board Review, 2009
Moore, Definitive Neurological Surgery Board Review, 2004

AMERICAN BOARD OF NEUROLOGICAL SURGERY EXAMINATION

POLICY: All residents in the Neurological Surgery Training Program are required to complete the ABNS Primary Examination the last Saturday of March each year until the exam has been passed for credit. Exam must be passed prior to program completion. Residents must take exam as 'Self-Assessment' and receive a passing score prior to taking exam for credit.

Residents take exam for Self-Assessment beginning in the NS1 year.

Board Review Courses require Program Director approval.

Minimum performance expectations are:

NS1 – 10th percentile

NS2 – 15th percentile

NS3 – 15th percentile

NS4 – 20th percentile

NS5 – 20th percentile

Residents will receive one additional academic week (in addition to contracted vacation time) during Chief Year if they have scored 85th percentile or higher on the ABNS exam. This week will be scheduled to take place during the UCLA Chief Resident rotation with internal cross-coverage by the UCLA resident team.

The Program Director must approve exceptions to the Board Exam requirement.

RESEARCH

The American Board of Neurological Surgeons mandates the production of scholarly work. Creative and productive scholarly work is expected of all residents. Each senior resident should work towards the production of one peer-reviewed manuscript per year.

Linda M. Liao, M.D., Ph.D. is the chair of the Resident Research Committee. Residents are required to present plans for research to Dr. Liao and the research committee. Research may be done within the Department of Neurosurgery. It is also possible to work with affiliated specialties to prepare critical literature reviews, laboratory experiments, and manuscripts.

Residents are strongly encouraged to apply for educational grants in support of their research activity. The faculty mentor is expected to support academic travel.

MINIMUM OPERATIVE CASE VOLUME

PURPOSE: To ensure adequate operative experience and documentation of cases.

POLICY: All residents in the Neurological Surgery Training Program are required to enter cases in the ACGME Case Log system in a timely fashion. Residents must complete a minimum number of cases to advance to the next year or have a favorable review. A deviation of 20% fewer cases than the minimum may lead to disciplinary action or dismissal.

Minimum number of cases per year:

NS1	200
NS2	50
NS3	150
NS4	200
NS5	200

Residents must record surgical case participation on a constant basis. Daily input is preferred. Cases must be logged at a minimum of each week. Chief Residents present a summary case tally monthly during the Quality Assurance/Morbidity and Mortality Conference.

Residents are encouraged to attend one or two peripheral nerve cases per week with Dr. Meals. His average case is 1-2 hours long. Carpal Tunnel 3-6 Cases, Elbow 3-6 Cases

EVALUATIONS

Evaluations of Residents

The faculty is responsible for ensuring that residents proceed through the training program in a satisfactory manner. The residents are evaluated clinically based on the six competencies: patient care, medical knowledge, professionalism, interpersonal and communication skills, practice-based learning, and systems based practices.

Faculty and senior residents, as indicated in the lines of supervision, provide formative comments daily throughout clinical rotations. The faculty complete summative evaluations at the end of each rotation via the Verinform electronic system. As part of the residents' 360° evaluation process, clinical staff and patients also submit evaluations.

Any resident receiving two or more unsatisfactory evaluations will receive an unsatisfactory evaluation for that category. The Program Director reviews unsatisfactory results and determines if disciplinary action, including remediation to achieve a satisfactory result, is necessary. The program director will also address responses from two or more rotational attendings of "cannot evaluate due to insufficient contact"

The Program Director reviews a composite of each resident's evaluations with each resident during his individual, semi-annual meeting. The residents are expected to have a continual maturation of clinical skills and to have completed academic requirements in a timely fashion. The Program Director also reviews the resident's performance on the American Board of Neurological Surgery (ABNS) In-Service exam, the residents' surgical and duty hour logs, and the residents' portfolio with him during each semi-annual meeting. Ongoing research activity and future rotations are also discussed during this evaluative and mentoring meeting.

Evaluation of Faculty

Residents evaluate attendings teaching skills at the end of each rotation via the Verinform electronic system. The evaluation is based on a resident's clinical interaction in the operating room, ward, and clinic; and the faculty member's lecture performance, scholastic achievement, and overall performance.

The Chair and Program Director reviews the results of these evaluations with each faculty member during an annual review meeting. Meetings are scheduled on a more frequent basis as needed.

Evaluation of Program

The residents evaluate the program during their monthly Residents' Meeting. This meeting is led by the UCLA Chief Resident and occurs as the first meeting on each education day to insure maximal resident attendance.

The Program Director also has a monthly meeting with the residents on Education Day. During these meetings, residents review aspects of training and patient care at each of our four training locations.

The residents have a confidential, semi-annual retreat with the resident program ombudsman. Anonymous meeting notes are distributed to both faculty and residents highlighting attributes of the training program, documenting concerns, and listing requests for programmatic updates.

Residents complete the annual, electronic, UCLA Graduate Medical Education evaluation. Residents also complete the American Council on Graduate Medical Education (ACGME) biennial electronic evaluation

Faculty evaluate the training program during the monthly faculty meetings and also submit a confidential, written evaluation of the training program annually via an electronic survey.

Beginning in 2008, resident alumni also complete formal evaluations of the training program.

The program reviews the percentage of alumni continuing into academia and passing the ABNS Oral Exam as part of the evaluative process.

DIDACTIC EDUCATION

UCLA NEUROSURGERY RESIDENT CONFERENCE ATTENDANCE POLICY

The Department of Neurosurgery requires residents to attend all Education Day conferences (third Wednesday of the month) and a minimum of seventy-five percent (75%) of all scheduled didactic core conferences. Core conferences are required teaching in addition to morning reporting and rounds.

The Education Office must have advance notice for excused absences (i.e. vacation, post-call). All other absences without proper permission will be listed as non-excused and count against the required minimum attendance.

The Division has a policy communicated to all Attendings that residents are protected from clinical obligations to attend these conferences.

Official attendance is tracked using sign-in sheets and is periodically reviewed by the Program Director. Non-satisfactory attendance will be addressed by the Program Director during the resident's semi-annual progress meeting.

The conference calendar is created and maintained by the Education Office. A monthly schedule is both forwarded to residents and faculty via email and posted in the Residents' Library. Weekly updates are forwarded via email.

All Neurosurgery Residents are required to attend the monthly Quality Assurance/Morbidity and Mortality Conference. Attendance is also required for rotating interns, sub-interns, and visiting medical students.

Interns, Sub-Interns, and rotating medical students are required to attend Neurocritical Care Rounds on Wednesday afternoons (2pm). In-house UCLA NS1 residents are required to attend this conference if not attending to an emergency clinical situation or not needed in the operating room.

To support conference attendance at other required rotations (i.e. Neurology, Pathology, Functional, Radiology, and Interventional Radiology), credit will be given for attendance if documentation is forwarded to the Resident Program Administrator. Credit will also be given for non-UCLA lectures if appropriate documentation (i.e. sign-in sheets) is forwarded to the Education Office. It is the responsibility of the resident to forward this information to the Program Administrator.

The Harbor Chief Resident and Harbor Senior Resident are required to attend the Friday morning teaching rounds, radiology lecture, neuropathology lecture, and noontime journal club.

Santa Monica Spine Conference occurs Monday evenings 5:00PM. The Santa Monica Spine Senior is required to attend. All residents on elective and research rotations are encouraged to attend.

UCLA Neurology Conferences occur on Wednesday mornings. Attendance is required for residents on the Neurology Rotation. Neurosurgery Residents on the Neurology rotation are still required to attend Education Day conferences that do not conflict with the Neurology Teaching Rounds.

There are also several additional meetings/seminars required throughout the academic year. These include R2 Orientation, Skull-Base Lab lectures, and other courses as directed by the Resident Program Director.

Exceptions:

The UCLA Chief Resident may be excused from morning conferences to begin first start cases.

Residents who have successfully completed the American Board of Neurological Surgery Exam for credit are not required to attend the Board Preparation lectures.

Post-call residents (UCLA service) are required to attend the 7-9am lectures but are excused from the remainder of the Education or academic day lectures. Sign-out must occur before morning conference. Residents who are post-call from moonlighting activities are required to attend conferences. Therefore, UCLA residents should not be scheduled for pre-Harbor call or moonlighting on Tuesday nights.

Residents may be excused with permission from the Program Director, Vice-Chairs of Clinical Affairs, or the Chief Resident (UCLA or Harbor) to attend to emergent/urgent clinical service needs.

The Harbor Chief Resident is excused from conferences between 9am-12n on Education Days (Surgical Science, Neuroscience, and Basic Science) to run the Harbor Neurosurgery Clinic.

/cb

CONFERENCE

BASIC SCIENCE
BOARD PREPARATION
CASE PRESENTATIONS
ETHICS
ICU MONITORING
JOURNAL CLUB
NEUROANATOMY
NEURO ICU ROUNDS
NEUROLOGY
NEUROPATHOLOGY
NEURORADIOLOGY
NEUROSCIENCE
NEUROSURGERY GRAND ROUNDS/SYMPOSIA
NEUROSURGERY 100
PEDIATRIC
PROFESSIONALISM
 1. COMPLIANCE
 2. ETHICS
QUALITY ASSURANCE/MORBIDITY AND MORTALITY
SPINE CONFERENCE
SURGICAL SCIENCE
SYMPOSIA/NEUROSURGERY GRAND ROUNDS

Monday, 5pm

Santa Monica Spine Conference

Joint Neurosurgery/Orthopedic teaching conference reviewing spinal surgical.

Required for Santa Monica Spine Resident. All residents are encouraged to attend.

Coordinator: Jeff Wang, M.D.

Audrey Rouge, Administrative Assistant

Wednesday, 7am

Case Presentations

This conference is an in-depth presentation of one or more cases by the neurosurgery residents. The neuroradiologic and neuropathologic findings of the case are discussed, and the historical background of the field and the relevant literature are presented. Residents and faculty are required to attend.

Coordinator: Neil A. Martin, M.D.

Wednesday, 7am (Third)

Residents' Meeting

Moderator: UCLA Chief Resident

Wednesday, 7am (Fourth)

Quality Assurance/Morbidity and Mortality

Required attendance: Neurosurgery Faculty and Residents

Faculty Host: Nader Pouratian, M.D.

Administrator: Heather Kubiszewski

Wednesday, 8am

Neurosurgery 100 Conference Series

Resident attendance required. Faculty attendance encouraged.

Faculty Coordinator: Nestor Gonzalez, M.D.

Wednesday, 8am (First, Second, and Fifth)

Neuroradiology/Neuroscience Conference Series

Resident attendance required. Faculty attendance encouraged.

Faculty Coordinators: Ulrich Batzdorf, M.D. and Noriko Salamon, M.D.

Wednesday, 8am (Third Wednesday)

Case Presentations

Four to five brief case presentations of ongoing patient treatment.

Wednesday, 9am (First, Second, Fourth, and Fifth Wednesdays)

Board Preparation Sessions

Faculty Moderator: Dennis Malkasian, M.D., Ph.D.

Wednesday, 9am (Third Wednesday)

Basic Science, Ethics Lecture Series

Faculty Coordinator: David Hovda, Ph.D.

Wednesday, 10am (Third Wednesday)

Neuropathology Lecture

Didactic teaching featuring . . .

Harry Vinters, M.D., Neuropathology Division Chief

Wednesday, 11am (Third Wednesday)

Surgical Science Lecture

Faculty lecture highlighting the decision-making process of determining surgical or alternative treatment plans for patient care.

Faculty Coordinator: Neil A. Martin, M.D.

Wednesday, 11am

Brain Tumor Board

Multi-disciplinary conference reviewing clinical presentation, imaging, operative findings, and pathology for pediatric brain and spine nerve tumor cases. Clinical options are discussed and decisions are made regarding clinical care. Residents are encouraged to attend.

Faculty Coordinator: Linda Liao, M.D., Ph.D.

Wednesday, Noon (Third Wednesday)

Resident Program Director's Meeting

Neil A. Martin, M.D., Chair and Resident Program Director

Wednesday, 1pm (Third Wednesday)

Multidisciplinary Pituitary Tumor Conference

Residents are encouraged to attend

Faculty Coordinator: Marvin Bergsneider, M.D. and Anthony Heaney, M.D.

Wednesday, 2pm (Third Wednesday 2:30pm)

Neurocritical Care Rounds

Mandatory attendance for R2 residents, Neurosurgery interns, and rotating medical students

Faculty Coordinator: Paul Vespa, M.D.

Wednesday, 2pm

Cognitive Neurophysiology Meetings

Discussion of epilepsy patients and their treatment plans by the multidisciplinary team.

Multidisciplinary forum for discussing surgical management of refractory epilepsy patients.

Attendance is optional.

Faculty Coordinator: Itzhak Fried, M.D.

Wednesday, 2pm

Skull Base Laboratory / Neuroanatomy Lecture

Dennis Malkasian, M.D., Ph.D.

Wednesday, 4pm (Third Wednesday)

Journal Club

Residents are required to attend

Friday, 7am

Harbor-UCLA Conferences

Harbor Chief and Senior are required to attend

Faculty Coordinator: Duncan McBride, M.D.

DATE: June 24, 1998

UPDATED: October 16, 2011

SUBJECT: MORBIDITY AND MORTALITY CONFERENCE

PURPOSE: To provide an educational forum for the open discussion of the perioperative and intraoperative aspects of patient care. Such discussion will provide resident physicians the opportunity to critically review various aspects of patient care, to be exposed to contemporary principles guiding surgical decision-making, and insight into the processes of improving the quality of care. This conference is an essential component of the educational process necessary for the training of residents and a requirement for accreditation by the Residency Review Committee for Surgery of the Accreditation Council for Graduate Medical Education (ACGME)

POLICY: Attendance to this conference is considered a *compulsory component* of participation in the educational program for both faculty and residents alike. Confidentiality regarding the discussion conducted during this conference is expected.

The following criteria for case reporting to the conference will be used:

- 1) It is the administrative responsibility of the *service chief or senior resident* to report the required data on a monthly basis to the Neurosurgery Education Office. The data required is the average daily census of the service, the number of hospital admissions and discharges to and from the service, the total number of inpatient and outpatient operative cases performed the number of reportable events occurring, and the number of deaths occurring.
- 2) The data accrual period is the seven (7) calendar days preceding the date of the conference. In the event that a conference is postponed, or cancelled, the data must still be reported. Any cases previously reported since the last conference was conducted, but not presented, may still be selected for presentation at the discretion of the conference moderator.
- 3) All events will be reported for the month in which they occurred, regardless of severity, responsible attending availability, or current status of the patient. The selection for presentation of the case will be at the discretion of the conference moderator. The primary reportable events are defined as the following:
 - a) Unplanned need for secondary operation, whatever the nature.
 - b) Unanticipated admissions to any acute care facility within 30 days of discharge.
 - c) Unanticipated significant escalation of care required.
 - d) Death
 - e) Event Codes: see attachment regarding classification of cases presented at conference.
- 4) The *chief or senior resident involved* in the critical aspects of the perioperative care, primarily the decision for operation and the operation itself will make the presentation of the case. This includes clinical training years IV to VI only. In the event, that the involved resident is no longer on service, that individual will still be responsible for the presentation of the case. The *appropriate clinical data and imaging studies* will be available for presentation, and that the presenting resident is expected to have reviewed the case, and considered the possible causes of the complication and potential approaches in which the complication could be avoided in the future.

DUTY HOURS Updated July 1, 2011

The David Geffen School of Medicine at UCLA requires that the residency training programs foster both quality resident education and facilitate quality patient care. Overall, resident duty hours in all programs must be consistent with the Institutional and specific program Residency Review Committee (RRC) accreditation requirements established by the Accreditation Council for Graduate Medical Education (ACGME). The structuring of duty hours and on-call schedules focus on the needs of the patient, continuity of care and the educational needs of the residents.

Duty hours must be limited to 88 hours per week, averaged over a four-week period, inclusive of all in-house call activities. Duty hours do not include reading and preparation time spent away from the hospital.

Residents must be provided with one day in seven free from all educational and clinical responsibilities, averaged over a four-week period. One day is defined as one continuous 24-hour period free from all clinical, educational, and administrative activities. Residents must also be provided at least eight hours between duty assignment periods to obtain adequate rest.

PGY1 residents may not exceed 16 hours during their duty periods.

PGY2-7 residents: In-house call must not exceed 24 consecutive hours. Resident may remain on duty for up to four additional hours to participate in didactic activities, transfer care of patients, conduct outpatient clinics, and maintain continuity of medical and surgical care. No new patients may be accepted after 24 hours of continuous duty.

Residents are required to report and log all duty hours on Verinform. Resident must log in at least once every week. The Program Administrator runs reports on a weekly basis to review each resident's reported duty hours to ensure compliance and address potential violations.

UCLA Neurosurgery Duty Hour Policy and Procedures

Resident duty hours must comply with the overall ACGME RRC-Neurosurgery, the David Geffen School of Medicine at UCLA institutional requirements, and the Surgery Departmental requirements with the following exceptions:

1. Neurosurgery has an additional, eight-hour work week exception permitting a maximum work week allowance of eighty-eight (88) hours instead of the standard eighty.
2. Neurosurgery permits moonlighting within the confines of the workweek maximum for residents training on non-clinical rotations.

Duty hours are clinical and academic activities related to the residency program. Duty hours do not include reading and time spent away from the training program.

Duty hours must be limited to eighty-eight hours per week for clinical rotations. Duty hours must be limited to eighty hours per week for research and non-clinical electives. These limits include the PGY3 required pre-Harbor night call responsibility and Harbor moonlighting.

The residents must have one twenty-four hour period free from patient care every seven days averaged over a four-week period.

The residents should have sufficient rest between work periods. The ACGME recommended break minimum is ten hours free of duty. Residents must have eight hours between scheduled duty shifts.

In-house responsibilities have a twenty-four (24) hour maximum with up to four (4) additional hours permitted for transfer, debriefing, and didactic activities. No new patients may be accepted after the twenty-four hour maximum. When residents are called into the hospital from home, the hours spent in-house are counted towards the 88-hour limit.

The residents are required to report and log all duty hours into the Verinform system on a constant basis. Residents must log in at a minimum of every week.

The Associate Program Director and UCLA Chief Resident review the Verinform work hour report weekly to review for accuracy and to address compliance and fatigue concerns. The Chief Residents are responsible for determining which residents have maximized their work hours and are in jeopardy of fatigue. The Chief Residents must adjust the coverage schedules to compensate for residents required to be away from service.

The Vice-Chief and Site Directors provide an additional level of oversight. The work hour reports are sent to the designated faculty at the midpoint and end of each rotation period.

UCLA – Marvin Bergsneider, M.D.

Harbor-UCLA – Duncan McBride, M.D.

West Los Angeles V.A. – John Frazee, M.D.

UCLA-Santa Monica – Langston Holly, M.D.

The Program Director or his designee reviews the aggregate work hour reports quarterly and addresses any areas of non-compliance either during his monthly group meeting with the residents or individual meetings as needed.

The Program Director provides an annual written report to the UCLA GMEC.

SUBJECT: MOONLIGHTING POLICY Updated January 23, 2012

Moonlighting

Residents may moonlight during research and non-clinical elective rotations with required Program Director approval

All residents wishing to moonlight must obtain written permission from the Program Director. The Program Director will acknowledge his awareness of the resident's activities in writing by counter-signing this form. The number of hours spent moonlighting cannot exceed the 80-hour limit established by the ACGME. The request to moonlight must include a statement including why moonlighting is being requested as well as the location, duties, and schedule of the resident's proposed moonlighting. The resident must assure that moonlighting will not interfere with his/her training rotation.

