



## Lawrence Shuer, MD

Professor of Neurosurgery

 Curriculum Vitae available Online

### CLINICAL OFFICE (PRIMARY)

- **Neurosurgery Department**

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### ACADEMIC CONTACT INFORMATION

- **Alternate Contact**

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## Bio

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### CLINICAL FOCUS

- Neurological Surgery
- Neurosurgery
- Neurosurgery, Pediatric

### ACADEMIC APPOINTMENTS

- Professor - University Medical Line, Neurosurgery

### ADMINISTRATIVE APPOINTMENTS

- Chief of Staff, Stanford Hospital and Clinics, (1996-2008)
- Associate Dean for Graduate Medical Education, Stanford School of Medicine, (1996-2011)
- Associate Chair, Stanford University School of Medicine - Neurosurgery, (2004- present)

### PROFESSIONAL EDUCATION

- Residency: Stanford University Dept of Neurosurgery (1984) CA
- Internship: Stanford University Dept of General Surgery (1979) CA
- Board Certification: Neurological Surgery, American Board of Neurological Surgery (1986)
- Medical Education: University of Michigan School of Medicine (1978) MI
- B.A., University of Michigan , Biomedical Sciences (1975)
- M.D., University of Michigan , Medicine (1978)

### LINKS

- Video Story: <https://stanfordhealthcare.org/stanford-health-care-now/why-i-got-into-medicine/why-medicine-lawrence-shuer-md.html>
- Get a Second Opinion: <https://stanfordhealthcare.org/second-opinion/overview.html>

## Research & Scholarship

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### CURRENT RESEARCH AND SCHOLARLY INTERESTS

I have clinical research interests in the surgical treatment of epilepsy. I am also interested in new developments in the treatment of craniosynostosis a congenital abnormality of infant's skulls

## Publications

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### PUBLICATIONS

- **Utilization of Locum Tenens in Neurosurgery.** *World neurosurgery*  
Camarano, J., Lefever, D., Kandregula, S., Abushehab, N., Benzil, D., Huntoon, K., Mazzola, C., McGuire, L., Heary, R., Parr, A., Hussain, N., Perez-Cruet, M., Shuer, et al  
2024
- **Stanford University School of Medicine: Our Neurosurgical Heritage.** *Neurosurgery*  
Veeravagu, A., Kim, L. H., Rao, V. L., Lim, M., Shuer, L. M., Harris, O. A., Steinberg, G. K.  
2023
- **Utilization of Locum Tenens in Neurosurgery**  
Camarano, J., Lefever, D., Kandregula, S., Abushehab, N., Benzil, D., Huntoon, K., Mazzola, C., McGuire, L., Heary, R., Parr, A., Hussain, N., Perez-cruet, M., Shuer, et al  
AMER ASSOC NEUROLOGICAL SURGEONS.2023
- **Utilization of Locum Tenens in Neurosurgery**  
Camarano, J., Lefever, D., Kandregula, S., Abushehab, N., Benzil, D., Huntoon, K., Mazzola, C., McGuire, L., Heary, R., Parr, A., Hussain, N., Perez-Cruet, M., Shuer, et al  
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Camarano, J., Lefever, D., Kandregula, S., