UCLA Course Director:

Sidney Starkman, MD
Director, Emergency Neurology, Departments of Emergency Medicine and Neurology

UCLA Faculty Planning Committee:

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Director, Neurological Rehabilitation and Research Program, Department of Neurology

Gary Duckwiler, MD
Director, Division of Interventional Neuroradiology, Department of Radiology

Neil Martin, MD
Chair, Department of Neurosurgery

Jeffrey Saver, MD
Director, Stroke Neurology, Department of Neurology

Paul Vespa, MD
Director, Neurocritical Care, Departments of Neurosurgery and Neurology

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2025 Avenue of the Stars • Los Angeles, California 90067

In association with:
Saturday, May 16, 2015

7:30 AM Registration and Continental Breakfast

8:00 Welcome

8:10 Cardioembolic Stroke Prevention: Practical Aspects in Use of Novel Anticoagulants and Devices
Noel Boyle, MD, PhD

8:40 Stroke Imaging: A Practical Approach
Bryan Yoo, MD

9:10 Intracranial Atherosclerosis: Imaging and Impact
David Liebeskind, MD

9:40 Surgical Management for Intracranial Atherosclerosis: What to Do and What Not to Do
Nestor Gonzalez, MD

10:10 Break

10:30 A New Comprehensive Protocol for Management of Intracerebral Hemorrhage
Neil Martin, MD

11:00 Cerebral Microvascular Disease: Update on Risk Factors, Syndromes, and Management
Jason Hinman, MD, PhD

11:30 Stroke, Multi-Infarct Dementia, and Alzheimer’s Disease: Recent Concepts in Diagnosis and Treatment
Lucas Restrepo, MD, PhD

12:00 PM Lunch

1:00 Controversies on the Use of IV tPA: Two Decades Later
Neal M. Rao, MD and Sidney Starkman, MD

2:00 Endovascular Treatment of Acute Ischemic Stroke: A New Beginning
Reza Jahan, MD

3:00 Break

3:15 Posterior Cerebral Circulation Disease: A Reassessment
James Ausman, MD, PhD

3:45 Trends in Neurologic Rehabilitation
Andrew Dorsch, MD

4:15 Organizing Primary and Comprehensive Stroke Centers in the New Era in Stroke Care
Jeffrey Saver, MD

5:00 Adjourn
COURSE OBJECTIVES

At the conclusion of this program participants should be able to:

- Discuss available and emerging treatment options for ischemic and hemorrhagic stroke
- State the utility of evolving imaging techniques in the diagnosis, treatment, and management of cerebrovascular diseases
- Describe recent developments in endovascular treatment of acute ischemic stroke and impact of Primary and Comprehensive Stroke Center designation.

TARGET AUDIENCE

Neurologists, Neurosurgeons, Interventional Neuroradiologists, Emergency Physicians, Family Practice Physicians, Internists, and other health care professionals who want to enhance their knowledge of the management of patients with cerebrovascular diseases.

FACULTY

James Ausman, MD, PhD
Clinical Professor*
Department of Neurosurgery

Noel G. Boyle, MD, PhD
Professor of Medicine*
Director, Cardiac Electrophysiology Labs & Electrophysiology Fellowship Program

Andrew Dorsch, MD
Assistant Clinical Professor*
Department of Neurology

Nestor R. Gonzalez, MD
Associate Professor of Neurosurgery and Radiology*
Ruth and Raymond Stotter Endowed Chair in Neurosurgery
Vascular and Endovascular Neurosurgery

Jason D. Hinman, MD, PhD
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Director, Outpatient Stroke and Neurovascular Programs
Associate Neurology Director, UCLA Stroke Center

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Director, UCLA Comprehensive Stroke Center

Sidney Starkman, MD
Clinical Professor of Emergency Medicine and Neurology*
Co-Director, UCLA Stroke Center
Director, UCLA Stroke Network

Bryan Y. Yoo, MD
Assistant Clinical Professor of Radiology*
Division of Neuroradiology

* David Geffen School of Medicine at UCLA
ISCHEMIC STROKE:  
Thrombolysis and Emergency Treatment, Prevention and Rehabilitation

The UCLA Comprehensive Stroke Center presents its annual Brain Attack symposium to review the practical, clinical aspects of stroke prevention, diagnosis, and treatment. The course will cover stroke risk factors, diagnostic testing, and medical and interventional therapy.

Intravenous tPA and neuroendovascular thrombectomy are now proven therapies for treatment of acute ischemic stroke. The results of recent studies indicate that neurointerventional techniques of thrombectomy are beneficial up to 6 hours after symptom onset in most patients, and beyond 6 hours in select patients. A highly coordinated team approach is required to provide these treatments safely and effectively.

Neuroimaging techniques are playing an increasingly important role in the evaluation of stroke patients. Faculty will provide an in-depth discussion of innovative MR and CT techniques.

The UCLA Comprehensive Stroke Center

The UCLA Comprehensive Stroke Center maintains a comprehensive treatment and clinical trials program for patients with cerebrovascular disorders. The UCLA Comprehensive Stroke Center – the first Joint Commission certified stroke center in Los Angeles County, provides multidisciplinary care for patients with stroke and kindred disorders including prevention, acute brain rescue, interventional neuroradiological and surgical therapy, and multimodal rehabilitation. The UCLA Stroke Center's treatment approach includes emergency physicians, stroke neurologists, vascular neurosurgeons, vascular surgeons, diagnostic and interventional neuroradiologists, and rehabilitation physicians.

Acute Treatment: For patients with new onset stroke symptoms, a “Brain Attack” rapid care program provides:
- immediate evaluation by emergency physicians and neurologists
- CT / MRI scan within minutes of emergency department arrival
- prompt neurovascular intensive/intermediate level care
- trials of novel therapies for ischemic and hemorrhagic stroke, and acute interventional and surgical therapies.

Stroke in Children and Young Adults: Experts in pediatric neurology, neurosurgery, interventional and diagnostic neuroradiology, and stroke neurology work together at the UCLA Stroke Center to provide comprehensive evaluation and treatment for pediatric and young adult patients with cerebrovascular disorders including moyamoya syndrome, sickle cell anemia, hyper-coagulable states, cardioembolic stroke, arteriovenous malformations, and aneurysms.

Rehabilitation: The inpatient Neurologic Rehabilitation and Research Unit and complementary outpatient rehabilitation facilities provide state-of-the-art care to maximize recovery for patients with stroke.

Carotid Endarterectomy: Microneurosurgical endarterectomy, with intraoperative brain monitoring, is available for asymptomatic and symptomatic carotid artery stenosis.

Thrombolysis: For patients eligible to receive intravenous tPA, thrombolysis is rapidly administered. In addition, interventional neuroradiologic teams are available around the clock to deliver, for selected patients, endovascular or intra-arterial pharmacologic and mechanical thrombolysis.

Cerebral and Carotid Angioplasty and Stenting: UCLA provides angioplasty and stenting for selected patients with intracranial and extracranial carotid or vertebrobasilar stenoses.

NIH Studies: The UCLA Stroke Center is a co-lead center for the NIH Los Angeles-Southern California StrokeN ET, one of twenty-five regional networks in the country for performing studies of stroke prevention, acute treatment, and recovery. In addition, UCLA is the coordinating center for the Los Angeles Neurological Emergency Treatment Trials (LA-NETT), which is a network conducting a number of clinical trials in emergency neurology, including acute ischemic and hemorrhagic stroke.

Prevention: The Stroke Clinic provides comprehensive evaluation and treatment recommendations for individuals at increased risk for ischemic and hemorrhagic stroke, including those with atrial fibrillation, carotid artery stenosis, transient ischemic attacks, and newly diagnosed unruptured aneurysms or vascular malformations.

One Call, Immediate Accept  
NEUROCITICAL CARE RAPID TRANSFER  
1-844-UCLATransfer (1-844-825-2872)

Stroke Neurology: 310-794-6379  
Vascular Neurosurgery:  
Neil Martin, MD, Nestor Gonzalez, MD  310-825-5111

Interventional Neuroradiology:  
gduckwiler@mednet.ucla.edu  310-267-8761

Inpatient Rehabilitation and Research Unit: 310-794-6556

Neurosurgery Clinic: 310-794-1572 (outpatient)

Emergency Neurology: starkman@mednet.ucla.edu

UCLA Stroke Center: www.stroke.ucla.edu  
UCLA Stroke Protect: www.strokeprotect.mednet.ucla.edu  
UCLA TeleStroke: www.telestroke.ucla.edu  
UCLA Interventional Neuroradiology: www.aneurysm-stroke.com
Atherosclerosis, Aneurysms, and Cerebrovascular Malformations

Tremendous strides have been made in the management of complex vascular lesions of the brain and spinal cord. This symposium will provide a review of the basic principles of clinical and radiologic management of carotid and intracranial stenoses, subarachnoid hemorrhage and aneurysms, and vascular malformations. Developments in microsurgical and endovascular techniques as well as critical care neurology will be discussed.