Residents who demonstrate financial need may moonlight during their non-neurosurgical (non-clinical) rotations to meet their needs. The Program Director, Dr. Neil Martin, or his delegate will determine the merits of the special consideration request.

Non-clinical or "non-neurosurgical" rotations during which residents may be allowed to moonlight on a limited basis are as follows: laboratory research, neuropathology, neuroradiology, and neurology. All clinical rotations at UCLA, Harbor, the VA, and Santa Monica-UCLA are not allowed for obvious reasons.

Postgraduate training is demanding in time both at UCLA and for independent study. We do not encourage moonlighting but acknowledge the need as long as it does not interfere with your education, participation in the program, or patient care.

UCLA NEUROSURGERY RESIDENT TRAINING POLICIES AND PROCEDURES

The potential for abuse of moonlighting privileges is well recognized. Guidelines for regulating moonlighting activity are as follows: 1) any resident found to be performing at an unsatisfactory level at the time of each six-month resident review may not moonlight; and 2) each resident will submit a signed statement each month tabulating the days spent moonlighting; and, 3) any resident found to be abusing the moonlighting privilege will be placed on probation and the privilege of ALL residents to moonlight will be revoked. Because the privilege to moonlight is needed by many of the resident staff, the residents will assume the primary responsibility in overseeing the activities of their colleagues to prevent abuses that would endanger future moonlighting.

Participation in outside employment may be allowed during assignment to the research hiatus. Formal approval for such activities must be obtained from the Program Director and the research mentor or principal investigator. Any residents not in good academic standing with the program will not be allowed to participate in moonlighting activities until being reinstated to good standing.

Moonlighting residents must continue to fulfill the one paper per year minimum training participation requirement and have performed satisfactorily* on the ABNS Primary Exam. *NS3-50th percentile, NS4 – 60th percentile, NS5 – 70th percentile, NS6 – 80th percentile.

Violation of this policy may result in immediate dismissal from the training program.

gmec/neurosurgery/moonlightingform.doc

SUBJECT: LEAVE

PURPOSE: To comply with institutional policy regarding housestaff leave.

POLICY: The following program policy regarding leave from clinical duties during training is in effect.

Sick Leave: sick leave is accrued at the rate of eight (8) hours per month of appointment. In the event of illness, the resident must notify the chief resident of his/her service, and the Surgery Education Office immediately.

Family Illness or Death Leave: up to five days of sick leave may be used if the resident is required to be in attendance or provide care because of an illness in the family or attendance is required due to the death of a relative.

Paid Maternity Leave: two (2) weeks per academic year. Leave in excess of this time, with the exception of sick or vacation time will be leave without pay and may not be credited for training requirements.

Paid Paternity Leave: one (1) week if the following conditions are met:

Written notice given to the Program Director of the intention to take paternity leave at least 30- days prior to the expected birth or adoption.

The paternity leave cannot be taken later than thirty (30) days after the actual birth or adoption date, nor commenced prior to 30 days before the projected birth or adoption date.

Medical Leave: may be requested if a medical condition affects a trainee's ability to continue in the training program or to safely or adequately fulfill their patient care responsibilities. Please refer to UCLA Housestaff manual for the necessary procedure to follow.

Leave for Interviews or Meeting Travel: additional working days may be granted by the Program Director for interviewing or meeting attendance. Written approval from the Program Director and the Chief of Service is required prior to departure. *Post facto* approvals will not be given and in such instances, the time taken will be considered leave without pay. The traveling resident must provide their own coverage for their absence.

SUBJECT: VACATION TIME

All residents receive four weeks of vacation each year.

Residents receive four working weeks of vacation per year, seven days during clinical rotations, and five days during elective rotations. Residents will be allowed to schedule vacation in one-week blocks.

Preferences for dates of vacation will be considered but not assured. If there are dual requests; priority by time submitted, resident level, conference participation.

- 1) No vacations are permitted after the second week of June or in the month of July.
- 2) All vacation requests for each rotation must be submitted within the first two weeks of the rotation. If requests are not received, the program administrator will assign vacation time.
- 3) No more than two residents on vacation during any one week.
- 2) No more than one resident at any level on vacation during one week (i.e. Junior, Senior, Chief) at all hospitals.
- 3) Clinical duty extends until next resident rotator is physically available. (i.e. until January 1 or July 1 just before rounds with the new team).
- 4) All vacations are scheduled in the first two weeks of the rotation. Seniority has preference, otherwise first come first serve.
- 5) There is no week off for the chief as he leaves. This week is counted as vacation. If the chief saves all of his vacation at UCLA, then he is eligible to leave two weeks early. If the UCLA Chief Resident uses vacation time prior to the end of the rotation, he is on duty until the morning of July 1, and the chief residents do not rotate one week ahead of time. If the UCLA chief saves one week of vacation until the last week of June, then the chiefs will rotate one week early.
- 6) Residents should not finalize travel arrangements until vacation request has been approved
- 7) Vacation requests are submitted in advance (beginning of each rotational period) for Program Director approval.
- 8) Resident secures appropriate coverage for vacations taken during clinical rotations.
- 9) UCLA Chief, Super Senior, Senior, and Operative P.A. may not take vacation at the same time.
- 10) Vacations must be taken within the academic year of appointment. No carry over to subsequent years will be made.
- 11) Non-approved days of leave in excess of the allowed (28) days will be considered absences without approval and no credit for training will be given for this time.

First year (NS1) Junior residents (UCLA juniors)

4 weeks of vacation a year covered by the NS2 residents on elective rotations

NS2 Senior residents (electives)

4 weeks of vacation, One week of vacation permitted during Neurology rotation.

Provide vacation coverage for the junior residents at UCLA.

Additionally, immediately prior to becoming the Harbor senior, the resident will provide vacation coverage for the Harbor senior.

NS3/4 Senior and Elective rotations residents

4 weeks of vacation.

Harbor – One week of vacation covered by the junior resident next in line as Harbor Senior.

UCLA Senior – one week covered internally by the UCLA Super Senior(NS4) and UCLA Chief Resident (NS5)

Santa Monica Spine Senior – One week covered by senior-level resident on elective rotation.

Elective – One/two week(s) vacation – no coverage required.

NSR Research residents

4 weeks of vacation. Includes academic travel. Additional time may be granted with Program Director approval.

No coverage required.

NS5 Chief Residents

4 weeks of vacation

One week as VA Chief Resident covered by senior-level resident on electives/research.

One week as Harbor Chief Resident covered by senior-level resident on electives/research.

Two weeks as UCLA Chief Resident covered internally by UCLA Super Senior and Senior.

UCLA Chief, Super Senior, Senior, and Surgical P.A. cross-cover vacations – one per time period.

All time away (including conferences and workshops) utilize vacation time

RESIDENT TRAVEL FOR PROFESSIONAL ACTIVITIES Updated July 17, 2012

POLICY: The involvement of residents in travel related to professional (educational) activities is necessary and encouraged. Because such travel can result in absences from clinical duties and also results in numerous expenses a number of conditions must be met before such travel will be supported.

Criteria for Approved Travel:

- 1) Departmental Support for Major National/Regional Conferences (i.e. AANS, CNS)
- 2) Maximum financial support \$1500
- 3) The reason for traveling is to present the results of original investigative work conducted while at UCLA; or for participation in educational activities approved by the Chair/Program Director of Neurological Surgery.
- 4) The traveler will be personally making the presentation (paper or poster) of the investigative work.
- 5) Time away from clinical duties is minimized. Travel to the away location on the date prior to the day of presentation, and return immediately following completion of the presentation.
- 6) Board Review Courses require Program Director approval.

Courses – Departmental support to attend:

- 1) Research Update in Neuroscience for Neurosurgeons (RUNN)
- 2) INOVA Washington Neuroradiology and Dr. Kenneth M. Earle Memorial Neuropathology Review
- 3) Chicago Board Review Course

Authorization for Travel: Absences from clinical duties must be approved in writing by the:

- 1) Program Director
- 2) Chief of the Service involved
- 3) Sponsoring Faculty Member
- 4) Program Administrator
- 5) Covering Resident

This action is necessary so that adequate coverage can be arranged for the resident's absence from clinical duties. A travel request form must be completed and signed by the faculty member who will be the financial sponsor of the resident's travel. The completed travel request form will indicate that coverage has been arranged in anticipation of the resident's absence. The resident must provide a copy of the abstract to the Administrator of the residency program, followed by a draft for publication within the year.

Reimbursement of Travel Expenses: Expenses will not be reimbursed *if the approval for travel was not obtained prior to the date of departure*. Reimbursement of expenses incurred will be provided through the Department of Neurosurgery, but will be charged to the sponsoring faculty member. Only reasonable and customary expenses will be reimbursed up to a maximum of \$1500. Allowable expenses include:

- 1) Domestic economy class airfare (includes the United States and Canada)
- 2) Single hotel room
- 3) Usual and customary meeting registration fees

- 4) Meal allowance of \$50 per diem (receipts required for Accounts Payable documentation)

The following expenses will not be allowed:

- 1) Room service charges unless included with meal allowance
 - 2) Mini-bar charges
 - 3) Bar charges
 - 4) Telephone call charges
 - 5) Late registration fees
- International air travel

MEDICAL LICENSURE Updated August 10, 2011

POLICY: The State of California Business and Professions code Sections 2065 and 2066, states the following:

All graduates of foreign or domestic medical schools are allowed to train in an ACGME accredited training program for a maximum of two years without medical licensure. Graduates of American or Canadian medical schools may train in California for one year even if they have trained in another out-of-state ACGME accredited training program for two or more years. Graduates of foreign medical schools who have trained in an ACGME accredited program in another state; the period of time of that training reduces the amount of time allowed for unlicensed training in California.

Residents who continue to train after the two-year licensing exemption has expired may be fined by the Medical Board in amounts ranging from \$100 to \$2500 depending upon the severity of the violation.

The policy of the program will be as follows:

- 1) All resident physicians must obtain California medical licensure before the end of the second year of clinical training. Accomplishing this requires that USMLE Parts I, II, and III are successfully completed by May of the first year of training.
- 2) In the event that licensure is not obtained by the end of the second year of training, the trainee will be immediately suspended from the program. No credit for residency training will be given for the time under suspension.

DRUG ENFORCEMENT AGENCY (DEA) CERTIFICATION

PURPOSE: To comply with Federal statutes governing the use of DEA certification.

SCOPE: Resident physicians in the Neurological Surgery Training Program

POLICY:

- Trainees are expected to obtain DEA certification as soon as possible, after they have obtained medical licensure in the State of California.
- First-year trainees without medical licensure, may write and sign outpatient prescriptions only if such prescriptions will be filled within the facility to which they are assigned.
- Trainees without DEA certification are *forbidden* from using the DEA and medical license numbers of other resident physicians to write outpatient prescriptions.

Outpatient prescriptions to be filled outside of the institution should be written by a physician, either attending physician or resident physician who possesses valid DEA and medical license numbers.

MEDICAL RECORD-KEEPING Updated August 10, 2011

PURPOSE: To inculcate in trainees the importance and process of appropriate and timely medical record documentation and completion.

SCOPE: All trainees in Neurological Surgery at all institutions.

POLICY:

All trainees are expected to ensure that the following criteria is followed for appropriate documentation of patient care activities:

- 1) All notes and orders are *dated and timed*.
- 2) All notes and signatures are *legible*.
- 3) All notes and orders written by medical students are co-signed by a resident physician or attending physician.
- 4) All patients admitted to an in-patient service will have a *history and physical* performed and recorded by a resident physician within twenty-four (24) hours of admission.
- 5) A *preoperative note* will be written by the resident physician who intends to participate in the operation noting the patient's condition or problem, the pertinent preoperative evaluation and the planned operative procedure.
- 6) A brief handwritten *operative report* will be completed in the medical record indicating the following:
 - a) preoperative diagnosis
 - b) postoperative diagnosis
 - c) operation performed
 - d) attending surgeon
 - e) resident surgeon(s)
 - f) anesthetic used
 - g) estimated blood loss
 - h) parenteral fluids administered
 - i) urine output
 - j) drains placed
 - k) specimens obtained
 - l) apparent complication
- 7) The resident physician participating in the operation will *personally* document postoperative visits for inpatients during the immediate postoperative period.
- 8) Each patient will have a daily progress note, completed in SOAP format, recorded in the medical record noting the patient's current status requiring hospitalization, pertinent physical findings, and any active intervention being provided.
- 9) All procedures will be documented by a *procedure note* containing the following information:
 - a) indication for procedure
 - b) obtaining of informed consent
 - c) procedure performed
 - d) proceduralist
 - e) supervising resident or attending physician
 - f) anesthetic used
 - g) apparent complications
- 10) *Any significant event occurring in the course of a patient's care will be documented*. This includes the following situations:
 - a) confusion or delirium resulting in the need for physical restraint or chemical sedation
 - b) deterioration in a patient's clinical condition
 - c) the need to escalate the level of intervention or care for a patient
 - d) any belligerent, threatening, or hostile actions, either physical or verbal, on the part of the patient, or any of the patient's family members.
- 11) A *discharge summary* will be completed for all inpatients at the time of discharge from the hospital.

Completion of the Medical Record:

All trainees are expected to complete medical records in an accurate and timely manner.

- 1) UCLA Medical Center: policy regarding delinquent medical records is established by the Medical Staff ByLaws. *“All individuals with clinical privileges (Medical Staff and House Staff) are required to complete discharge summaries in a timely manner. Clinical privileges of Medical Staff members and House Officers who have 3 discharge summaries delinquent more than 14 days, (when the chart is available) or 1 discharge summary delinquent more than 30 days shall be immediately suspended and clinical privileges (admitting, consulting, and surgical) rescinded; this shall include charts without signatures. The suspension will be in force until such time as the delinquent medical records are completed.”*
- 2) West Los Angeles VA Medical Center: medical records delinquent for greater than fourteen (14) days when the chart is available, will be reported to the Program Director for action.
- 3) Santa Monica UCLA Medical Center: Residents must sign off with the attending in charge, presumably Dr. Holly, with a statement from the UCLA-SMH medical records office that all of their dictations are completed and signed before they go on to their next rotation.

Failure to complete medical records will result in the following actions, in sequence:

- 1) Verbal notification and opportunity to complete the records within 72 hours.
- 2) Formal letter of reprimand for failure to complete medical records to be placed in the trainee's file.
- 3) Suspension of clinical privileges, including admitting, consulting, and surgical privileges. Such suspension will result in removal from the clinical rotation, and assignment of leave without pay status until such time as the Program Director is notified that the delinquency has been removed. No credit for residency training will be given for the period of suspension. In the event that your clinical privileges are suspended by the date named in your written notification, the following actions are mandated by UCLA Medical Staff ByLaws, and California State Law. Notification of your specialty Certification Board for failure to comply with Medical Center and Medical Staff Rules and Regulations and notification of the Medical Board of California, which may jeopardize the ability to obtain or maintain medical licensure in the State of California.
- 4) Three (3) episodes of suspension of clinical privileges may result in dismissal from the program.

INDUSTRY RELATIONSHIPS Updated August 10, 2011

SUBJECT: SOLICITATION AND RECEIPT OF GIFTS OR FUNDS FROM COMMERCIAL SOURCES (“DRUG AND MEDICAL INSTRUMENT COMPANIES”)

POLICY: Residents in the Neurosurgery Training Program are *prohibited* from the *active solicitation* of monetary donations from commercial or industrial sources. Residents are encouraged to remain fully compliant with the UCLA School of Medicine Industry Relationship Policies.

Any unilateral offers of monetary donations, grants, or other gifts of greater than \$50 in value originating from a commercial source, will be referred to the Program Director via the Education Administrator to insure gift processing according to Medical Center guidelines.

Each offer will be considered. Offers will be accepted if they:

- 1) Comply with the industry relationship policy
<http://dgsom.healthsciences.ucla.edu/downloads/vendorManual.pdf>
- 2.) Support the educational mission of the training program
- 3.) Do not appear improper

The department does not sponsor attendance to industry sponsored courses. Residents must receive advance approval to attend sponsored courses. The course must be funded with an educational grant.

For disclosure requirements related to educational activities, faculty, staff, and trainees should abide by the ACCME Standards for Commercial Support (www.accme.org).

DRESS REQUIREMENTS

PURPOSE: To ensure that resident physicians in the Neurological Surgery Training program will be attired with consideration for professional appearance and safety at all times while discharging their duties.

SCOPE: The following policy is applicable to all rotation sites including the UCLA Medical Center, Harbor-UCLA Medical Center; West Los Angeles VA Medical, and Santa Monica UCLA Medical Center

POLICY:

- 1) Professional dress: Clothing appropriate for professional activities will be worn while engaged in the execution of both service and educational responsibilities. Clean white coats with proper photo identification displayed will be worn while on-duty. No collarless shirts are permitted while on-duty. Male residents are expected to wear collared shirts with ties, and appropriate slacks. Female residents are expected to dress in a manner consistent with a working environment.
- 2) Scrub uniforms: Are allowed in the Operating Rooms and Surgery Center, or while between operative cases. At the UCLA Medical Center, only the team on-call, and resident physicians assigned to ICU rotations are allowed to remain in scrubs throughout the day. On-call residents for other services may change into scrubs after 6 PM. *All hospitals prohibit the wearing of scrubs outside of the respective facilities.* This ruling, in turn, prohibits the wearing of scrubs issued by another facility (e.g. no UCLA scrubs at Olive View, etc.).
- 3) Footwear: Appropriate professional footwear is expected. No open-toed shoes or sandals are allowed. Clogs are acceptable in the Operating Rooms or Surgery Center. Alternate footwear may be acceptable if deemed medically justified on a case-by-case basis.
- 4) Eye protection: Protective eyewear is both *recommended and required* in situations where the risk of exposure to patient body fluids is high, especially in the operating room and during bedside procedures. Prescription eyewear should be supplemented by additional splash protection.

ROTATION SCHEDULE Updated February 23, 2012

YEAR	JULY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
NS1	UCLA NEUROSURGERY INTERN (Hosp1,3) 3 Neurosurgery , 6 Surgery									NEUROLOGY (Hosp 1)		
NS2	UCLA JUNIOR (Hospital 1)											
NS3	PATHOLOGY (1)		RADIOLOGY (1/2)		I.R.* (Hosp 1,3)		FUNCTIONAL (Hosp 1)			RESEARCH (Hosp 1)		
NSR	PROTECTED RESEARC (Hosp 1)							RESEARCH (Hosp 1)				
NS4	RESEARCH (Hosp 1)				HARBOR SENIOR (Hosp 2)				UCLA SENIOR (Hosp 1)			
NS5	SM SPINE SENIOR (Hosp 4)				UC SUPER SENIOR (Hosp 1)				ELECTIVES (Hosp 1) (VACATION COVER)			
NS6	VA CHIEF (Hosp 3)				HARBOR CHIEF (Hosp 2)				UCLA CHIEF (Hosp 1)			
*I.R. = Interventional Neuroradiology												

**UCLA DEPARTMENT OF NEUROSURGERY
THIRD YEAR STUDENT ROTATION GUIDELINES**

GOALS OF CLINICAL ROTATION:

The overall goal of this rotation is to introduce the principles of evaluation and treatment of the patient with nervous system dysfunction who might need surgical intervention. During this brief week, a glimpse of the work that neurosurgeons do will be learned so that, in the future, patients who might need neurosurgical intervention will be identified with greater ease. In general, the activities listed below are those in which you will be participating:

- *Rounds with residents and attendings and daily management of neurosurgical inpatients*
- *Outpatient clinic with attending neurosurgeons*
- *Evaluation of ER neurosurgical patients or inpatients requiring neurosurgical consultation*
- *Operating room activity*

Skills in the following areas will be gained:

Comprehensive evaluation of the patient with nervous system disease, including patient history and neurological examination. At least two full H&Ps on patients admitted to the neurosurgical service or undergoing consultation by the neurosurgery service should be done. The H&P should be co-signed by a resident and placed in the chart.

