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**A PRIMARY STROKE CENTER:
THE RIGHT TREATMENT AT THE RIGHT TIME**

*Cedars-Sinai Medical Center's Stroke Program is one of the largest,
most comprehensive centers in Southern California*

Injury to the brain and resulting disabilities sometimes can be minimized or even reversed if strokes are quickly treated by specialized teams using the most advanced tools. The minutes elapsing between stroke onset and intervention are crucial in determining patient outcomes.

In 2008, the Cedars-Sinai Stroke Program earned Primary Stroke Center Certification from The Joint Commission, the nation's oldest and largest standards-setting and accrediting body in health care. Based on recommendations published by the Brain Attack Coalition and the American Stroke Association's statements and guidelines for stroke care, this designation recognizes a center's commitment to following national standards and guidelines that can significantly improve outcomes for stroke patients.

The Stroke Program also has received two consecutive Gold Awards from the American Stroke Association for success in using the "Get With The Guidelines – Stroke" program. This award is given to centers that have maintained high performance levels for two years or more.

In 2009, when Los Angeles County's Emergency Medical Services Agency created its emergency stroke system, Cedars-Sinai's Stroke Program was designated an Approved Stroke Center for direct transport of patients suspected of experiencing acute stroke.

One of the largest stroke programs in Southern California and a referral center for some of the most challenging cases, the Cedars-Sinai Stroke Program offers the expertise of nationally recognized physicians and surgeons, 24-hour coverage, and comprehensive services that include prevention, diagnosis, treatment, rehabilitation and research.

Treating Strokes Like the Emergencies They Are

Because time is critical in the race to save brain function, the stroke response team is ready 24 hours a day to quickly evaluate patients and start interventions. The Code Brain Team – led by neurologists who specialize in stroke diagnosis and treatment – works closely with Emergency Department physicians and staff.

The use of intravenous tPA (tissue plasminogen activator), the clot-busting drug, may be an option when administered within three hours of stroke onset.

New technologies available at Cedars-Sinai now make it possible to treat some clots even beyond this

window. Cedars-Sinai was the first medical center in California to offer the catheter-delivered Penumbra System, which can grasp or suction some clots out of blocked blood vessels up to eight hours after onset of stroke symptoms. The device can be used in conjunction with tPA or alone and may be an option for patients who may not be eligible to receive tPA or blood-thinning drugs.

The Stroke Program offers treatment for:

- Acute ischemic stroke
- Aneurysms and subarachnoid hemorrhage
- Cerebral hemorrhage
- Carotid and vertebral dissection
- Symptomatic and asymptomatic carotid stenosis
- Transient ischemic attack (TIA)
- Vascular brain malformations

Cedars-Sinai neurologists, working in conjunction with the Cardiology Department and the Emergency Department, have implemented a procedure that helps to protect brain function of certain patients suffering heart attacks. Under normal circumstances, a patient whose heart stops may be revived only to suffer permanent brain damage due to the temporary lack of oxygenated blood reaching the brain. But the induction of hypothermia (cooling the body) has been found to improve neurologic outcomes following a loss of circulation.

Research, Clinical Trials and Emerging Treatment Technologies

Cedars-Sinai physicians and surgeons take a leading role in the development, testing and introduction of new treatment approaches for stroke and related neurological conditions.

Patrick D. Lyden, M.D., chairman of the Department of Neurology at Cedars-Sinai, is an expert in stroke interventions and an internationally recognized research scientist. He was a leader of the key clinical trial of tissue plasminogen activator (tPA), the only proven treatment for stroke.

Cedars-Sinai specialists were also involved in the clinical trials leading to approval of the Penumbra device that removes clots from brain arteries.

Among current studies:

- Minimally invasive stenting and angioplasty to open narrowed carotid arteries. Cedars-Sinai stroke specialists were involved in an earlier study that found this minimally invasive procedure to be comparable to surgery in risks and outcomes. They now are participating in a Phase IV clinical trial (SAPPHIRE Worldwide: Stenting and Angioplasty With Protection in Patients at High Risk for Endarterectomy) of the PRECISE Nitinol Stent System.
- A Phase III clinical trial of minimally invasive stenting to open brain arteries in patients who have had non-severe strokes. A Cedars-Sinai neurosurgeon is one of the national leaders of this and earlier studies of the Wingspan stent (SAMMPRIS – Stenting vs. Aggressive Medical Management for Preventing Recurrent Stroke in Intracranial Stenosis).

Studies are expected to begin in the near future on hypothermia for stroke (in collaboration with the University of California, San Diego, and the University of Texas, Houston); stroke therapy combining tissue plasminogen activator (a clot dissolver) and a drug called Argatroban (which inhibits the protein that causes clots) (in collaboration with UCSD and UTH); and clot retrieval devices and methods (in collaboration with the University of California, Los Angeles).

Comprehensive Services

To meet the unique needs of each patient and the community, the Stroke Program offers a wide range of services, including:

- Inpatient and outpatient programs
- Complete evaluation of stroke risk factors
- A specialized neuroangiography suite that can provide a 3D virtual reality roadmap of the arteries
- A new state-of-the-art Neuro Critical Care Unit that is specifically designed to care for the most fragile brain-injury patients
- A stroke-specific nursing unit with private rooms
- Inpatient and outpatient rehabilitation, including physical therapy, occupational therapy and speech and language pathology
- Patient education with a stroke nurse specialist
- Community outreach and education programs specifically targeting high-risk populations
- Monthly support groups for stroke survivors – one specifically for those between ages 18 and 55
- Research and clinical trials to improve treatment options and offer patients the most advanced, cutting-edge therapies

The stroke specialists at Cedars-Sinai place great emphasis on an aggressive, efficient progression through the continuum of care – including intervention, intensive care, inpatient care, rehabilitation and outpatient care and follow-up.

A Variety of Professional Perspectives

The Stroke Program is directed by David Palestrant, M.D., who also directs Neuro-Critical Care. He is board-certified in critical care medicine, internal medicine and neurology, and has written and lectured extensively on neuro-critical care topics.

Each patient's care is planned, coordinated and delivered by a multidisciplinary team that includes:

- Neurologists
- Endovascular neurosurgeons
- Vascular surgeons
- Neuro-intensivists
- Stroke neurologists
- Interventional neuroradiologists
- Rehabilitation specialists
- Physical therapists
- Occupational therapists

- Speech and language pathologists
- Social workers
- Pharmacists
- Nurses
- Dietitians

Patients who are referred to the comprehensive Stroke Program are referred back to their own physicians for ongoing care, with Cedars-Sinai's specialists available for consultation.

NOTE: "Primary Stroke Center" is a designation of the Joint Commission. "Approved Stroke Center" is a designation of the Los Angeles County Emergency Medical Services Agency.

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