The UCLA Neurovascular Program

The UCLA Neurovascular Program has developed management protocols for the diagnosis and treatment of cerebrovascular disorders which incorporate recent developments in stroke neurology, microneurosurgery, diagnostic and interventional neuroradiology, stereotactic radiosurgery, neuroanesthesiology, and critical care. The members of the UCLA Neurovascular team have worked cooperatively since 1986 with all of the management components available on-site at UCLA, allowing for efficient coordination of the various techniques.

Neurovascular Disorders Treated at UCLA:

**Intracranial Aneurysms**
Ruptured intracranial aneurysms may be treated either surgically or by endovascular technique. Postoperatively, transcranial Doppler and cerebral blood flow studies are available to assess for the development of vasospasm. Severe, medically refractory vasospasm is treated using balloon dilation angioplasty and/or pharmacologic intra-arterial infusion, performed by the interventional neuroradiology team. Giant and complex aneurysms often require combined treatment using endovascular techniques in conjunction with extracranial-intracranial arterial bypass, or surgery under hypothermic circulatory arrest.

**Arteriovenous Malformations (AVMs)**
The Neurovascular Program has extensive experience in the management of large and complex AVMS in children and adults which are generally treated with embolization followed by microneurosurgical resection. Functional brain mapping for surgical planning is a critical component of management of AVMs. Deep and critically located AVMs are treated with stereotactic radiosurgery which is combined with embolization in larger lesions. Dural arteriovenous malformations are usually treated definitively by embolization alone, but in some complex cases, surgery or combined techniques are necessary. Spinal AVMS are treated by microsurgical excision, endovascular therapy, or most commonly, a combination of the two techniques. UCLA is also a designated HHT (hereditary hemorrhagic telangiectasia) Center of Excellence, and provides treatment for the whole range of lesions, including brain AVMs, that are seen in families.

**Cavernous Angiomas of the Brain, Brain Stem and Spinal Cord**
Cavernous angiomas are generally treated by microsurgical excision when they have caused significant symptoms. Lesions of the brain stem and spinal cord can now be treated successfully using microneurosurgical techniques, usually in combination with intraoperative electrophysiologic monitoring.

**Vein of Galen Malformations**
Transarterial and transvenous endovascular approaches are employed to reduce flow through the fistula, combined in some cases with neurosurgical treatment.

**Intracranial Arterial Stenosis**
Stroke due to narrowing of the brain arteries carries one of the highest rates of recurrent stroke, as much as 25 percent. Treatment of narrowing of the intracranial arteries is performed by a multidisciplinary team of experts in both medical management and novel endovascular and surgical revascularization techniques, including angioplasty, stenting, bypass, and indirect revascularization surgeries.

UCLA Stroke Center website [http://www.stroke.ucla.edu](http://www.stroke.ucla.edu)
Vascular Neurosurgery 310-825-5111
Stroke Neurology 310-794-6379
Interventional Neuroradiology 310-267-8761 or 310-267-8762
Neurocritical Care 310-267-9448

UCLA Medical Center Facilities:

**Stroke Unit**
UCLA’s Acute Stroke Unit, one of the first in the nation, offers comprehensive, cutting edge acute inpatient care for patients suffering from cerebral infarction, hemorrhage or other cerebrovascular diseases.

**UCLA Neurocritical Care**
The UCLA Neurocritical Care program is an internationally acclaimed center of excellence in patient care, training and research. The 24-bed Singleton Neuro-ICU features numerous state-of-the-art technologies including continuous EEG monitoring, cerebral microdialysis, brain oximetry, transcranial doppler, the world’s first ICU Robot (InTouch Health), and a comprehensive ICU Supercomputing System.

**Neurologic Rehabilitation and Research Unit**
The NRRU provides acute rehabilitation during the initial time of complex medical and neurological recovery post-stroke with the goal of reducing the impairments and disability associated with stroke and maximizing recovery.

**UCLA Clinical Image Processing Laboratory**
The laboratory is equipped with a full spectrum of 3D, image fusion, and post-processing software for cerebrovascular structural and perfusion study analysis.

**Neurosurgical Operating Rooms**
The neurosurgical operating rooms at UCLA, which accommodate more than 1,200 cases annually, include video systems for viewing microsurgical procedures, electrophysiologic equipment for brain monitoring, intraoperative angiography, and a frameless stereotactic imaging workstation (BrainLAB).

**UCLA Cerebral Blood Flow Laboratory (Clinical)**
This facility provides comprehensive transcranial Doppler evaluations and cerebral blood flow testing on inpatients and outpatients.