Evaluation of neurosurgical patients in the outpatient clinic. It is expected that at least one new patient is seen independently and presented to the attending neurosurgeon. Following the presentation, a detailed H&P (clinic note) should be written and submitted for review by the attending. The five areas to be covered for patients who might need neurosurgical intervention will be (1) Intracranial Tumor, (2) Cerebrovascular, (3) Spine, (4) Functional/Epilepsy, and (5) General Neurosurgery.

Neurosurgical diagnostic aids. Exposure to imaging techniques will include CT, MRI, and angiogram. Exposure to ICU monitoring will include ICP, CPP, and SJO₂.

Treatment of neurosurgical disorders. Basic principles of neurosurgical management will be covered, including neurosurgical emergencies. This will include some exposure to operating room procedures.

UCLA DEPARTMENT OF NEUROSURGERY FOURTH YEAR MEDICAL STUDENT CLERKSHIP

NS362.01 NEUROSURGERY

Location: CHS and Santa Monica UCLA Spine Center Revised: 8/10/11

COURSE CHAIR:

Neil Martin, M.D., Chairman and Residency Program Director

SUPPORTING FACULTY:

Drs. Batzdorf, Bergsneider, DeSalles, Edelman, Frazee, Gonzalez, Fried, Holly, Hovda, Lazareff, Liao, Lu, Mathern, McBride, Pouratian, Shafa, Vespa, Yang, Ausman, Malkasian

STUDENT COORDINATOR:

Colleen Bruton (310) 794-7362

E-MAIL: cbruton@mednet.ucla.edu

REPORT TO:

Chief Resident, Neuroradiology Rounding Room - 1617 RRUMC Conference Room, 5:15am
Colleen Bruton's Office, Neurosurgery Education Suite. 17-384 Semel, 10:00am.

COURSE OBJECTIVES (in order of importance)

1. Acquisition of knowledge of neurosurgical conditions expanded beyond the core clerkship exposure.
2. Improvement in the assessment of neurosurgical problems.
3. Development of understanding of surgical treatment of neurological disease, including pain.
4. Development of judgment of selection of operative treatment.
5. Familiarity with diagnostic armamentarium.
6. Understanding of risks and complications of neurosurgical procedures.
7. Training in pre- and post-operative care with emphasis upon common problems.
8. Preparation of short scientific presentations, both written and oral.

PREREQUISITES: (Optional) Medicine, Surgery

AVAILABLE FOR EXTERNS: Yes

STUDENTS / PERIOD: max 3 min 1

DURATION: 3 weeks (Course may be extended to four weeks with Course Chair approval to meet home school requirements if it does not prevent another student from rotating).

2008-2009 ROTATIONS BEGIN WEEKS:

By Arrangement 2,5,8,9,13,15,18,22

DESCRIPTION: Introduce the principles of evaluation and treatment of the patient with nervous system dysfunction who might need surgical intervention. The activities include rounds with residents and faculty and daily management of neurosurgical inpatients, outpatient clinics with attending neurosurgeons, evaluation of ER neurosurgical patients or inpatients requiring neurosurgical consultation, and operating room activity.

STUDENT EXPERIENCES

COMMON PROBLEMS/DISEASES

- | | |
|--------------------------------------|----------------------------------|
| 1. Spinal degenerative joint disease | 5. Congenital defects |
| 2. Intracranial masses | 6. Hydrocephalus |
| 3. Pain problems | 7. Intracranial vascular disease |
| 4. CNS trauma | 8. Movement Disorders |

CLOSE CONTACT WITH:

X FULL-TIME FACULTY
X CLINICAL FACULTY
X FELLOWS

X RESIDENTS
X INTERNS
X OTHER: Nurse practitioners

Inpatient 70%
Outpatient 30%

APPROXIMATE # OF PATIENTS EVALUATED EACH WEEK BY STUDENT: 4 - 5
TOTAL # OF PATIENTS EVALUATED EACH WEEK BY ENTIRE SERVICE: 44+

TYPICAL WEEKLY SCHEDULE

Hour	Monday	Tuesday	Wednesday	Thursday	Friday
AM	Rounds O.R.	Rounds O.R. Outpt clinic	Rounds Conferences O.R.	Rounds O.R.	Rounds Stroke Conference Neurovascular O.R.
PM	Peds Tumor Outpt clinic Rounds	Rounds O.R.	ICU Rounds Outpt Clinic	Ped Neuro Rds Outpt Clinic	Rounds Outpt Clinic

ON-CALL SCHEDULE & WEEKEND ACTIVITIES:

*M & M conf. 4th Wed of every month, B124 RRUMC; ***Neurosurgery Grand Rounds – Wed. Case Presentations, 6238 RRUMC; Wed. ICU Rounds.

ADDITIONAL COMMENTS AND OTHER SPECIAL REQUIREMENTS: On call every fourth (4th) day. Saturday and Sunday Rounds are 6:15 – 7:00a.m. and 6:00 – 7:30 p.m.

CURRICULUM FOR NEUROSURGERY EXTERNSHIP

REVISION: JULY 1, 2008

Welcome to UCLA Neurosurgery.

The UCLA Department of Neurological Surgery curriculum for 4th year medical students is designed to provide the medical student with general competency regarding indications for and general principles of surgical therapy for neurological disease. The goals and objectives listed below are covered over a 4-week rotation through a series of conferences, clinics, operating room experiences, and interactions with neurosurgery attendings, residents, and patients.

GOALS AND OBJECTIVES (AS SUGGESTED BY THE CNS):

- General Skills Topics
- The Neurological Examination
 - Evaluate patient's mental status and speech.
 - Examine the cranial nerves.
 - Examine central and peripheral sensory function.
 - Examine motor function.
 - Examine cranial and peripheral reflexes.
 - Examine cerebellar function and gait.
- Fundamentals of Neuro-Imaging
 - Recognize spine fractures and dislocations.
 - Differentiate on computerized images between blood, air, fat, CSF, and bone.

UCLA NEUROSURGERY RESIDENT TRAINING POLICIES AND PROCEDURES

- Recognize specific disease entities listed below such as epidural, subdural, intracranial hematoma, subarachnoid hemorrhage, brain tumors, and hydrocephalus.
- Intracranial hypertension
 - Understand the pathophysiology of elevated intracranial pressure, cerebral perfusion and the influence of blood pressure, blood gases, and fluid and electrolyte balance.
 - Recognize the clinical manifestations of acute brain herniation including the Cushing reflex, midbrain effects and vital signs.
 - Understand the impact of focal mass lesions, structural shifts and their consequences.
- Intracranial Disease
 - Diagnosis and Management of Head Trauma
 - Understand and assign the Glasgow Coma Score.
 - Recognize the presentation of brain herniation syndromes in the setting of trauma.
 - Initiate management of elevated intracranial pressure in head trauma.
 - Recognize and initiate management of concussion, brain contusion and diffuse axonal injury.
 - Recognize and initiate management of acute subdural and epidural hematoma, including surgical indications.
 - Recognize and initiate management of penetrating trauma including gunshot wounds.
 - Recognize and understand the principles of management of open, closed and basilar skull fractures, including cerebrospinal fluid leak, and chronic subdural hematoma (in children and adults).
 - Diagnosis and Management of Brain Tumor and Abscess
 - Know the relative incidence and location of the major types of primary and secondary brain tumors.
 - Understand the general clinical manifestations (focal deficit and irritations, mass effect; supratentorial vs. infratentorial) of brain tumors.
 - Recognize specific syndromes: extra-axial (cerebellopontine, pituitary, frontal...) and intra-axial, in brain tumor presentation.
 - Review the diagnostic tools that are currently used for evaluation (laboratory tests, radiology, biopsy).
 - Understand broad treatment strategies (surgery, radiosurgery, radiation, and chemotherapy) in the treatment of tumors.
 - Recognize the clinical manifestations of abscess and focal infections due to local spread, hematogenous disease associated with immune deficiency, and how they differ from the mimic tumors.
 - Understand the general principles in the treatment of abscess and focal intracranial infections.
 - Diagnosis and Management of Headaches
 - Know the major causes of intracranial hemorrhage: vasculopathy in the aged (hypertension and amyloidosis), aneurysm, vascular malformation, tumor and coagulopathy.
 - Recognize the symptoms and signs of subarachnoid, cerebral and cerebellar hemorrhage.
 - Apply diagnostic tools in evaluation of acute headache (CT and MRI, role of lumbar puncture).
 - Understand the natural history and broad treatment strategies (surgery, radiosurgery, interventional radiology as well as treatment of vasospasm) of intracranial aneurysms and vascular malformations.
 - Differentiate the symptomatology of migraine, cluster, and tension headache and sinusitis headache.

- Diagnosis and Management of Ischemic Cerebrovascular Disease
 - Recognize the symptoms and signs of anterior and posterior circulation ischemia emphasizing carotid disease and contrasting it with hemorrhagic stroke.
 - Differentiate among the types of ischemic stroke: embolic, hemodynamic, lacunar.
 - Categorize etiologic factors of brain ischemia including atherosclerosis, cardiac disease, arterial dissection, fibromuscular dysplasia, vasculitis, venous thrombosis and hematologic disease.
 - Understand the treatment options in ischemic disease and their indications, including medical management, risk factor modification and surgical therapy.
 - Diagnose and monitor carotid occlusive disease using noninvasive methods and understand indications for angiography and carotid endarterectomy.
- Spinal disease
 - Diagnosis and Management of Spinal Cord Injury
 - The emergency room diagnosis and interpretation of radiologic studies in spinal trauma.
 - Initiate acute management of spinal cord injury including immobilization, steroids and systemic measures.
 - Understand the definition and subsequent management principles of the unstable spine.
 - Understand management principles in spinal cord injury including indications for decompressive surgery and treatment of the medical complications associated with cord injury (skin, bladder, bowel movement, respiratory).
 - Diagnosis and Management of Nontraumatic Neck and Back Problems
 - Diagnose and understand the natural history and management principles of whiplash and soft tissue injury.
 - Recognize the broad categories of spinal pain and radiculopathy:
 - The signs and symptoms (including cauda equina syndrome).
 - Their common causes, their diagnosis and their management (cervical and lumbar disc herniation, osteoarthritic disease, spondylolisthesis).
 - Their differential diagnosis and management (including metastatic disease and primary spinal tumors).
 - Recognize the broad categories of myelopathy:
 - The signs and symptoms (including comparison of acute and chronic spinal cord injury).
 - The common causes, their diagnosis and their management (cervical and lumbar disc herniation and osteoarthritic disease).
 - Differential diagnosis and management (including transverse myelopathy, metastatic disease and primary spinal tumors).
- Peripheral nerve disease
 - Diagnosis and Management of Peripheral Nerve Injury and Entrapment
 - Diagnose traumatic nerve injury (laceration, stretch and compression) and understand indications and general strategies of treatment.
 - Recognize the signs and symptoms of common nerve entrapment (carpal tunnel syndrome, olnar nerve entrapment, thoracic outlet syndrome and meralgia paresthetica), their etiology, conservative management strategies and indications for surgical intervention.
- Other common neurosurgical problems
 - Diagnosis and Management of Hydrocephalus and Spinal Dysraphism
 - Recognize the symptoms and signs of hydrocephalus in children.
 - Recognize the symptoms and signs of hydrocephalus in adults.

- Understand common etiologies of hydrocephalus in children and adults, and differentiate between communicating and obstructive hydrocephalus.
 - Understand treatment strategies for hydrocephalus.
 - Recognize common syndromes of spinal dysraphism, their neurologic manifestations and broad principles of management.
- Diagnosis and Management of Surgically Treatable Pain Problems, Movement Disorders and Epilepsy
 - Recognize the features of trigeminal and glossopharyngeal neuralgia, causalgia and cancer pain, indications for surgical referral and the spectrum of surgical therapeutic options.
 - Recognize movement disorders amenable to surgical intervention, including Parkinson's disease, dystonia, spasticity, and hemifacial spasm, indications for surgical referral and the spectrum of surgical therapeutic options.
 - Understand the general classification of seizure disorders, definition of intractable epilepsy, and the broad categories of surgical intervention for epilepsy including invasive electrodes, resective and disconnective surgery.

ACHIEVING THE GOALS AND OBJECTIVES

The goals and objectives of the medical student program are achieved in the 4 week rotation by exposure to neurosurgery patients in the clinical care setting, weekly departmental conferences, neurosurgery clinics, overnight call, and operating room experience.

1. Clinical service

There are four clinical neurosurgery services offered by UCLA Neurosurgery. These busy four services offer different perspectives on the spectrum of neurosurgical care.

- **Westwood (Ronald Reagan Medical Center) Campus**
 - **Attendings:** Martin, Frazee, Ausman, Gonzalez, Bergsneider, Liao, Edelman, Holly, Batzdorf, Mathern, Lazareff, Shafa, Becker, Fried, McBride, DeSalles, Lu, and Yang.
 - **Residents:** 1 Chief, 2 Seniors, 3 Juniors, and 2 Interns
 - **Experience:** Busy tertiary care referral center. All areas of neurosurgery are well represented.
- **Santa Monica Campus**
 - **Attendings:** Holly, McBride, Lu
 - **Residents:** 1 Senior
 - **Experience:** Mainly spine (traumatic, degenerative, tumor), combination of complex referral cases and community practice
- **West Los Angeles VA Campus**
 - **Attendings:** Frazee, DeSalles, Gonzalez
 - **Residents:** 1 Chief, 1 Intern
 - **Experience:** Complex and community spine (mainly degenerative), functional (DBS) cases, variety of intracranial cases
- **Harbor-UCLA Campus**
 - **Attendings:** McBride, Ausman, Duong, Shafa
 - **Residents:** 1 Chief, 1 Senior, and 2 Interns
 - **Experience:** Traumatic head and spine injuries, complex intracranial and spine cases; significant resident autonomy

2. Weekly Departmental Conferences

Neurosurgical conferences are held daily every Wednesday.

- a) **Case presentations** are held every other week, where interesting cases are presented and reviewed.
- b) **Journal Club** is held once a month on Education Day. The student is expected to critique and present an assigned article.
- c) **Morbidity and Mortality conference** is held once a month.
- d) **Board Review** is held every other Wednesday and involves a detailed review of a board topic.
- e) **Neuropathology conference** is held once a month on Education Day,
- f) **Surgical Science conference** is held once a month on Education Day,
- g) **Basic science conference** is held once a month on Education Day,
- h) A **Surgical Symposium** is held once a month and involves a presentation by an expert in his/her field reviewing current controversies or evolving science.

3. Neurosurgery Clinics

Students are expected to participate in the clinics at each campus visited. Colleen Bruton can assist with coordination and schedules. At clinic the student will be assigned patients to interview, examine and present. They will be assessed on clinical history and physical examination performance.

4. Emergency call

To obtain exposure to acute neurosurgical conditions it is expected that the student take call on the same schedule as his/her junior resident mentor. This typically involved a “q3” call arrangement.

5. Operating room experience

Daily operating room attendance is essential and guidance as to which surgeries to attend should be obtained from the senior/chief residents. All surgeries concerning patients for whom the student is responsible should be attended. Level of participation in the surgery is up to the attending present but the student should ALWAYS be prepared to be scrubbed in.

SCHEDULING AND LOGISTICAL INFORMATION

At the Westwood (RRMC) Campus, rounds begin at 0530 during the week and at 0700 on the weekends. The Chief resident should be contact prior to starting the rotation to receive reporting instructions.

At the Santa Monica Campus, the senior resident should be contact prior to starting the rotation to receive reporting instructions.

At the VA Campus, the chief resident should be contact prior to starting the rotation to receive reporting instructions.

At the Harbor Campus, rounds begin at 0630 during the week and at 0700 on the weekends. The meeting location is on the sixth floor Neurosurgery office. Page Jonathan Negus, NP, at 310-501-2701 prior to starting the rotation to receive reporting instructions.

Scrub attire is appropriate for daily work rounds. Business attire is requested when reporting to the clinics.

TIPS/RECOMMENDATIONS

Professional attitude and enthusiasm are hallmarks of an exceptional student. Be punctual, and be prepared for full days of work.

EFFORT. EFFORT. EFFORT. The Neurosurgical externship at UCLA can be rigorous and tiring. But this is exceeded by its potential to be rewarding and informing.

Thank you, and good luck. We look forward to seeing you on the service.

NS1 NEUROSURGERY INTERN ROTATION Updated: August 1, 2006

ROTATION: NEUROSURGERY

ROTATION DIRECTOR: Marvin Bergsneider, M.D.

NEUROSURGERY CHAIRMAN: Neil Martin, M.D.

SITES: UCLA Medical Center

VA Greater Los Angeles Healthcare System

GOALS: To provide trainees an opportunity to participate in the perioperative and operative aspects of neurosurgery.

LEVEL OF TRAINEE: R1

ASSESSMENT:

Monitoring of the accomplishment of the stated objectives will be performed using the following methods:

1. Global Rating: end of rotation evaluation of resident performance to assess the resident's demonstration of Core Competencies with respect to the stated objectives by faculty, other team resident members, students, and nursing staff.
2. Case Logs: auditing of operative cases pertinent to the specialty in the Surgical Operative Log.
3. Written Examination: performance on the annual ABSITE examination. Patient Survey: performance will be assessed by patient surveys administered through the rotation.

DESCRIPTION OF THE ROTATION:

The Neurosurgery rotation of 1 month in the R1 year.

1. All rotating will be part of the Neurosurgery team and responsible for the care of the Neurosurgery patients.
2. The surgery residents will provide in-patient care including routine admissions and critical care of patients.
3. Residents will further participate in surgical operations needed on these patients under direct supervision by the surgical faculty.
4. The rotating residents will participate in all Department of Surgery educational conferences and didactic presentations.
5. Residents are expected to actively participate and present at the weekly Neurosurgery Conference.

R1 RESIDENT

COMPETENCY BASED LEARNING OBJECTIVES

Patient Care:

1. Perform a complete and thorough history and physical examination, with emphasis in elements unique to neurosurgery patients.
2. Initiate the laboratory evaluation and any other initial diagnostic studies with an understanding of the tests to be ordered.
3. Make informed decisions about diagnostic and therapeutic interventions on neurosurgery patients with the guidance of senior residents and faculty.
4. Be proficient in the preoperative preparation of the patients for neurosurgery and routine postoperative care.
5. Understand basic pathophysiology of neurosurgical disorders.
6. Understand basic pathophysiology of neurosurgical disease under the guidance of the senior residents and attending physicians.
7. Understand the basic indications for common radiological and interventional studies used in the care of neurosurgery patients such as CT scan and MRI.
8. Demonstrate the ability to effectively set priorities and coordinate the care of neurosurgery patients.

Medical Knowledge:

1. Demonstrate an understanding of a comprehensive neurological evaluation including an accurate history and physical examination.
2. Demonstrate a working knowledge of the role of the following diagnostic modalities in the evaluation of patients with neurosurgical problems:
 - a) plain skull radiographs
 - b) plain spine radiographs
 - c) CT scan of head or spine
 - d) MRI
 - e) cerebral angiography
3. Discuss the management of head injuries to include:
 - a) selection, prioritizing, and performance of resuscitation efforts
 - b) analyzing components and results of baseline neurological examination to determine and evaluate changes in patient neurological status
 - c) treatment of a scalp wound
 - d) initial treatment of compound depressed skull fractures
 - e) management of increased intracranial pressure
 - f) recognition of cerebral herniation syndromes
 - g) initiation, management, and interpretation of intracranial pressure monitoring
 - h) recognition and initial management of post-traumatic intracranial hemorrhage
4. Discuss the management of cervical and lumbar disc disease including:
 - a) conservative management (traction, rest, physical therapy, analgesic medications)
 - b) selection and usefulness of radiologic modalities (plain spine films, CT, MRI, myelography)
 - c) indications for surgical management
5. Discuss the description and diagnosis of intracranial and intraspinal mass lesions (neoplasm, abscess, hematoma) including:
 - a) signs and symptoms of intracranial and intraspinal mass lesions
 - b) pathophysiology of intracranial and intraspinal abscess
 - c) pathophysiology of spontaneous intracranial and intraspinal hemorrhage
 - d) pathophysiology of hydrocephalus

6. Demonstrate an understanding of the critical issues associated with closed head injury including:
 - a) coma
 - b) brain swelling
 - c) increased intracranial pressure
 - d) ICP monitoring
 - e) cerebral perfusion
 - f) hyperventilation
 - g) diuretic use
7. Demonstrate an understanding of the critical issues associated with spinal cord injury including:
 - a) recognition of neurological deficit from cord and/or root injury at various levels
 - b) spinal stabilization including the use of tongs or halo
 - c) pathophysiological responses in the acute quadriplegic or paraplegic patient
 - d) respiratory problems
 - e) use of corticosteroids
 - e. urinary bladder dysfunction
8. Demonstrate the ability to recognize and manage the following problems commonly encountered in neurosurgical patients:
 - a) hyponatremia
 - b) water intoxication
 - c) SIADH
 - d) hypopituitarism
 - e) hypoadrenalism
9. Understand the clinical definition of brain death.
10. Demonstrate an understanding of the importance of early referral of head and spinal cord injury patients to rehabilitation services and the potential impact upon long-term prognosis.
11. Perform neurological history and examination of patients at various levels of consciousness.
12. Assist during neurosurgical procedures, gaining exposure to:
 - a) craniotomy, laminectomy
 - b) neurosurgical hemostasis
 - c) protection of neural tissues
 - d) repair/replacement of dura and bone
13. Perform limited neurosurgical procedures under appropriate supervision:
 - a) diagnostic lumbar puncture
 - b) insertion of ICP monitor
 - c) repair of scalp lacerations
 - d) application and management of skeletal traction by tongs or halo

Practice Based Learning:

1. Develop a personal program of self-study and professional growth with guidance from the teaching staff and senior residents. An understanding of the etiology, pathogenesis, pathophysiology, diagnosis and management of neurosurgical disorders will allow for sound surgical judgment, which relies on knowledge, rational thinking and the surgical literature.
2. Utilize current literature resources to obtain up-to-date in information in the neurosurgical patients and practice evidence-based medicine.
3. Participate in teaching and organization of the educational weekly neurosurgery conference.
4. Participate in activities of the Department of Surgery (including all teaching conferences) and assume responsibility for teaching and supervision of subordinate surgical house staff, and medical students.
5. Participate in the Department Morbidity & Mortality conference and utilize information to further improve patient care.

6. Participate in daily teaching rounds and be able to present patients in an organized and complete fashion

Professionalism:

1. Practice compassionate patient care maintaining the highest moral and ethical values with a professional attitude.
2. Demonstrate understanding of the needs and feelings of others, including the patient's family members, allied health care personnel (nurses, clerical staff, etc.), fellow residents, and medical students.
3. Communicate and collaborate effectively in a team of health care providers
4. Demonstrate respect, compassion and integrity in the care of neurosurgery patients on a daily basis
5. Demonstrate mature and educated approach to Ethical issues commonly encountered in a neurosurgery setting.
6. Show sensitivity to patients culture, age, gender and disabilities
7. Recognize and appropriately handle sensitive cases of abuse
8. Be self-aware and have knowledge of professional limits by practicing on-going medical education and self-improvement.
9. Be accountable to profession in their actions and decisions.
10. Understand the legal implications of the declaration of brain death.

Interpersonal Relationships And Communication:

1. Create and sustain a therapeutic and ethically sound relationship with patients and patient families
2. Work effectively with other members of the medical team including allied health care personnel (nurses, clerical staff, etc.), fellow residents, and medical students.
3. Maintain professional interactions with other health care providers and hospital staff

Systems Based Practice:

1. Understand how the health care organization affects surgical practice of neurosurgical practice.
2. Demonstrate cost effective health care.
3. Be able to coordinate care including discharge planning, social service, rehabilitation, and long term care.
4. Follow established practices, procedures, and policies of the Department of Surgery and integrated and affiliated hospitals.
5. Maintain complete of medical records operative notes staff sheets and notes, patient database cards and other patient care related documentation in a timely, accurate and succinct manner.

REFERENCES:

Greenberg, MS. Handbook of Neurosurgery. 6th ed. New York: Thieme Medical Publishers, 2006.

Black, Peter, Neurosurgery – An Introductory Text; New York, Oxford University Press, 1995

TYPICAL WEEK *:

Monday	Tuesday	Wednesday	Thursday	Friday
0530 AM rounds	0530 AM rounds	0530 AM rounds	0530 AM rounds	0530 AM rounds
0800 ICU rounds	0800 ICU rounds	0700 -1000 General surgery conferences	0800 ICU rounds	0930 patient disposition and care coordination conference
0930 patient disposition and care coordination conference	0930 patient disposition and care coordination conference		1400 ICU rounds	
1500 PM rounds	1500 PM rounds	1500 PM rounds	1500 PM rounds	1500 PM rounds
		1700 Neurosurgery Conference/ Symposium**		

- *Each intern is encouraged to scrub into a neurosurgical OR case at least twice per week.
- ** Wednesdays: Interns have mandatory Department of Surgery conferences in the morning. Interns are encouraged to attend the 5pm Neurosurgery conferences including ICU Monitoring (first Wed), Board Preparation Lectures (second and fourth Wednesdays), and Symposia/Grand Rounds Lecture (third Wednesday).

UCLA Neurology Elective Rotation (NS1) Goals and Objectives

Rotation Director: Alon Avidan, M.D.

Assessment:

1. The resident will be given a verbal assessment of their accomplishment of the core competencies on a weekly basis (During Friday rounds).
2. The resident will undergo a formal written evaluation of their performance of the core competencies at the conclusion of the rotation.
3. The resident will be expected to keep up their time log for the rotation.

Description of the Rotation:

The UCLA neurology rotation is three months during the NS2 clinical year. At RRUCLA, residents work in teams of two PGY2 residents and a senior (PGY4) Chief resident with the supervision of a rotating attending faculty Neurologist. There are usually 1-2 rotating third year medical students. The team cares for primary Neurology patients that are concentrated on 6 North but may be in other locations in the hospital based on bed availability. In addition, this team provides formal neurologic consultation for patients from other medical services within the hospital. The resident team develops diagnostic and therapeutic management plans for these patients in collaboration with the attending. Regular learning occurs throughout the process of patient assessment and management. There are also more structured regularly scheduled teaching conferences.

1. The rotating resident functions part of the neurology consult team.
2. The rotating resident participates in the provision of in-patient care, inpatient consultations, and emergency room consultations.
3. The rotating resident will function as part of the stroke response team and learn the essentials of initial evaluation and treatment of ischemic stroke.
4. The rotating resident will expand their knowledge base on the full spectrum of surgical and non-surgical neurological diseases.
5. The rotating resident will learn to broaden their differentials diagnosis based on patients presenting symptoms. The will also learn the necessary work for the common and uncommon neurological disease.
6. The residents will participate in morning rounds and the formulation of care plans.
7. Resident learns the range of differential diagnosis associated with non operative neurological diseases.
8. The rotating resident attends the once monthly education day held at UCLA Westwood.

Competency Based Learning Objectives

Patient Care:

1. Perform a thorough history and physical examination, with a focus on aspects pertinent to patient's specific disorder in the full spectrum of neurological diseases.
2. Demonstrate an understanding of the patho-physiology of cranial, spinal, peripheral nerve as well as pediatric disorders.
3. Further learn the indications for ordering diagnostic imaging and electrophysiological studies such as CT, MRI, angiograms, myelogram, EEG, EMG and NCS in non-surgical neurological diseases.
4. Develop competence in reading and interpreting radiological studies such as MRI, CT, myelography, angiography, and plain radiography.
5. Understand the role of non-operative therapeutic treatment strategies for the full spectrum of cranial, spinal and peripheral nerve disorders.

UCLA NEUROSURGERY RESIDENT TRAINING POLICIES AND PROCEDURES

6. Develop an understanding the appropriate management of patients with Central nervous system infections.
7. Understand the informed consent process, importance of documentation, and patient expectation management.
8. Participate and provide leadership patient care and follow-up in the outpatient clinic.

Medical Knowledge:

1. Develop the ability to follow and care for a specified group of patients
2. Develop the ability to evaluate newly admitted patients and present to neurology faculty
3. Develop familiarity with the technical aspect of performing EMG, EEG, and nerve conduction studies
4. Develop an knowledge base about the basic pathology of all types of neurology patients specifically Multiple Sclerosis, movement disorders, seizure clinic patients
5. Learn to identify neuralgic condition warranting a further work up by a neurologist.
6. Learn electrodiagnostics --- EMG, EEG and NCS testing.

Practice Based Learning

1. Understand the current medical literature and evidence-based medicine in the treatment of neurological patients.
2. Lead in the literature search for question that may arise regarding patient care.
3. Participate in teaching rounds and present patient in a succinct and organized fashion.

Interpersonal and Communication Skills

1. Establish a healthy doctor – patient relationship with patients and their families.
2. Work effectively with other members of the medical team: doctors, residents, fellows, nurses, and allied health personnel.
3. Maintain timely, comprehensive, accurate, and legible medical records.
4. Understand the importance of keeping referring physicians apprised of the status of their patients.
5. Identify any concerns with the health of fellow residents, staff, or allied health personnel.

Professionalism

1. Provide compassionate patient care and maintain moral and ethical standards.
2. Demonstrate sensitivity to patient's religion, culture, race, age, and gender, disabilities, and sexual orientation.
3. Adhere to patient confidentiality and scientific integrity.
4. Identify deficiencies in self or peer performance and suggest strategies for improvement.
5. Understand professional and personal limitations.
6. Be accountable for decisions and actions.
7. Provide team leadership and set a standard of excellence to be emulated by junior level residents and medical students.

Systems Based Practice

1. Improve throughput in both the outpatient and inpatient settings.
2. Understand optimal use of information technology

Recommended Resources:

- 1) Hospitalist Neurology (Blue Books of Practical Neurology, Vol 19); edited by Martin Samuels, MD
- 2) Neurology in Clinical Practice, 2nd Edition; edited by Walter G. Bradley, DM, FRCP and Robert B. Daroff, MD, et. al.
- 3) Principles of Neurology, 6th Edition; Raymond Adams, Maurice Victor, Alan Ropper
- 4) Merritts Textbook of Neurology

- 5) Neurological Differential Diagnosis, 3rd Edition; John Phillip Patten
- 6) Localization in Clinical Neurology; 3rd Edition: Paul W. Brazis, MD, Joseph C. Masdeu, MD, and Jose Biller, MD
- 7) Diagnostic Neuroradiology, Anne G. Osborn, MD, FACR
- 8) Computer access to internet sources with available links:
Pub Med, Medline, Harrison's On Line, MD Consult, STAT
Biomedical Library

RRUMC/UCLA Junior Resident Neurosurgery Rotation Goals and Objectives

UPDATED: July 1 2008

ROTATION: Junior resident neurosurgery rotation, NS2

ROTATION DIRECTORS: Neil Martin M.D.

SITES: UCLA Medial Center

Overview:

This rotation serves as the core teaching for the residents to learn the care of neurosurgical patients. The resident evaluates patients presenting with all varieties of neurosurgical pathologies: spine, cranial and peripheral nerves. Under the supervision of the attending physicians, senior residents and the neurocritical care team, the junior resident learns to develop a plan of care for the neurosurgical patients.

Goals:

1. To develop the diagnostic skills to evaluate accurately the status of a neurosurgical patient.
2. To develop the diagnostic skills in the interpretation of basic findings on CT scan and MRI that could lead to acute patient deterioration.
3. To recognize neurosurgical emergencies
4. To recognize complications from neurosurgical procedures or treatments.
5. To relay the findings and patient's condition to the attending physician in an organized fashion
6. To develop a plan of care for the neurosurgical patients under the supervision of the attending physician.
7. To learn the techniques of neurosurgical procedures: ventriculostomy, lumbar drain, central line placement.
8. To acquire the skills to perform the initial steps during a neurosurgical operation.

Assessment:

1. The resident will be given a verbal assessment of their accomplishment of the core competencies at the mid-point of the rotation.
2. The resident will undergo a formal written evaluation of their performance of the core competencies at the conclusion of the rotation.
3. The resident case logs will be audited by the rotation director and/or program director at the end of the rotation.
4. The resident case presentations and journal article presentations will be evaluated throughout the duration of the rotation.

Description of the Rotation:

The junior resident neurosurgery rotation is 12 months during the R2 clinical year.

1. The rotating resident will be part of the team that includes the attending neurosurgeons, the neurocritical care attendings and fellows, the senior residents, the inpatient nursing staff, the inpatient nurse practitioners, surgical staff, physician assistant(s) and supporting staff.

2. The rotating resident will provide in-patient care of neurosurgical patients including Critical Care and ward patient care, pre-operative and post-operative patient evaluation and care, inpatient and emergency room consultations.
3. Residents will participate in inpatient surgical cases under the direct supervision of the attending staff. These include but are not limited to:
 - a. Shunt placement/revision
 - b. Chiari decompression
 - c. Myelomeningocele repair
 - d. Pediatric tumor resection
 - e. Traumatic epidural/subdural evacuation
 - f. Intraparenchymal hematoma evacuation
 - g. Elevation/repair of skull fractures
 - h. Hemispherectomy for trauma/stroke
 - i. Traumatic spine injury surgery
 - j. Supratentorial and infratentorial Craniotomy for tumor/vascular approaches
 - k. Endonasal/Transsphenoidal resection of tumor/masses
 - l. Endoscopic surgeries (e.g. endoscopic third ventriculostomy, endoscopic transsphenoidal tumor resection).
 - m. Deep Brain Stimulator (DBS) lead placement
 - n. Vagal Nerve stimulator (VNS) placement
 - o. DBS or VNS generator replacement
 - p. Epilepsy surgery (corticectomy, temporal lobectomy, hemispherectomy)
 - q. Craniostomy repair
 - r. Cranioplasty
 - s. Abscess aspiration, brain biopsy
 - t. Subdural/intraparenchymal/intraventricular intracranial pressure monitor or ventriculostomy placement
 - u. Lumbar laminectomy/fusion
 - v. Cervical/thoracic posterior laminectomy/fusion
 - w. Anterior cervical discectomy and fusion (ACDF)
 - x. Spinal exposure for intradural lesions (e.g. tumors/vascular malformations)
 - y. Peripheral nerve decompression/repair
 - z. Peripheral nerve tumor resection
4. Residents will participate in inpatient and emergency room bedside procedures including arterial catheterization, central line placement, swan-ganz catheter placement, chest tube placement, lumbar punctures, lumbar drain placements, non-invasive (i.e. programming) and invasive (i.e. "shunt tap", externalization of shunt, intrathecal injections) shunt evaluation, frontal and occipital ventriculostomy placement, intraparenchymal intracranial pressure monitor placement, subdural drain placement. Cisternography and myelography. HALO orthosis placement. NG tube, Dobhoff tube and complicated foley placement.
5. Each resident is required to perform each of the above under the supervision of an attending physician or senior resident for at least the first 5 attempts for each procedure. Subsequently, the residents may perform the above procedures independently if approved by the senior and chief residents and attending staff.
6. The residents will evaluate and participate in the clinical decision making of inpatient and emergency room consultations
7. The residents will evaluate and participate in the clinical decision making of urgent and long-term trauma patient care.
8. The resident will attend the weekly Neurosurgery education lectures including education day lectures, quality assurance meetings, case presentations, board review lectures and team meeting.
9. The residents are each expected to prepare a case presentation once every three months.

Competency Based Learning Objectives

Patient Care:

1. Perform a thorough history and physical examination, focusing on the neurological and neurosurgical pathology.
2. Understand the pathophysiology of neurosurgical diseases including but not limited to:
 - a) Intracranial pressure monitoring and management
 - b) Head and spine trauma management
 - c) Intracranial mass diagnosis and treatment
 - d) Spinal dysraphism evaluation and treatment
3. Understand the indications for ordering diagnostic studies such as Plain radiography, CT, MRI, myelograms and angiograms.
4. Acquire the ability to competently read and interpret radiological studies such as MRI, CT, and angiography.
5. Understand the role of non-operative therapeutic treatment strategies including ventriculostomy placement and HALO application.
6. Understand the indications for, and timing of intervention for patients with various neurological and neurosurgical disorders
7. Understand the informed consent process, importance of documentation, and preoperative patient expectation management.

Medical Knowledge:

1. Understand the location and function of spinal and cranial anatomy in the setting of developmental pathology, tumors and trauma.
2. Describe the etiologies of various neurosurgical pathology including but not limited to: intracranial hemorrhage, trauma, tumor, hydrocephalus, and infection.
3. Differentiate between common clinical findings seen in neurological and neurosurgical conditions.
4. Learn the Brainlab software used for planning imaging guided surgeries. Learn to register the Brainlab equipment intraoperatively.
5. Gain confidence in the performance of surgical procedures as described above.
6. Understand proper patient positioning and level localization for the above-mentioned procedures.

Practice Based Learning

1. Understand the current medical literature and evidence-based medicine in the treatment of patients with head or spine trauma, intracranial hemorrhage, intracranial mass lesions, and developmental abnormalities.
2. Participate and present at the weekly neurological educational conferences including board preparation lectures, case presentations, and ICU rounds.
3. Attend the mandatory UCLA Neurosurgery Education Day.
4. Participate in teaching rounds and present patient in a succinct, organized fashion.
5. Attend the neurocritical care rounds to learn advance techniques in neurological/neurosurgical/spine critical care: jugular bulb oxygenation, optimal medical management for critical condition (eg. hypotension, hypertension, hypoxia, tachycardia)
6. Be responsible to maintain and update the patient lists and provide accurate and thorough "sign-out" of patient information.
7. Each resident is accountable to report to a specific group of attending neurosurgeons regarding their inpatients and consults patients. This accountability will rotate through the academic year.