**Interventional Neuroradiology Suites**
The interventional angiography suites are equipped with the latest digital equipment, including 3-D rotational angiography designated for the performance of endovascular procedures. More than 400 such procedures are performed annually at UCLA.

**Stereotactic Radiosurgery**
The stereotactic radiosurgery program at UCLA utilizes state-of-the-art instrumentation for the treatment of vascular malformations of the brain. The multidisciplinary effort of neurosurgeons, physicists, radiologists, and radiation oncologists is planned on a three-dimensional and multiplanar computerized model using high resolution brain mapping imaging techniques.
Selected Advances in Stroke Care and Research from the UCLA Comprehensive Stroke Center

- **First device therapy for acute ischemic stroke**
  - MERCI Retriever
  - Invented at UCLA

- **Leading device therapies for cerebral aneurysms**
  - Guglielmi detachable coil, Matrix coil
  - Invented at UCLA

- **Leading catheter therapy for intracranial arteriovenous malformations and fistulae**
  - Onyx as liquid embolic agent for intracranial arteriovenous malformations and fistulae
  - Developed at UCLA

- **First MRI demonstration of successful reversal of advanced stroke injury in humans**

- **First validated instrument for paramedic recognition of stroke**
  - Los Angeles Prehospital Stroke Screen (LAPSS)

- **First prehospital neuroprotective treatment of stroke trial**
  - Field Administration of Stroke Therapy - Magnesium (FAST-MAG)

- **First stroke device studied utilizing FDA approved exception from informed consent under emergency circumstances**

- **First multi-center trial of body weight-supported treadmill training and drug therapies for stroke**

- **First clinical cellphone PACS system for remote review of CT and MRI scans in acute stroke**
  - Developed at UCLA

- **First US multicenter trial of endoscopic treatment for acute intracerebral hemorrhage**

- **First trial of indirect revascularization for patients with intracranial atherosclerosis**

- **First routine use of intraoperative digital subtraction angiography for evaluation after surgical aneurysm and AVM treatment**

- **First Neuro ICU-adjacent comprehensive stroke imaging center with CT, PET, 3T MRI**

- **First ICU and ED robot for remote monitoring of stroke patients**

- **First cerebral blood flow laboratory to use bedside xenon CBF studies and TCD for stroke critical care and research**

- **First clinical information system with acute stroke management dashboard**

- **First to deploy write-once, write-everywhere stroke note for clinical documentation and automated quality and research database completion**

- **First systematic secondary prevention program for cerebral atherosclerosis**
  - Preventing Recurrence of Thrombo-embolic Events through Co-ordinated Treatment (Stroke PROTECT Program)

- **First accredited undergraduate program for Student Stroke Research**
  - UCLA Student Stroke Team

- **First accredited undergraduate program for Stroke Community Education and Research**
  - UCLA Stroke Force

- **First confirmation that stroke diagnosis in the field by paramedics and neurologists by cell phone is highly accurate**
  - Field Administration of Stroke Therapy - Magnesium (FAST-MAG)

- **First validation of wearable, remote wireless health monitoring for stroke**
  - Developed by UCLA Wireless Health Institute faculty and students
**ENROLLMENT** - Extremely Limited.

**EARLY ENROLLMENT IS ADVISED**

We accept American Express, MasterCard, Visa, or Discover.

**ENROLLMENT FEES**

Includes course registration, syllabus, continental breakfast, break refreshments, and lunch.

$200  Early Enrollment

$225  (After April 24th)

$150  UC Faculty/Staff

**COMPLEMENTARY**  FAST-MAG Physician Investigators

(Meeting attendance is supported by NIH FAST-MAG grant.)

**INVESTIGATOR MEETING FOR FAST-MAG PHYSICIAN INVESTIGATORS:**

Next Phase of Neurological Emergencies Treatment Trials, including Prehospital Stroke Research based on FAST-MAG paradigm

**Online Registration**

Please follow registration procedures located at www.cme.ucla.edu/courses and click on "UCLA Brain Attack! ’15".

FAST-MAG Physician Investigators and UCLA Stroke Center Family:

Do not complete the online registration process.

Instead, visit the above website for special instructions. Fax completed corresponding form to (310) 794-0599

**Hyatt Regency Century Plaza Plaza**

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Los Angeles, CA 90067

(see next page for map and directions)

**PARKING**

There are reduced parking rates for registrants.

$20 valet

$12 self

*Up to 10 hours only; additional hourly charges apply after
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