Interpersonal and Communication Skills

1. Establish a healthy doctor – patient relationship with patients and their families.
2. Work effectively with other members of the medical team: doctors, residents, fellows, nurses, and allied health personnel.
3. Work effectively and with good cooperation with complementary surgical teams including Trauma surgery, Head and Neck surgery, Plastic Surgery, and Orthopaedic surgery.
4. Maintain timely, comprehensive, accurate, and legible medical records.
5. Understand the importance of keeping referring physicians apprised of the status of their patients.
6. Identify any concerns with the health of fellow residents, staff, or allied health personnel.

Professionalism

1. Provide compassionate patient care and maintain moral and ethical standards.
2. Demonstrate sensitivity to patient's religion, culture, race, age, and gender, disabilities, and sexual orientation.
3. Adhere to patient confidentiality and scientific integrity.
4. Identify deficiencies in self or peer performance
5. Understand professional and personal limitations.
6. Be accountable for decisions and actions.

Systems Based Practice

1. Understand effective health care cost strategies as it relates to spinal surgery: implant costs, hospitalization time, etc.
2. Demonstrate coordination of multiple disciplines in the treatment of spinal patients: physical therapy, rehabilitation, discharge planning.
3. Improve throughput in both the outpatient and inpatient settings.
4. Understand optimal use of information technology.
5. Understand all rules regarding patient safety in the operating room such as the "time-out" period.
6. Adhere to all ACGME work week requirements.

UCLA Neurosurgery Functional/Stereotactic Radiosurgery Rotation (NS3) Goals and Objectives

Rotation Director: Antonio A. F. DeSalles, M.D., Ph.D.

Assessment:

1. The resident will be given a verbal assessment of their accomplishment of the core competencies at the mid-point of the rotation.
2. The resident will undergo a formal written evaluation of their performance of the core competencies at the conclusion of the rotation.
3. The resident case logs will be audited by the rotation director and/or program director at the end of the rotation.
4. The resident case presentations, journal article presentations, grants proposal, and manuscript submissions will be evaluated throughout the duration of the rotation.

Description of the Rotation:

The Radiosurgery/Functional Neurosurgery rotation is three (3) months usually during the NS2 year.

1. The rotating resident will be part of the team that includes the attending neurosurgeon (Dr. Antonio DeSalles), the radiation oncologist and fellows, the neurophysicist the neurophysiologist and supporting staff.
2. The rotating resident will provide in-patient care including post-operative ward and ICU patients and inpatient consultations.
3. Residents will participate in in-patient and outpatient surgical cases under the direct supervision of the attending staff.
4. The residents will evaluate and participate in the clinical decision making of patients in the outpatient clinic.
5. The resident will attend and present at the weekly Functional Neurosurgery research meeting and Radiosurgery meeting that is held during the academic calendar year.
6. The resident will attend the once monthly education day held at UCLA Westwood.
7. The resident will attend and participate in the Radiosurgery Tutorial lectures that occur approximately 6 times yearly.

Competency Based Learning Objectives

Patient Care:

1. Perform a thorough history and physical examination, with a focus on aspects pertinent to patients with functional and pain disorders as well as intracranial and spinal lesions requiring radiosurgery/radiotherapy.
2. Understand the pathophysiology of functional disorders.
3. Understand the indications for ordering diagnostic studies such as Audiograms, MRI modalities including Diffusion Tensor Imaging and Functional MRI imaging and angiograms.
4. Acquire the ability to competently read and interpret radiological studies such as MRI, CT, and angiography.
5. Understand the role of non-operative therapeutic treatment strategies.
6. Understand the indications for, and timing of intervention for patients with various neurological and neurosurgical disorders
7. Understand the indications, limitations, benefits, and alternatives of Deep Brain Stimulator surgeries.
8. Understand and implement the treatment plan for patients suffering from chronic pain.

9. Understand the informed consent process, importance of documentation, and preoperative patient expectation management.
10. Participate in patient postoperative care and follow-up in the outpatient clinic.

Medical Knowledge:

1. Understand the location and function of spinal and cranial anatomy, particularly of the cerebello-pontine angle (CPA), the sellar/parasellar region, the thalamus, midbrain and basal ganglia.
2. Describe the different etiologies of Parkinson's disease, essential tremor, dystonia.
3. Differentiate between common clinical findings seen in trigeminal neuralgia and other facial pain syndromes.
4. Understand the different modalities of medical and surgical therapy for trigeminal neuralgia.
5. Understand the causes and treatments of patients suffering from chronic pain syndromes / reflex sympathetic dystrophy
6. Understand the concept of radiosurgery and fractionated radiotherapy in the treatment of malignant and benign tumors as well as neuropathies.
7. Discuss the clinical and radiographical factors that impact the treatment plan for patients with metastatic brain and spinal disease.
8. Explain the risks and indications for radiosurgery and radiotherapy for CPA lesions, supratentorial lesions, sellar/parasellar lesions, spinal lesions, and trigeminal neuralgia.
9. Describe the anatomical landmarks used for various deep brain syndrome targets with relation to the specific nervous circuits and gross anatomy.
 10. Learn the Brainlab/iPlan software used for planning radiosurgery and radiotherapy for cranial and spinal lesions.
 11. Learn the Brainlab stereotaxy software used for planning and performing deep brain stimulation surgeries.
12. Gain confidence in the performance of surgical procedures such as:
 - a) Deep Brain Stimulator (DBS) placement
 - b) DBS lead and generator placement
 - c) DBS Battery replacement
 - d) DBS generator programming/reprogramming
 - e) Cortical stimulator placement
 - f) Cortical stimulator programming
 - g) Foramen Ovale stereotactic procedures (trigeminal nerve rhizotomy / ablation, meckel's cave mass biopsy)
 - h) Percutaneous stereotactic rhizotomy
 - i) DREZ rhizotomy
13. Understand proper patient positioning and level localization for the above-mentioned procedures.

Practice Based Learning

1. Understand the current medical literature and evidence-based medicine in the treatment of functional and radiosurgery patients.
2. Participate and present at the weekly Functional Surgery and Radiosurgery conferences.
3. Attend the mandatory UCLA Neurosurgery Education Day.
4. Participate in teaching rounds and present patient in a succinct, organized fashion.

Interpersonal and Communication Skills

1. Establish a healthy doctor – patient relationship with patients and their families.
2. Work effectively with other members of the medical team: doctors, residents, fellows, nurses, and allied health personnel.
3. Maintain timely, comprehensive, accurate, and legible medical records.
4. Understand the importance of keeping referring physicians apprised of the status of their patients.
5. Identify any concerns with the health of fellow residents, staff, or allied health personnel.

Professionalism

1. Provide compassionate patient care and maintain moral and ethical standards.
2. Demonstrate sensitivity to patient's religion, culture, race, age, and gender, disabilities, and sexual orientation.
3. Adhere to patient confidentiality and scientific integrity.
4. Identify deficiencies in self or peer performance
5. Understand professional and personal limitations.
6. Be accountable for decisions and actions.

Systems Based Practice

1. Understand effective health care cost strategies as it relates to spinal surgery: implant costs, hospitalization time, etc.
2. Demonstrate coordination of multiple disciplines in the treatment of spinal patients: physical therapy, rehabilitation, discharge planning.
3. Improve throughput in both the outpatient and inpatient settings.
4. Understand optimal use of information technology.
5. Understand all rules regarding patient safety in the operating room such as the "time-out" period.
6. Adhere to the requirements of the eighty-eight hour workweek.

UCLA Neuropathology Rotation (NS3) Goals and Objectives

Rotation Director: Harry V. Vinters, M.D.

Assessment:

1. The resident will be given a verbal assessment of their accomplishment of the core competencies at the mid-point of the rotation.
2. The resident will undergo a formal written evaluation of their performance of the core competencies at the conclusion of the rotation.
3. The resident will be evaluated after giving a short presentation regarding an area of neuropathology interest at the conclusion of the rotation.

Description of the Rotation:

The neuropathology rotation is two (2) months during either the NS2 clinical year.

1. The rotating resident will be part of the neuropathology unit that includes 3 attending neuropathologists, one fellow, one rotating pathology resident, and one or two other elective rotators.
2. The rotating resident will review all slides submitted for diagnosis, including frozen sections, permanent sections, and immunohistochemical preparations.
3. Residents will participate neuropathology sign-out sessions.
4. The residents will participate in neuropathology conferences, autopsies, and brain-cutting sessions.
5. The resident will be expected to read a short neuropathology introductory text.
6. The resident will attend all neurosurgery education conferences each Wednesday at Westwood-UCLA.
7. The resident is responsible for giving a neuropathology lecture on a topic of his/her choice at the conclusion of the rotation.

Competency Based Learning Objectives

Patient Care:

1. Understand the intraoperative preparation necessary for certain neuropathologic specimens.
2. Understand how use information provided by the neuropathologists in a patient care setting.
3. Understand the molecular and physiological nature of neurological disease.
4. Understand the importance of effective, accurate documentation.

Medical Knowledge:

1. Understand the normal CNS histology and be able to identify cellular characteristics under the microscope.
2. Understand the principles of neuropathology, including different staining techniques and the role of immunohistochemistry.
3. Understand the limitations of frozen section as it relates to intraoperative diagnosis.
4. Understand the role of electron microscopy.
5. Identify micrographic features of neurologic disease, including tumors, demyelinating disease, degenerative disease, infection/inflammation, and vascular disease.
6. Understand the processes involved in peripheral nerve and muscle pathologic diagnosis.
7. Gain experience being able to describe microscopic findings in a clear, precise manner.
8. Gain experience with autopsy and brain cutting.

9. Identify neurological disease in gross surgical and autopsy specimens, with attention paid to radiological correlates.

Practice Based Learning

1. Understand topics in the current literature in neuropathology.
2. Participate in the weekly neuropathology conferences, including brain-cutting sessions.
3. Attend the mandatory UCLA Neurosurgery Education Day and all educational conferences.
4. Participate in neuropathology sign-out sessions.

Interpersonal and Communication Skills

1. Understand the importance of accurate and precise communication of pathology results to referring physicians.
2. Work effectively with other members of the neuropathology team and members of the pathology laboratory.
3. Understand the importance of timely result reporting.
4. Identify any concerns with the health of fellow residents, staff, or allied health personnel.

Professionalism

1. Maintain moral and ethical standards.
2. Adhere to patient confidentiality and scientific integrity.
3. Identify deficiencies in self or peer performance
4. Understand professional and personal limitations.
5. Be accountable for decisions and actions.

Systems Based Practice

1. Understand effective health care cost strategies as it relates to neuropathology.
2. Demonstrate coordination of pathology with the clinical disciplines.
3. Understand optimal use of information technology.
4. Adhere to the requirements of the eighty hour work week.

**UCLA NEUROSURGERY RESIDENCY PROGRAM
ROTATION GOALS AND OBJECTIVES**

UPDATED: February 17, 2008

ROTATION: Neurointerventional Surgery, NS3

ROTATION DIRECTOR: Nestor R. Gonzalez, M.D.

SITES: UCLA Medical Center/Veterans Administration Greater Los Angeles

OVERVIEW:

The role of minimally invasive procedures guided under fluoroscopic control has radically changed the practice of vascular neurosurgery in the last two decades. Multiple clinical studies and the continuous creativity of leaders in endovascular techniques have allowed the establishment of well defined therapeutic strategies using interventional neuroradiology techniques for the management of cerebrovascular disease.

This rotation, offered to the neurosurgery residents for a period of 6 months, allows the neurosurgical trainees to be actively involved in the practice of this vital portion of the management of neurovascular problems, with exposure to the complete range of endovascular and surgical neurovascular interventions performed at UCLA Medical Center and Veterans Administration Greater Los Angeles Hospital under the supervision of well-recognized faculty with expertise in the field.

The inclusion of this model of education to neurosurgical residents recognizes the relevance of minimally invasive, catheter-based procedures in the management of neurovascular pathologies, and allows the trainees to be prepared for a competitive role in the pursue of formal fellowships to obtain formal training in this subspecialty.

GOALS:

1. To develop understanding of the indications, techniques and possible benefits and complications of the minimally invasive, targeted interventional neuroradiology treatments.
2. To develop a knowledge base of the decision-making process for performing guided imaging interventional radiology versus open surgical procedures for specific pathologic processes.
3. To acquire diagnostic skills in the interpretation of cerebral and spinal angiograms, and the ability to determine differential diagnosis with their clinical and surgical implications.
4. To recognize the different endovascular treatment options for neurological conditions and identify their advantages and disadvantages in the management of cerebrovascular diseases.
5. To develop skills in the interpretation of angiography.
6. To develop skills in the handling of vascular catheters, guiding wires, and microcatheters, and microwires.
7. To develop the ability to comprehend and critically analyze current literature in endovascular procedures.

LEVEL OF TRAINEE: NS3

ASSESSMENT:

Monitoring of the accomplishment of the stated objectives will be performed using the following methods:

1. Global Rating: end of rotation evaluation of resident performance to assess the resident's demonstration of Core Competencies with respect to the stated objectives by faculty, other team resident members, students, and nursing staff.
2. Case Logs: auditing of interventional cases in the Surgical Operative Log.
3. Patient Survey: performance will be assessed by patient surveys administered through rotation.

DESCRIPTION OF THE ROTATION:

The Neurointerventional Surgery rotation includes two (2) months during NS2 year at UCLA MC, and 4 months during NS4/5 year at VA GLA.

1. All rotating will be part of the Interventional Neuroradiology/ Neurointerventional Surgery team.
2. The neurosurgery residents will provide in-patient and out-patient care including routine admissions of endovascularly treated patients, critical care of patients, and attending the endovascular clinic.
3. Residents will further participate in endovascular procedures needed on these patients under direct supervision by the interventional neuroradiologist faculty.
4. The rotating residents will participate in all educational conferences and didactic presentations.
5. Residents are expected to actively participate and present at the monthly Endovascular Conference.

NS3

COMPETENCY BASED LEARNING OBJECTIVES

Patient Care:

1. Perform a complete and thorough history and physical examination with emphasis in elements unique to endovascular patients.
2. Initiate the laboratory evaluation and any other initial diagnostic studies with an understanding of the tests to be ordered.
3. Make informed decisions about diagnostic and therapeutic intervention on endovascular patients with the guidance of interventional neuroradiologist faculty.
4. Be proficient in the preoperative preparation of the patients for endovascular and routine postoperative care.
5. Understand basic pathophysiology of cerebrovascular disease.
6. Understand the basic indications for common radiological and interventional studies used in the care of neurological patients such as angiography, CTA, MRA, functional tests such as WADA tests.
7. Demonstrate the ability to effectively set priorities and coordinate the care of endovascular patients.
8. Physical Examination:
 - a. To understand the significance of observational signs in cerebrovascular pathologies, such as attention span, posture, neglectias, etc.
 - b. To detect and evaluate peripheral and carotid pulses, bruits. To evaluate aces pathways for endovascular procedures.

- c. To interpret physical findings of a detailed neurological exam, understand how they contribute to the diagnosis, recognize their limitations, and be aware of other diseases that might mimic the findings.

Medical Knowledge:

Aneurysmal Disease

1. To understand the incidence and prevalence of aneurysmal disease
2. To understand the natural history of intracranial aneurysms.
3. To understand the current concepts on genetic distribution of the disease.
4. To understand the roles of angiography, CT, and MRI/MRA in screening and in planning treatment.
5. To understand the indications of surgical repair versus endovascular treatment and the factors which contribute to treatment decision- making.
6. To understand the natural history of treated and untreated lesions.
7. To understand the rationale for use of assisted endovascular techniques such as balloon assisted coiling or stent placement, and to recognize the therapeutic implications of such technique in the clinical course of patients with intracranial aneurysms.

Cerebrovascular Ischemic Disease:

1. To describe the anatomy of the arch, great vessels, and intracranial arteries.
2. To understand the different etiologies of carotid disease.
 - a. Atherosclerosis
 - b. Fibromuscular dysplasia
 - c. Traumatic occlusion
 - d. Acute dissection
3. To define hemispheric, non-hemispheric, and non-specific symptoms of stroke.
4. To differentiate among transient ischemic attack (TIA), reversible ischemic neurologic deficit (RIND), stroke in evolution and completed stroke.
5. To describe the arterial and neurological examination and their importance in caring for patients with carotid artery disease.
6. To describe the relationship between carotid artery atherosclerosis and the clinical syndrome of vertebro-basilar insufficiency.
7. To describe the appropriate evaluation for patients with each of the above clinical presentations including the role of Duplex scans, CT scans, MRA, and conventional angiography.
8. To discuss the non-surgical and surgical treatment of acute ischemic syndromes including stroke.
9. To be able to discuss the potential role of endovascular treatment for ischemic disease.

Venous Thrombotic Disease

1. To understand the classic triad of stasis, hypercoagulable state and vein wall damage leading to venous thrombosis.
2. To understand other risk factors such as malignancy, hormonal variations, and obesity.
3. To be familiar with the known hypercoagulable status including anticardiolipin/antiphospholipid antibodies, lupus anticoagulant, protein C, and protein S deficiency, antithrombin III deficiency, hyperfibrinogenemia, plasminogen deficiency, factor V Leiden mutation (activated protein C resistance), heparin induced thrombocytopenia, and their role in both venous thrombotic and arterial ischemic disease.
4. To be familiar with the signs, symptoms and non-invasive and invasive tests currently used in the diagnosis of dural sinus thrombosis.

- 5.To describe the management of dural sinus thrombosis and intracranial venous hypertension including heparin treatment and the role of endovascular techniques.
- 6.To recognize the importance of monitoring platelet counts during heparin therapy, and the diagnosis and treatment of heparin induced thrombosis.

Vascular Malformations

- 1.To understand the incidence and prevalence of vascular malformations.
- 2.To differentiate the angioarchitectural characteristics between arteriovenous malformations, arteriovenous fistulas, cavernous angiomas and venous angiomas, and to identify the therapeutic implications of these differences.
- 3.To understand the natural history of each of these lesions.
- 4.To understand the current concepts on genetic factors of vascular malformations and cavernous angiomas.
- 5.To understand the roles of angiography, CT, and MRI/MRA in screening and in planning treatment.
- 6.To understand the indications of surgical repair and or endovascular treatment and the factors which contribute to treatment decision- making.
- 7.To understand the natural history of treated and untreated lesions.
- 8.To understand the rationale for use of combined techniques in the management of arteriovenous malformations and fistulas.

Vascular Tumors

- 1.To recognize the angiographic characteristics of intracranial tumor vascular supply and their therapeutic implications.
- 2.To understand the role of preoperative tumor embolization and the common endovascular techniques used for this purpose.
- 3.To recognize potential complications of tumor embolization and strategies for their prevention.

Vascular Access

- 1.To know the arterial and venous anatomy involved in the commonly used places for endovascular access.
- 2.To understand the techniques used to obtain arterial and venous access.
- 3.To understand the methods used to obtain hemostasis of the arteriotomy site.

Complications of Endovascular Therapy

- 1.To recognize the clinical manifestations of pseudo aneurysm following arteriography, percutaneous transluminal angioplasty, and bypass grafting.
- 2.To recognize and understand the therapeutic interventions for procedural aneurysm or AVM rupture.
- 3.To recognize and understand the therapeutic interventions for post-angioplasty hyperperfusion.
- 4.To recognize and understand the rationale for medical therapeutic strategies during embolic or ischemic endovascular procedural complications.

Practice-Based Learning:

- 1.Develop a personal program of self-study and professional growth with guidance from the teaching staff and senior fellows. An understanding of the etiology, pathogenesis, pathophysiology, diagnosis, and management of endovascular disorders will allow for sound surgical and endovascular judgment, which relies on knowledge, rational thinking, and pathophysiology knowledge.

2. Utilize current literature resources to obtain up-to-date information in the cerebrovascular patients and practice evidence-based medicine.
3. Participate in teaching and organization of the educational weekly conferences.
4. Participate in activities of the Division of Interventional Neuroradiology (including teaching conferences) and assume responsibility for teaching and supervision of subordinate house staff and medical students.
5. Participate in the Division of Neurosurgery and Interventional Neuroradiology Morbidity and Mortality conference and utilize information to further improve patient care.
6. Participate in daily teaching rounds and be able to present patients in an organized and complete fashion.

Professionalism:

1. Practice compassionate patient care maintaining the highest moral and ethical values with a professional attitude.
2. Demonstrate understanding of the needs and feelings of others, including the patient's family members, allied health care personnel (nurses, clerical staff, etc.), fellow residents, and medical students.
3. Communicate and collaborate effectively in a team of health care providers.
4. Demonstrate respect, compassion and integrity in the care of endovascular patients on a daily basis.
5. Demonstrate mature and educated approach to ethical issues commonly encountered in a neurovascular surgery setting.
6. Show sensitivity to patient's culture, age, gender, and disabilities.
7. Be self-aware and have knowledge of professional limits by practicing on-going medical education and self-improvement.
8. Be accountable to profession in their actions and decisions.

Interpersonal Relationships and Communications:

1. Create and sustain a therapeutic and ethically sound relationship with patients and patient families.
2. Work effectively with other members of the medical team including allied health care personnel (nurses, clerical staff, etc.), fellow trainees, and medical students.
3. Maintain professional interactions with other health care providers and hospital staff.

System-Based Practice:

1. Understand how the health care organization affects practice of endovascular procedures.
2. Demonstrate cost effective health care.
3. Follow established practices, procedures, and policies of the Divisions of Neurosurgery and Interventional Neuroradiology and integrated and affiliated hospitals.

Maintain complete medical records, operative and procedural notes, staff sheets and notes, patient database cards and other patient care related documentation in a timely, accurate, and succinct manner.

Neuroradiology Elective Rotation, NS3 Goals and Objectives

**Rotation Directors: Noriko Salamon, M.D. - UCLA
Gasser Hathout, Susan El-Saden, M.D. – V.A.**

Assessment:

1. The resident will be given a verbal assessment of their accomplishment of the core competencies at the mid-point of the rotation.
2. The resident will undergo a formal written evaluation of their performance of the core competencies at the conclusion of the rotation.
3. The resident will be expected to keep their duty hours up to date.

Description of the Rotation:

The neuro-radiology rotation is three (3) months during the NS2 clinical year.

1. The rotating resident will be part of the neuroradiology team that includes 2 attending neuroradiology, one fellow, one rotating radiology resident, and one or two other elective rotators.
2. The rotating resident will participate in the reading of all modalities neuro-imaging performed at UCLA Westwood, or the VA hospital depending on the site of the rotation.
3. The resident will be expected to build on their fundamental knowledge in interpretation of imaging studies.
4. The resident will attend all neurosurgery education conferences each Wednesday at Westwood-UCLA.

Competency Based Learning Objectives

Patient Care:

1. Understand the process involved in getting imaging studies for patients including the necessary labs needed.
2. Understand how to use information provided by the neuroradiologist in a patient care setting.
3. Understand how to clearly explain the risks of each imaging studies to patients.
4. Understand the ways to allay and manage patient's anxiety about various studies such as MRI.
5. Understand the importance of effective, timely, and accurate documentation.
6. Understand the kind of information in patient's medical history is helpful to radiologist during interpretation of imaging studies.

Medical Knowledge:

1. Further solidify their understanding of normal CNS structures on imaging studies.
2. Learn to consistently differentiate between pathology in the epidural, subdural, subarachnoid and intra-parenchymal lesions.
3. Learn how to effectively interpret lesions on MRI, CT, plain X-rays, and angiography.
4. Understand the principles and physics behind the different types of imaging studies
5. Understand the advantages and disadvantages of the different types of imaging studies as they relate to different CNS pathologies.
6. Learn the appropriate and cost effective sequence for ordering imaging studies.
7. Understand emerging technologies for better imaging and their relationship to neurological diseases.

Practice Based Learning

1. Understand topics in the current literature in neuroradiology.
2. Participate in the weekly neuroradiology conferences
3. Attend the mandatory UCLA Neurosurgery Education Day and all educational conferences.
4. Participate in imaging reading sessions.

Interpersonal and Communication Skills

1. Understand the importance of accurate and precise communication of radiology results to referring physicians.
2. Work effectively with other members of the neuro-radiology team and technician
3. Understand the importance of timely result reporting.
4. Identify any concerns with the health of fellow residents, staff, or allied health personnel.

Professionalism

1. Maintain moral and ethical standards.
2. Adhere to patient confidentiality and scientific integrity.
3. Identify deficiencies in self or peer performance
4. Understand professional and personal limitations.
5. Be accountable for decisions and actions.

Systems Based Practice

1. Understand effective health care cost strategies as it relates to neuroradiology.
2. Demonstrate coordination of radiology with the clinical disciplines.
3. Understand optimal use of information technology.
4. Adhere to the requirements of the eighty hour work week.

Harbor UCLA Senior Rotation, NS4 Goals and Objectives

Rotation Director: Duncan McBride M.D.

Assessment:

1. The resident will be given a verbal assessment of their accomplishment of the core competencies on a weekly basis (During Friday rounds).
2. The resident will undergo a formal written evaluation of their performance of the core competencies at the conclusion of the rotation.
3. The resident will be expected to keep up their case log for the rotation.

Description of the Rotation:

The Harbor UCLA senior rotation is four (4) months during the NS3 clinical years.

1. The rotating senior resident will be part of the General neurosurgery team that includes five attending neurosurgeons, one chief resident, two general surgery interns, two physician assistants, and one nurse practitioner.
2. The rotating resident will provide in-patient care including critical ICU care, standard ward care of preoperative and postoperative patients, inpatient consultations, and emergency room consultations (Level on trauma center).
3. Residents will participate in surgical cases under the direct supervision of the attending staff and chief resident.
4. As a continuation of what he/she learned during their junior year, resident is expected to learn the more complex surgical approaches and the logic behind choosing one approach over the other.
5. Resident is expected to gain confidence in the management of both operative and non-operative neurosurgical trauma.
6. Resident is responsible for teaching bedside procedures to interns and physician assistants.
7. The resident also serves as the first call for overnight consults and perform invasive procedures such as ventriculostomies when warranted after discussion with chief resident and attending.
8. The residents learn to evaluate and participate in the clinical decision making of outpatients with neurosurgical diseases during clinic.
9. The resident will attend and present at the weekly multi-disciplinary conference where patient conditions are discussed and reviewed. The medical disciplines involved often are internal medicine, pathology, radiology, pediatrics and neurology, although other disciplines often join.
10. The resident also participates in trauma conference with the General surgery team.
11. The resident will attend the once monthly education day held at UCLA Westwood.
12. The resident in conjunction with the chief resident is responsible for keeping the Harbor UCLA Quality Assurance database current.

Competency Based Learning Objectives

Patient Care:

1. Perform a thorough history and physical examination, with a focus on aspects pertinent to patient's specific disorder in the full spectrum of neurological diseases.
2. Understand the patho-physiology of cranial and spinal as well as pediatric disorders.
3. Understand the indications for ordering diagnostic electrophysiological studies such as CT, MRI, angiograms, myelogram, EEG, EMG and NCS.

UCLA NEUROSURGERY RESIDENT TRAINING POLICIES AND PROCEDURES

4. Demonstrate the ability to competently read and interpret radiological studies such as MRI, CT, myelography, angiography, and plain radiography.
5. Understand the role of non-operative therapeutic treatment strategies for the full spectrum of cranial, spinal and peripheral nerve disorders.
6. Understand the indications for, and timing of surgery for patients with neurological disorders.
7. Understand and implement the treatment plan for spinal patients suffering from chronic pain.
8. Understand and solidify their knowledge of the principles involved in the management of patients with traumatic brain and spinal cord injury.
9. Understand the management of patients with subarachnoid hemorrhage,
10. Understand the indices of and management of vasospasm.
11. Understand the management of ventilated patients.
12. Understand the appropriate management of patients with Central nervous system infections.
13. Understand the informed consent process, importance of documentation, and preoperative patient expectation management.
14. Participate in patient postoperative care and follow-up in the outpatient clinic.

Medical Knowledge:

1. Understand the location and function of spinal anatomical structures as they pertained to surgical procedures
2. Identify and understand the management of perioperative surgical complications
3. Learn the performance of a wide range of neurosurgical procedures:
 - a. Cranial
 - i. Standard craniotomy for resection of malignant and non malignant tumors.
 - ii. Pterional craniotomy for clipping of anterior circulation aneurysms
 - iii. Orbitozygomatic craniotomy
 - iv. Retrosigmoid approach to CP angle tumors
 - v. Translabyrinthine approach for acoustic scwhanomas
 - vi. Suboccipital craniectomy for treatment of Chiari malformations
 - vii. EDAS
 - viii. Microvascular decompression for treatment of trigeminal neuralgia
 - ix. Transnasal transsphenoidal surgery.
 - x. Repair of myelomeningocele.
 - xi. Treatment of the full spectrum of hydrocephalus
 - xii. Craniotomy if SDH, EDH and ICH.
 - xiii. Endoscopic third ventriculostomies
 - xiv. Pre-operative and Intra-operative use of image guidance technology.
 - b. Spinal
 - i. anterior cervical discectomy and fusion
 - ii. posterior cervical foraminotomy
 - iii. posterior cervical fusion
 - iv. laminoplasty
 - v. cervical laminectomy
 - vi. thoracic discectomy
 - vii. thoracic fusion
 - viii. lumbar microdiscectomy
 - ix. lumbar laminectomy
 - x. lumbar fusion
 - xi. arthroplasty
 - xii. interspinous spacer placement
 - xiii. Chiari decompression

- xiv. spinal cord tumor resection
 - xv. tethered cord surgery
 - xvi. surgery for Syringomyelia
 - xvii. minimally invasive decompression and fusion
4. Understand proper patient positioning and level localization for cranial and spine procedures.

Practice Based Learning

1. Understand the current medical literature and evidence-based medicine in the treatment of neurosurgical patients.
2. Participate and present at the weekly joint Harbor neurosurgery conference.
3. Attend the mandatory UCLA Neurosurgery Education Day.
4. Maintain the Harbor QA database.
5. Participate in teaching rounds and present patient in a succinct, organized fashion.
6. The resident will attend and present at the weekly multi-disciplinary conference where patient conditions are discussed and reviewed. The medical disciplines involved often are internal medicine, pathology, radiology, pediatrics and neurology, although other disciplines often join.
7. The resident also participates in trauma conference with the General surgery team.

Interpersonal and Communication Skills

1. Establish a healthy doctor – patient relationship with patients and their families.
2. Work effectively with other members of the medical team: doctors, residents, fellows, nurses, and allied health personnel.
3. Maintain timely, comprehensive, accurate, and legible medical records.
4. Understand the importance of keeping referring physicians apprised of the status of their patients.
5. Identify any concerns with the health of fellow residents, staff, or allied health personnel.

Professionalism

1. Provide compassionate patient care and maintain moral and ethical standards.
2. Demonstrate sensitivity to patient's religion, culture, race, age, and gender, disabilities, and sexual orientation.
3. Adhere to patient confidentiality and scientific integrity.
4. Identify deficiencies in self or peer performance
5. Understand professional and personal limitations.
6. Be accountable for decisions and actions.
7. Provide leadership and set a standard of excellence to be emulated by junior level residents

Systems Based Practice

1. Understand effective health care cost strategies as it relates to neurosurgery
2. Demonstrate coordination of multiple disciplines in the treatment of neurosurgical patients: physical therapy, rehabilitation, discharge planning, .
3. Improve throughput in both the outpatient and inpatient settings.
4. Understand optimal use of information technology.
5. Understand all rules regarding patient safety in the operating room such as the "time-out" period.
6. Adhere to the requirements of the eighty hour work week.

UCLA Senior Rotation, NS4 Goals and Objectives

Rotation Directors: Neil Martin M.D, Marvin Bergsneider MD

Assessment:

1. The resident will be given a verbal assessment of their accomplishment of the core competencies at the end of the rotation.
2. The resident will undergo a formal written evaluation of their performance of the core competencies at the conclusion of the rotation.
3. The resident will be expected to keep up their case log for the rotation.

Description of the Rotation:

The UCLA Westwood senior resident rotation is 4 months during the R4 or R5 clinical years

1. The senior resident will be part of the General neurosurgery team that includes one chief resident, one "super" senior resident, a senior resident, three junior residents, two general surgery interns, one physician assistant, two nurse practitioners and rotation medical students. The team is directly supervised by one or more attending neurosurgery clinical faculty.
2. Furthermore the neurosurgical team works very closely with the neurocritical care team to provided the best care possible to patients on the service. The neurocritical care team consists of two neuro-intensivists, two clinical fellows and two nurse practitioners.
3. The senior resident plays a significant role in the formulation of patient treatment plans during morning and afternoon rounds.
4. The rotating senior resident provides in-patient care including critical ICU care, standard ward care of preoperative and postoperative patients, inpatient consultations, and emergency room consultations (Level one trauma center).
5. The senior resident participates in and leads surgical cases under the direct supervision of the attending staff.
6. The senior resident is expected to develop confidence in performing the more complex surgical approaches and understand the logic behind choosing one approach over the other.
7. In conjunction with attending surgeon and the chief resident, the senior resident is expected to teach the junior residents the performance of such surgical approaches.
8. The senior resident is expected to have confidence in the management of both operative and non-operative neurosurgical trauma and to be able to teach the senior resident as well as the junior residents.
9. The resident also serves as the second call for overnight consults.
10. The senior resident takes the leadership role in evaluating and participates in the clinical decision making of inpatient consults. neurology, although other disciplines often join the meeting.
11. The resident will attend the once monthly education day held at UCLA Westwood.
12. The resident in conjunction with the chief resident is responsible for keeping the UCLA Westwood Quality Assurance database current.

Competency Based Learning Objectives

Patient Care:

1. Perform a thorough history and physical examination, with a focus on aspects pertinent to a patient's specific disorder in the full spectrum of neurological diseases. Actively participate in teaching the junior residents how to conduct a comprehensive patient history and physical examination.

UCLA NEUROSURGERY RESIDENT TRAINING POLICIES AND PROCEDURES

2. Understand the patho-physiology of cranial and spinal as well as pediatric disorders.
3. Demonstrate competency in identifying the indications for ordering diagnostic imaging and electrophysiological studies such as CT, MRI, angiograms, myelogram, EEG, EMG and NCS.
4. Demonstrate the ability to competently read and interpret radiological studies such as MRI, CT, myelography, angiography, and plain radiography.
5. Understand the role of non-operative therapeutic treatment strategies for the full spectrum of cranial, spinal and peripheral nerve disorders.
6. Demonstrate an understanding of the indications for, and timing of surgery for patients with neurological disorders.
7. Understand and implement the treatment plan for spinal patients suffering from chronic pain.
8. Demonstrate a solid knowledge of the principles involved in the management of patients with traumatic brain and spinal cord injury.
9. Understand the management of patients with subarachnoid hemorrhage,
10. Understand the indices and management of vasospasm.
11. Demonstrate competence in the management of ventilated patients.
12. Understand the appropriate management of patients with central nervous system infections.
13. Understand the informed consent process, importance of documentation, and preoperative patient expectation management.
14. Participate in patient postoperative care.

Medical Knowledge:

1. Understand the location and function of anatomical structures as they pertained to surgical procedures
2. Identify and understand the management of perioperative surgical complications.
3. Gain experience in the performance of a wide range of neurosurgical procedures such as:
 - a. Cranial
 - i. Standard craniotomy for resection of malignant and non malignant tumors.
 - ii. Pterional craniotomy for clipping of anterior circulation aneurysms
 - iii. Orbitozygomatic craniotomy
 - iv. Retrosigmoid approach to CP angle tumors
 - v. Translabyrinthine approach for acoustic scwhanommas
 - vi. Suboccipital craniectomy for treatment of Chiari malformations
 - vii. EDAS
 - viii. EC/IC Bypass surgery
 - ix. Microvascular decompression for treatment of trigeminal neuralgia
 - x. Transnasal transsphenoidal surgery.
 - xi. Repair of myelomeningocele
 - xii. Treatment of the full spectrum of the types of hydrocephalus
 - xiii. Craniotomy if SDH, EDH and ICH
 - xiv. Endoscopic third ventriculostomies
 - xv. Pre-operative and Intra-operative use of image guidance technology.
 - b. Spinal
 - i. anterior cervical discectomy and fusion
 - ii. posterior cervical foraminotomy
 - iii. posterior cervical fusion
 - iv. laminoplasty
 - v. cervical laminectomy
 - vi. thoracic discectomy
 - vii. thoracic fusion
 - viii. lumbar microdiscectomy

- ix. lumbar laminectomy
 - x. lumbar fusion
 - xi. arthroplasty
 - xii. interspinous spacer placement
 - xiii. Chiari decompression
 - xiv. spinal cord tumor resection
 - xv. tethered cord surgery
 - xvi. surgery for Syringomyelia
 - xvii. minimally invasive decompression and fusion
4. Senior resident is expected to learn and refine their knowledge of proper patient positioning and level localization for cranial and spine procedures.
 5. The senior resident is expected to participate in teaching the junior residents the proper safety procedure for patient positioning.

Practice Based Learning

1. Understand the current medical literature and evidence-based medicine in the treatment of neurosurgical patients.
2. Attend the mandatory UCLA Neurosurgery Education Day.
4. The senior resident is expected to continually appraise the current literature and apply it to bedside patient care
5. The senior resident helps in the preparation of the weekly clinical case presentation and board preparation lectures.
6. The senior resident plays a significant role in performing literature search on questions that arise in the context of patient care.

Interpersonal and Communication Skills

1. Establish a healthy doctor – patient relationship with patients and their families.
2. Work effectively with other members of the medical team: doctors, residents, fellows, nurses, and allied health personnel.
3. Maintain timely, comprehensive, accurate, and legible medical records.
4. Understand the importance of keeping referring physicians apprised of the status of their patients.
5. Identify any concerns with the health of fellow residents, staff, or allied health personnel.
6. The senior resident plays a significant role in resolving conflicts that may arise by identifying the root cause of the problem and coming up with solution. Furthermore, the senior resident is expected to facilitate the implementation of preventive measures to avoid the repeat of such conflict.

Professionalism

1. Provide compassionate patient care and maintain moral and ethical standards.
2. Demonstrate sensitivity to patient's religion, culture, race, age, and gender, disabilities, and sexual orientation.
3. Adhere to patient confidentiality and scientific integrity.
4. Identify deficiencies in self or peer performance
5. Understand professional and personal limitations.
6. Be accountable for decisions and actions.
7. Provide leadership and set a standard of excellence to be emulated by junior level residents

Systems Based Practice

1. Understand effective health care cost strategies as it relates to neurosurgery
2. Demonstrate coordination of multiple disciplines in the treatment of neurosurgical patients: physical therapy, rehabilitation, discharge planning,
3. Improve throughput in both the outpatient and inpatient settings.
4. Understand optimal use of information technology.

5. Understand all rules regarding patient safety in the operating room such as the “time-out” period.
6. Adhere to the requirements of the eighty hour work week.

Santa Monica Neurosurgery Spine Rotation, NS5 Goals and Objectives

Rotation Directors: Langston Holly, M.D.

Assessment:

1. The resident will be given a verbal assessment of their accomplishment of the core competencies at the mid-point of the rotation.
2. The resident will undergo a formal written evaluation of their performance of the core competencies at the conclusion of the rotation.
3. The resident case logs will be audited by the rotation director and/or program director at the end of the rotation.

Description of the Rotation:

The Santa Monica Spine rotation is 4 months during either the R4 or R5 clinical years.

1. The rotating resident will be part of the spine surgery team that includes 3 attending spine surgeons, one fellow, one physician assistant, and one nurse practitioner.
2. The rotating resident will provide in-patient care including critical ICU care, standard ward care of preoperative and postoperative patients, inpatient consultations, and emergency room consultations.
3. Residents will participate in in-patient and outpatient surgical cases under the direct supervision of the attending staff.
4. The residents will evaluate and participate in the clinical decision making of patients with spinal disorders in the outpatient clinic.
5. The resident will attend and present at the weekly Santa Monica Spine Conference that is held during the academic calendar year.
6. The resident will attend the once monthly education day held at UCLA Westwood.
7. The resident is responsible for maintaining the Santa Monica Quality Assurance database in conjunction with the supervising attending.

Competency Based Learning Objectives

Patient Care:

1. Perform a thorough history and physical examination, with a focus on aspects pertinent to patients with disorders of the spine and peripheral nervous system.
2. Understand the pathophysiology of spinal disorders and apply basic spinal biomechanics.
3. Understand the indications for ordering diagnostic electrophysiological studies such as EMG and NCS, and appropriate imaging studies.
4. Acquire the ability to competently read and interpret spinal radiological studies such as MRI, CT, myelography, angiography, and plain radiography.
5. Understand the role of non-operative therapeutic treatment strategies such as physical therapy, bracing, oral medications, and injections.
6. Understand the indications for, and timing of surgery for patients with spinal disorders.
7. Understand the indications, limitations, benefits, and alternatives of minimally invasive spine surgery.
8. Understand and implement the treatment plan for spinal patients suffering from chronic pain.
9. Understand the informed consent process, importance of documentation, and preoperative patient expectation management.
10. Participate in patient postoperative care and follow-up in the outpatient clinic.

Medical Knowledge:

1. Understand the location and function of spinal anatomical structures:
 - a) Vertebral body
 - b) Intervertebral disc
 - c) Facet complex
 - d) Pedicle
 - e) Pars interarticularis
 - f) Lamina/spinous process
 - g) Foramen transversarium
 - h) Spinal ligaments: anterior longitudinal ligament, posterior longitudinal ligament, ligamentum flavum, interspinous ligament, transverse ligament, alar ligament, and apical ligament
 - i) Transverse process
2. Describe the different etiologies of spondylolisthesis
3. Differentiate between common clinical findings seen in radiculopathy and peripheral nerve disorders
4. Understand the distinguishing features between neurogenic claudication and vascular claudication.
5. Understand the causes and treatments of patients suffering from various forms of myelopathy.
6. Describe basic spinal biomechanics principles such as Denis three-column rule of instability and the Rule of Spence.
7. Discuss the clinical and radiographical factors that impact the treatment plan for patients with metastatic spinal disease.
8. Explain the risks and indications for spinal procedures such as artificial disc placement, spinal fusion, dynamic stabilization, and intervertebral spacer placement.
9. Understand the rationale for the use of translational, rotational, and/or static anterior cervical plates.
10. Understand the basics of bone biology and the role of osteobiologics:
 - a). osteoinductive agents
 - b). osteoconductive agents
 - c). osteogenic agents
 - d). bone growth stimulators
11. Describe the anatomical landmarks required for placement of thoracic/lumbar pedicle screws and cervical lateral mass and atlantoaxial screws.
12. Identify and understand the management of perioperative surgical complications.
13. Gain confidence in the performance of spinal surgical procedures such as:
 - j) anterior cervical discectomy and fusion
 - k) posterior cervical foraminotomy
 - l) posterior cervical fusion
 - m) laminoplasty
 - n) cervical laminectomy
 - o) thoracic discectomy
 - p) thoracic fusion
 - q) lumbar microdiscectomy
 - r) lumbar laminectomy
 - s) lumbar fusion
 - t) arthroplasty
 - u) interspinous spacer placement
 - v) Chiari decompression
 - w) spinal cord tumor resection
 - x) tethered cord surgery
 - y) surgery for Syringomyelia
 - z) minimally invasive decompression and fusion
14. Understand proper patient positioning and level localization for the above-mentioned procedures.

Practice Based Learning

1. Understand the current medical literature and evidence-based medicine in the treatment of spinal patients.
2. Participate and present at the weekly joint Santa Monica Neurosurgery Spine conference.
3. Attend the mandatory UCLA Neurosurgery Education Day.
4. Maintain the Santa Monica QA database.
5. Participate in teaching rounds and present patient in a succinct, organized fashion.

Interpersonal and Communication Skills

1. Establish a healthy doctor – patient relationship with patients and their families.
2. Work effectively with other members of the medical team: doctors, residents, fellows, nurses, and allied health personnel.
3. Maintain timely, comprehensive, accurate, and legible medical records.
4. Understand the importance of keeping referring physicians apprised of the status of their patients.
5. Identify any concerns with the health of fellow residents, staff, or allied health personnel.

Professionalism

1. Provide compassionate patient care and maintain moral and ethical standards.
2. Demonstrate sensitivity to patient's religion, culture, race, age, and gender, disabilities, and sexual orientation.
3. Adhere to patient confidentiality and scientific integrity.
4. Identify deficiencies in self or peer performance
5. Understand professional and personal limitations.
6. Be accountable for decisions and actions.

Systems Based Practice

1. Understand effective health care cost strategies as it relates to spinal surgery: implant costs, hospitalization time, etc.
2. Demonstrate coordination of multiple disciplines in the treatment of spinal patients: physical therapy, rehabilitation, discharge planning.
3. Improve throughput in both the outpatient and inpatient settings.
4. Understand optimal use of information technology.
5. Understand all rules regarding patient safety in the operating room such as the "time-out" period.
6. Adhere to the requirements of the eighty hour work week.

UCLA Super Senior Rotation, NS5 Goals and Objectives

Rotation Directors: Neil Martin M.D, Marvin Bergsneider MD

Assessment:

1. The resident will be given a verbal assessment of their accomplishment of the core competencies at the end of the rotation.
2. The resident will undergo a formal written evaluation of their performance of the core competencies at the conclusion of the rotation.
3. The resident will be expected to keep up their case log for the rotation.

Description of the Rotation:

The UCLA Westwood "Super" senior resident rotation is 4 months during the R4 or R5 clinical years. The experience is similar to the UCLA senior resident rotation, but now includes acquiring greater clinical competency in complex neurosurgical procedures and assuming greater leadership and responsibility roles.

1. The super senior resident will be part of the General neurosurgery team that includes one chief resident, one other senior resident, three junior residents, two general surgery interns, one physician assistant, two nurse practitioners and rotation medical students. The team is directly supervised by one or more attending neurosurgery clinical faculty.
2. Furthermore the neurosurgical team works very closely with the neurocritical care team to provided the best care possible to patients on the service. The neurocritical care team consists of two neuro-intensivists, two clinical fellows and two nurse practitioners.
3. The super senior resident plays a significant role in the formulation of patient treatment plans during morning and afternoon rounds.
4. The super senior resident provides in-patient care including critical ICU care, standard ward care of preoperative and postoperative patients, inpatient consultations, and emergency room consultations (Level one trauma center).
5. The super senior resident participates in and leads surgical cases under the direct supervision of the attending staff.
6. The super senior resident is expected to develop confidence in performing the more complex surgical approaches and understand the logic behind choosing one approach over the other.
7. In conjunction with attending surgeon and the chief resident, the super senior resident is expected to teach the junior residents the performance of such surgical approaches.
8. The super senior resident is expected to have confidence in the management of both operative and non-operative neurosurgical trauma and to be able to teach the senior resident as well as the junior residents.
9. The resident also serves as the second call for overnight consults.
10. The super senior resident takes the leadership role in evaluating and participates in the clinical decision making of inpatient consults. neurology, although other disciplines often join the meeting.
11. The resident will attend the once monthly education day held at UCLA Westwood.
12. The resident in conjunction with the chief resident is responsible for keeping the UCLA Westwood Quality Assurance database current.

Competency Based Learning Objectives

Patient Care:

1. Perform a thorough history and physical examination, with a focus on aspects pertinent to a patient's specific disorder in the full spectrum of neurological diseases. Actively participate in

teaching the junior residents how to conduct a comprehensive patient history and physical examination.

2. Understand the patho-physiology of cranial and spinal as well as pediatric disorders.
3. Demonstrate competency in identifying the indications for ordering diagnostic imaging and electrophysiological studies such as CT, MRI, angiograms, myelogram, EEG, EMG and NCS.
4. Demonstrate the ability to competently read and interpret radiological studies such as MRI, CT, myelography, angiography, and plain radiography.
5. Understand the role of non-operative therapeutic treatment strategies for the full spectrum of cranial, spinal and peripheral nerve disorders.
6. Demonstrate an understanding of the indications for, and timing of surgery for patients with neurological disorders.
7. Understand and implement the treatment plan for spinal patients suffering from chronic pain.
8. Demonstrate a solid knowledge of the principles involved in the management of patients with traumatic brain and spinal cord injury.
9. Understand the management of patients with subarachnoid hemorrhage,
10. Understand the indices and management of vasospasm.
11. Demonstrate competence in the management of ventilated patients.
12. Understand the appropriate management of patients with central nervous system infections.
13. Understand the informed consent process, importance of documentation, and preoperative patient expectation management.
14. Participate in patient postoperative care.

Medical Knowledge:

6. Understand the location and function of anatomical structures as they pertained to surgical procedures
7. Identify and understand the management of perioperative surgical complications.
8. Gain experience in the performance of a wide range of neurosurgical procedures such as:
 - a. Cranial
 - i. Standard craniotomy for resection of malignant and non malignant tumors.
 - ii. Pterional craniotomy for clipping of anterior circulation aneurysms
 - iii. Orbitozygomatic craniotomy
 - iv. Retrosigmoid approach to CP angle tumors
 - v. Translabyrinthine approach for acoustic scwhanomas
 - vi. Suboccipital craniectomy for treatment of Chiari malformations
 - vii. EDAS
 - viii. EC/IC Bypass surgery
 - ix. Microvascular decompression for treatment of trigeminal neuralgia
 - x. Transnasal transsphenoidal surgery.
 - xi. Repair of myelomeningocele
 - xii. Treatment of the full spectrum of the types of hydrocephalus
 - xiii. Craniotomy if SDH, EDH and ICH
 - xiv. Endoscopic third ventriculostomies
 - xv. Pre-operative and Intra-operative use of image guidance technology.
 - b. Spinal
 - i. anterior cervical discectomy and fusion
 - ii. posterior cervical foraminotomy
 - iii. posterior cervical fusion
 - iv. laminoplasty
 - v. cervical laminectomy
 - vi. thoracic discectomy
 - vii. thoracic fusion
 - viii. lumbar microdiscectomy
 - ix. lumbar laminectomy
 - x. lumbar fusion
 - xi. arthroplasty

- xii. interspinous spacer placement
 - xiii. Chiari decompression
 - xiv. spinal cord tumor resection
 - xv. tethered cord surgery
 - xvi. surgery for Syringomyelia
 - xvii. minimally invasive decompression and fusion
9. Senior resident is expected to learn and refine their knowledge of proper patient positioning and level localization for cranial and spine procedures.
 10. The senior resident is expected to participate in teaching the junior residents the proper safety procedure for patient positioning.

Practice Based Learning

1. Understand the current medical literature and evidence-based medicine in the treatment of neurosurgical patients.
2. Attend the mandatory UCLA Neurosurgery Education Day.
4. The super senior resident is expected to continually appraise the current literature and apply it to bedside patient care
5. The super senior resident helps in the preparation of the weekly clinical case presentation and board preparation lectures.
6. The super senior resident plays a significant role in performing literature search on questions that arise in the context of patient care.

Interpersonal and Communication Skills

1. Establish a healthy doctor – patient relationship with patients and their families.
2. Work effectively with other members of the medical team: doctors, residents, fellows, nurses, and allied health personnel.
3. Maintain timely, comprehensive, accurate, and legible medical records.
4. Understand the importance of keeping referring physicians apprised of the status of their patients.
5. Identify any concerns with the health of fellow residents, staff, or allied health personnel.
6. The super senior resident plays a significant role in resolving conflicts that may arise by identifying the root cause of the problem and coming up with solution. Furthermore, the senior resident is expected to facilitate the implementation of preventive measures to avoid the repeat of such conflict.

Professionalism

1. Provide compassionate patient care and maintain moral and ethical standards.
2. Demonstrate sensitivity to patient's religion, culture, race, age, and gender, disabilities, and sexual orientation.
3. Adhere to patient confidentiality and scientific integrity.
4. Identify deficiencies in self or peer performance
5. Understand professional and personal limitations.
6. Be accountable for decisions and actions.
7. Provide leadership and set a standard of excellence to be emulated by junior level residents

Systems Based Practice

1. Understand effective health care cost strategies as it relates to neurosurgery
2. Demonstrate coordination of multiple disciplines in the treatment of neurosurgical patients: physical therapy, rehabilitation, discharge planning,
3. Improve throughput in both the outpatient and inpatient settings.
4. Understand optimal use of information technology.
5. Understand all rules regarding patient safety in the operating room such as the "time-out" period.
6. Adhere to the requirements of the eighty hour work week.

Research Year, NSR Goals and Objectives

Rotation Director: David Hovda, Ph.D.

RESEARCH: In the third year of residency training each resident is to begin exploring research opportunities during the first elective period. A faculty member initially counsels the resident who also is invited to discuss ideas with the program director. The resident is to identify a mentor and a research area for training and, ultimately, independent work. The mentor and research training area (both must be approved by the program director) may be in one of the neurosurgical research laboratories or in other non-neurosurgical research programs.

GOALS:

1. Learn basic scientific approach and techniques
2. Write a research proposal in NIH format. Learn grant writing skills
3. Complete a defined research project
4. Present the research findings at a UCLA Neurosurgical conference, and at a regional or national meeting.
5. Submit research findings for manuscript publication(s)

ADVANCED RESEARCH: At this stage of residency training (NS4/5), the resident can take full advantage of the microsurgical laboratory or one of several research laboratories in the Division of Neurosurgery under the supervision of a member of the neurosurgery faculty or the Brain Research Institute. The resources of the UCLA School of Medicine, Brain Research Institute, Neuropsychiatric Institute, and the Department of Graduate Schools of UCLA are available and provide a broad source of training in the basic, as well as clinical neurosciences. The resident will perform a multiple of dissections of human cadavers and practice micro dissection and anastomosis in rats using surgical microscopes. To enhance their learning, residents are to take advantage of videotapes of various operations performed by faculty. These videotapes are available in the laboratory. The NS3 is eligible to take the written national neurosurgical board exam this year for credit and is expected to pass.

It is important that your research proposal be submitted to, and approved by, the research committee before you start. This process generally takes a number of weeks. Before you start, we expect you to have Human Subject Protection Committee (or Animal Research Committee) approval. And to have arranged research funding, or at least applied for it.

Research facilities

UCLA Medical Center is the primary site for neuroscience research. State-of-the-art laboratories provide multi-discipline approaches to research in all neurosurgical disease. The N.I.H. supports investigating brain injury in both the clinical and laboratory settings. Several clinical trials supplemented by innovative lab research have been performed. In addition, there are ongoing projects in subarachnoid hemorrhage, ischemia, and transvenous retro perfusion. Clinical studies in cerebral microdialysis during Phase II monitoring of epilepsy patients are being performed as well as seminal studies in hippocampal cellular physiology. Laboratories for skull base dissection and spinal research provide the residents with laboratory experience in various approaches. Animals are also available to develop microvascular techniques with the aid of an operative microscope. The Brain Research Institute is a multidisciplinary research institute interested in normal and pathologic brain development and function. With a well-developed research plan, opportunities exist for residents to collaborate with the BRI or virtually any department in the university for their research time.

The Giannini Family Foundation invites promising, young postdoctoral investigators in the early stages of their careers to apply to the Medical Research Fellowship Program. The fellowship program supports innovative medical research in the basic sciences and applied fields. The medical research should lead to a better understanding of the diagnosis, management or prevention of disease and contribution to the alleviation of human suffering. Fellowship is open to US citizens & permanent alien resident. The award will be paid in a progressive stipend.

**Veterans Administration Chief Resident Rotation, NS5/6
Goals and Objectives**

Rotation Director: John Frazee, M.D.

Assessment:

1. The resident will be given a verbal assessment of their accomplishment of the core competencies on a weekly basis.
2. The resident will undergo a formal written evaluation of their performance of the core competencies at the conclusion of the rotation.
3. The resident will be expected to keep up their case log for the rotation.

Description of the Rotation:

The VA chief rotation is four (4) months during the NS5 clinical year. It is the first of the chief rotations.

The rotating chief resident will be part of the General neurosurgery team that includes three attending neurosurgeons, one general surgery intern and one nurse practitioner.

The rotating chief resident will lead in the provision of in-patient care including critical ICU care, standard ward care of preoperative and postoperative patients, inpatient consultations, and emergency room consultations.

The chief residents will participate and lead in surgical cases under the direct supervision of the attending staff.

As a continuation of what he/she has learned during their junior and senior years, the chief resident is expected to confidently perform more complex surgical approaches and understand the logic behind choosing one approach over the other.

While the amount of trauma is minimal, the resident is expected to demonstrate confidence in the management of both operative and non-operative neurosurgical trauma.

The chief resident is responsible for teaching bedside procedures to interns.

The chief resident also serves as the first call for overnight consults and performs invasive procedures such as ventriculostomies when warranted after discussion with the attending neurosurgeon.

The chief resident leads the evaluation and the clinical decision making of outpatients with neurosurgical diseases during clinic (twice a week).

The chief resident attends the once monthly education day held at UCLA Westwood.

The chief resident attends the weekly educational conference at UCLA Westwood campus.

The chief resident is responsible for keeping the VA hospital Quality Assurance database current.

Understand the socioeconomic, sociopolitical, psychosocial and medical issues pertinent to the VA patient population.

Competency Based Learning Objectives

Patient Care:

1. Perform a thorough history and physical examination, with a focus on aspects pertinent to patient's specific disorder in the full spectrum of neurological diseases.
2. Demonstrate an understanding of the patho-physiology of cranial, spinal, peripheral nerve as well as pediatric disorders.
3. Demonstrate an understanding of the indications for ordering diagnostic imaging and electrophysiological studies such as CT, MRI, angiograms, myelogram, EEG, EMG and NCS.
4. Demonstrate competence in reading and interpreting radiological studies such as MRI, CT, myelography, angiography, and plain radiography.
5. Understand the role of non-operative therapeutic treatment strategies for the full spectrum of cranial, spinal and peripheral nerve disorders.
6. Understand the indications for, and timing of surgery for patients with neurological disorders.
7. Understand and implement the treatment plan for spinal patients suffering from chronic pain.

8. Understand and solidify their knowledge of the principles involved in the management of patients with traumatic brain and spinal cord injury.
9. Demonstrate competence in the management of patients with subarachnoid hemorrhage,
10. Understand the indices of and management of vasospasm.
11. Show competence the management of ventilated patients.
12. Understand the appropriate management of patients with Central nervous system infections.
13. Understand the informed consent process, importance of documentation, and preoperative patient expectation management.
14. Participate and provide leadership postoperative patient care and follow-up in the outpatient clinic.

Medical Knowledge:

1. Understand the location and function of spinal anatomical structures as they pertained to surgical procedures.
2. Identify and understand the management of peril-operative surgical complications
3. Show confidence in the performance of a wide range of neurosurgical procedures:
4. While a great deal of case done at the VA are spine base, the chief resident is expected to burnish their skill level in the performance of the following procedures:
 - a. Cranial
 - i. Standard craniotomy for resection of malignant and nonmalignant tumors.
 - ii. Pterional craniotomy for clipping of anterior circulation aneurysms.
 - iii. Orbitozygomatic craniotomy and its variations.
 - iv. Retrosigmoid approach to CP angle tumors
 - v. Translabyrinthine approach for acoustic scwhanomas
 - vi. Suboccipital craniectomy for treatment of Chiari malformation
 - vii. Microvascular decompression for treatment of trigeminal neuralgia
 - viii. Transnasal transsphenoidal surgery. (microscopic and endoscopic approach
 - ix. Repair of myelomeningocele
 - x. Treatment of the full spectrum of hydrocephalus
 - xi. Craniotomy and craniectomy for SDH, EDH and ICH
 - xii. Endoscopic third ventriculostomies
 - xiii. Pre-operative and Intra-operative use of image guidance technology.
 - b. Spinal
 - i. anterior cervical discectomy and fusion
 - ii. posterior cervical foraminotomy
 - iii. posterior cervical fusion
 - iv. laminoplasty
 - v. cervical laminectomy
 - vi. thoracic discectomy
 - vii. thoracic fusion
 - viii. lumbar microdiscectomy
 - ix. lumbar laminectomy
 - x. lumbar fusion
 - xi. arthroplasty
 - xii. interspinous spacer placement
 - xiii. Chiari decompression
 - xiv. spinal cord tumor resection
 - xv. tethered cord surgery
 - xvi. surgery for Syringomyelia
 - xvii. minimally invasive decompression and fusion
 - xviii. Cervical corpectomies
5. Understand proper patient positioning and level localization for cranial and spine procedures.
6. Demonstrate the ability to use intra-operative fluoroscopy.

Practice Based Learning

1. Understand the current medical literature and evidence-based medicine in the treatment of neurosurgical patients.
2. Lead in the literature search for question that may arise regarding patient care.
3. Attend the mandatory UCLA Neurosurgery Education Day.
4. Maintain the VA QA database.
5. Participate in teaching rounds and present patient in a succinct, organized fashion.

Interpersonal and Communication Skills

1. Establish a healthy doctor – patient relationship with patients and their families.
2. Work effectively with other members of the medical team: doctors, residents, fellows, nurses, and allied health personnel.
3. Maintain timely, comprehensive, accurate, and legible medical records.
4. Understand the importance of keeping referring physicians apprised of the status of their patients.
5. Identify any concerns with the health of fellow residents, staff, or allied health personnel.
6. The chief resident assumes a leadership role in resolving conflicts that may arise by identifying the root cause of the problem and coming up with solutions. Furthermore, the chief resident is expected to facilitate the implementation of preventive measures to avoid the repeat of such conflict.

Professionalism

1. Provide compassionate patient care and maintain moral and ethical standards.
2. Demonstrate sensitivity to patient's religion, culture, race, age, and gender, disabilities, and sexual orientation.
3. Adhere to patient confidentiality and scientific integrity.
4. Identify deficiencies in self or peer performance and suggest strategies for improvement.
5. Understand professional and personal limitations.
6. Be accountable for decisions and actions.
7. Provide team leadership and set a standard of excellence to be emulated by junior level residents.

Systems Based Practice

1. Understand effective health care cost strategies as it relates to neurosurgery
2. Demonstrate coordination of multiple disciplines in the treatment of neurosurgical patients: physical therapy, rehabilitation, discharge planning,
3. Improve throughput in both the outpatient and inpatient settings.
4. Understand optimal use of information technology.
5. Understand all rules regarding patient safety in the operating room such as the "time-out" period.
6. Adhere to the requirements of the eighty-hour workweek.

Harbor UCLA Chief Rotation, NS5/6 Goals and Objectives

Rotation Director: Duncan McBride M.D.

Assessment:

1. The resident will be given a verbal assessment of their accomplishment of the core competencies on a weekly basis (During Friday rounds).
2. The resident will undergo a formal written evaluation of their performance of the core competencies at the conclusion of the rotation.
3. The resident will be expected to keep up their case log for the rotation.

Description of the Rotation:

The Harbor UCLA chief rotation is four (4) months during the NS5 clinical year.

The rotating chief resident will be part of the General neurosurgery team that includes five attending neurosurgeons, one senior resident, two general surgery interns, two physician assistants, and one nurse practitioner.

The rotating chief resident will lead in the provision of in-patient care including critical ICU care, standard ward care of preoperative and postoperative patients, inpatient consultations, and emergency room consultations (Level on trauma center).

The chief residents will participate and lead in surgical cases under the direct supervision of the attending staff.

As a continuation of what he/she has learned during their junior and senior years, the chief resident is expected to confidently perform more complex surgical approaches and understand the logic behind choosing one approach over the other.

Resident is expected to demonstrate confidence in the management of both operative and non-operative neurosurgical trauma.

The chief resident is responsible for teaching bedside procedures to interns and physician assistants.

The chief resident also serves as the second call for overnight consults and performs invasive procedures such as ventriculostomies when warranted after discussion with the attending neurosurgeon.

The chief resident leads the evaluation and the clinical decision making of outpatients with neurosurgical diseases during clinic.

The chief resident and presents at the weekly multi-disciplinary conference where patient conditions are discussed and reviewed. The medical disciplines involved often are internal medicine, pathology, radiology, pediatrics and neurology, although other disciplines often join.

The resident also participates in trauma conference with the General surgery team.

The chief resident attends the once monthly education day held at UCLA Westwood.

The chief resident in conjunction with the senior resident are responsible for keeping the Harbor UCLA Quality Assurance database current.

Competency Based Learning Objectives

Patient Care:

1. Perform a thorough history and physical examination, with a focus on aspects pertinent to patient's specific disorder in the full spectrum of neurological diseases.
2. Demonstrate an understanding of the patho-physiology of cranial, spinal, peripheral nerve as well as pediatric disorders.
3. Demonstrate an understanding of the indications for ordering diagnostic imaging and electrophysiological studies such as CT, MRI, angiograms, myelogram, EEG, EMG and NCS.
4. Demonstrate competence in reading and interpreting radiological studies such as MRI, CT, myelography, angiography, and plain radiography.
5. Understand the role of non-operative therapeutic treatment strategies for the full spectrum of cranial, spinal and peripheral nerve disorders.
6. Understand the indications for, and timing of surgery for patients with neurological disorders.
7. Understand and implement the treatment plan for spinal patients suffering from chronic pain.

UCLA NEUROSURGERY RESIDENT TRAINING POLICIES AND PROCEDURES

8. Understand and solidify their knowledge of the principles involved in the management of patients with traumatic brain and spinal cord injury.
9. Demonstrate competence in the management of patients with subarachnoid hemorrhage,
10. Understand the indices of and management of vasospasm.
11. Show competence the management of ventilated patients.
12. Understand the appropriate management of patients with Central nervous system infections.
13. Understand the informed consent process, importance of documentation, and preoperative patient expectation management.
14. Participate and provide leadership in patient postoperative care and follow-up in the outpatient clinic.

Medical Knowledge:

1. Understand the location and function of spinal anatomical structures as they pertained to surgical procedures.
2. Identify and understand the management of peril-operative surgical complications
3. Show confidence in the performance of a wide range of neurosurgical procedures:
 - a. Cranial
 - i. Standard craniotomy for resection of malignant and nonmalignant tumors.
 - ii. Pterional craniotomy for clipping of anterior circulation aneurysms.
 - iii. Orbitozygomatic craniotomy and its variations.
 - iv. Retrosigmoid approach to CP angle tumors
 - v. Translabyrinthine approach for acoustic scwhanomas
 - vi. Suboccipital craniectomy for treatment of Chiari malformation
 - vii. Microvascular decompression for treatment of trigeminal neuralgia
 - viii. Transnasal transsphenoidal surgery. (microscopic and endoscopic approach
 - ix. Repair of myelomeningocele
 - x. Treatment of the full spectrum of hydrocephalus
 - xi. Craniotomy and craniectomy for SDH, EDH and ICH
 - xii. Endoscopic third ventriculostomies
 - xiii. Pre-operative and Intra-operative use of image guidance technology.
 - b. Spinal
 - i. anterior cervical discectomy and fusion
 - ii. posterior cervical foraminotomy
 - iii. posterior cervical fusion
 - iv. laminoplasty
 - v. cervical laminectomy
 - vi. thoracic discectomy
 - vii. thoracic fusion
 - viii. lumbar microdiscectomy
 - ix. lumbar laminectomy
 - x. lumbar fusion
 - xi. arthroplasty
 - xii. interspinous spacer placement
 - xiii. Chiari decompression
 - xiv. spinal cord tumor resection
 - xv. tethered cord surgery
 - xvi. surgery for Syringomyelia
 - xvii. minimally invasive decompression and fusion
 - xviii. Cervical corpectomies
7. Understand proper patient positioning and level localization for cranial and spine procedures.

Practice Based Learning

1. Understand the current medical literature and evidence-based medicine in the treatment of neurosurgical patients.
2. Participate and present at the weekly joint Harbor neurosurgery conference.
3. Attend the mandatory UCLA Neurosurgery Education Day.

4. Maintain the Harbor QA database.
5. Participate in teaching rounds and present patient in a succinct, organized fashion.
6. The resident will attend and present at the weekly multi-disciplinary conference where patient conditions are discussed and reviewed. The medical disciplines involved often are internal medicine, pathology, radiology, pediatrics and neurology, although other disciplines often join.
7. The resident also participates in trauma conference with the General surgery team.

Interpersonal and Communication Skills

1. Establish a healthy doctor – patient relationship with patients and their families.
2. Work effectively with other members of the medical team: doctors, residents, fellows, nurses, and allied health personnel.
3. Maintain timely, comprehensive, accurate, and legible medical records.
4. Understand the importance of keeping referring physicians apprised of the status of their patients.
5. Identify any concerns with the health of fellow residents, staff, or allied health personnel.
6. The chief resident assumes a leadership role in resolving conflicts that may arise by identifying the root cause of the problem and coming up with solution. Furthermore, the chief resident is expected to facilitate the implementation of preventive measures to avoid the repeat of such conflict

Professionalism

1. Provide compassionate patient care and maintain moral and ethical standards.
2. Demonstrate sensitivity to patient's religion, culture, race, age, and gender, disabilities, and sexual orientation.
3. Adhere to patient confidentiality and scientific integrity.
4. Identify deficiencies in self or peer performance and suggest strategies for improvement.
5. Understand professional and personal limitations.
6. Be accountable for decisions and actions.
7. Provide leadership and set a standard of excellence to be emulated by junior level residents.

Systems Based Practice

1. Understand effective health care cost strategies as it relates to neurosurgery
2. Demonstrate coordination of multiple disciplines in the treatment of neurosurgical patients: physical therapy, rehabilitation, discharge planning, .
3. Improve throughput in both the outpatient and inpatient settings.
4. Understand optimal use of information technology.
5. Understand all rules regarding patient safety in the operating room such as the "time-out" period.
6. Adhere to the requirements of the eighty hour work week

UCLA Chief Resident Rotation, NS5/6 Goals and Objectives

Rotation Directors: Neil Martin M.D, Marvin Bergsneider MD

Assessment:

1. The resident will be given a verbal assessment of their accomplishment of the core competencies on a weekly basis (During Friday rounds).
2. The resident will undergo a formal written evaluation of their performance of the core competencies at the conclusion of the rotation.
3. The resident will be expected to keep up their case log for the rotation.

Description of the Rotation:

The UCLA Westwood Chief resident rotation is four (4) months during the R6 or R7 clinical years and immediately follows the Harbor UCLA chief rotation.

1. The rotating chief resident will be part of the General neurosurgery team that includes the chief resident, two senior residents, three junior residents, two general surgery interns, one physician assistant, two nurse practitioners and rotation medical students
2. Furthermore the chief resident as the leader of the neurosurgical team works very closely with the neurocritical care team to provide the best care possible to patients on the service. The neurocritical care team consists of two neuro-intensivists, two clinical fellows and two nurse practitioners.
3. The chief resident provides leadership in the formulation of patient treatment plans during morning and afternoon rounds.
4. The rotating chief resident will provide in-patient care including critical ICU care, standard ward care of preoperative and postoperative patients, inpatient consultations, and emergency room consultations (Level on trauma center).
5. The chief resident participates in and leads surgical cases under the direct supervision of the attending staff.
6. The chief resident is expected to have confidence in performing the more complex surgical approaches and the logic behind choosing one approach over the other.
7. In conjunction with attending surgeon, the chief resident is expected to teach the senior and junior residents the performance of such surgical approaches.
8. The Chief resident is expected to have confidence in the management of both operative and non-operative neurosurgical trauma and to be able to teach the senior resident as well as the junior residents.
9. The resident also serves as the second call for overnight consults.
10. The Chief resident takes the leadership role in evaluating and participates in the clinical decision making of inpatients consults. neurology, although other disciplines often join the meeting.
11. The resident will attend the once monthly education day held at UCLA Westwood.
12. The chief resident is responsible for keeping the UCLA Westwood Quality Assurance database current.

Competency Based Learning Objectives

Patient Care:

1. Perform a thorough history and physical examination, with a focus on aspects pertinent to patient's specific disorder in the full spectrum of neurological diseases. Activity participate in teaching junior resident how to conduct a comprehensive patient history and physical examination.
2. Understand the patho-physiology of cranial and spinal as well as pediatric disorders.
3. Demonstrate competency in identifying the indications for ordering diagnostic imaging and electrophysiological studies such as CT, MRI, angiograms, myelogram, EEG, EMG and NCS.
4. Demonstrate the ability to competently read and interpret radiological studies such as MRI, CT, myelography, angiography, and plain radiography.

UCLA NEUROSURGERY RESIDENT TRAINING POLICIES AND PROCEDURES

5. Understand the role of non-operative therapeutic treatment strategies for the full spectrum of cranial, spinal and peripheral nerve disorders.
6. Demonstrate an understanding of the indications for, and timing of surgery for patients with neurological disorders.
7. Understand and implement the treatment plan for spinal patients suffering from chronic pain.
8. Demonstrate a solid knowledge of the principles involved in the management of patients with traumatic brain and spinal cord injury.
9. Understand the management of patients with subarachnoid hemorrhage,
10. Understand the indices and management of vasospasm.
11. Demonstrate competence in the management of ventilated patients.
12. Understand the appropriate management of patients with central nervous system infections.
13. Understand the informed consent process, importance of documentation, and preoperative patient expectation management.
14. Participate in patient postoperative care.

Medical Knowledge:

- 1) Understand the location and function of anatomical structures as they pertained to surgical procedures
- 2) Identify and understand the management of perioperative surgical complications
- 3) Master the performance of a wide range of neurosurgical procedures such as:
 - a Cranial
 - i) Standard craniotomy for resection of malignant and nonmalignant tumors.
 - ii) Pterional craniotomy for clipping of anterior circulation aneurysms.
 - iii) Orbitozygomatic craniotomy and its variations.
 - iv) Retrosigmoid approach to CP angle tumors
 - v) Translabyrinthine approach for acoustic schwannomas
 - vi) Suboccipital craniectomy for treatment of Chiari malformation
 - vii) Microvascular decompression for treatment of trigeminal neuralgia
 - viii) Transnasal transsphenoidal surgery. (microscopic and endoscopic approach)
 - ix) Repair of myelomeningocele
 - x) Treatment of the full spectrum of hydrocephalus
 - xi) Craniotomy and craniectomy for SDH, EDH and ICH
 - xii) Endoscopic third ventriculostomies
 - xiii) Pre-operative and Intra-operative use of image guidance technology.
 - b Spinal
 - i) anterior cervical discectomy and fusion
 - ii) posterior cervical foraminotomy
 - iii) posterior cervical fusion
 - iv) laminoplasty
 - v) cervical laminectomy
 - vi) thoracic discectomy
 - vii) thoracic fusion
 - viii) lumbar microdiscectomy
 - ix) lumbar laminectomy
 - x) lumbar fusion
 - xi) arthroplasty
 - xii) interspinous spacer placement
 - xiii) Chiari decompression
 - xiv) spinal cord tumor resection
 - xv) tethered cord surgery
 - xvi) surgery for Syringomyelia
 - xvii) minimally invasive decompression and fusion
 - xviii) Cervical corpectomies

- 4) Chief resident is expected to have knowledge of proper patient positioning and level localization for cranial and spine procedures.
- 5) Chief resident is expected to participate in teaching the junior residents proper safety procedure for patient positioning.

Practice Based Learning

1. Understand the current medical literature and evidence-based medicine in the treatment of neurosurgical patients.
2. Attend the mandatory UCLA Neurosurgery Education Day.
3. Maintain the UCLA Westwood QA database.
4. The chief resident is expected to continually appraise the current literature and apply it to bedside patient care
5. The chief resident is heavily involved in the preparation of the weekly clinical case presentation and board preparation lectures.
6. The chief resident takes a leading role in performing literature search on questions that arise in the context of patient care.

Interpersonal and Communication Skills

1. Establish a healthy doctor – patient relationship with patients and their families.
2. Work effectively with other members of the medical team: doctors, residents, fellows, nurses, and allied health personnel.
3. Maintain timely, comprehensive, accurate, and legible medical records.
4. Understand the importance of keeping referring physicians apprised of the status of their patients.
5. Identify any concerns with the health of fellow residents, staff, or allied health personnel.
6. The chief resident assumes a leadership role in resolving conflicts that may arise by identifying the root cause of the problem and coming up with solution. Furthermore, the chief resident is expected to facilitate the implementation of preventive measures to avoid the repeat of such conflict.

Professionalism

1. Provide compassionate patient care and maintain moral and ethical standards.
2. Demonstrate sensitivity to patient's religion, culture, race, age, and gender, disabilities, and sexual orientation.
3. Adhere to patient confidentiality and scientific integrity.
4. Identify deficiencies in self or peer performance
5. Understand professional and personal limitations.
6. Be accountable for decisions and actions.
7. Provide leadership and set a standard of excellence to be emulated by junior level residents

Systems Based Practice

1. Understand effective health care cost strategies as it relates to neurosurgery
2. Demonstrate coordination of multiple disciplines in the treatment of neurosurgical patients: physical therapy, rehabilitation, discharge planning, .
3. Improve throughput in both the outpatient and inpatient settings.
4. Understand optimal use of information technology.
5. Understand all rules regarding patient safety in the operating room such as the "time-out" period.
6. Adhere to the requirements of the eighty hour work week.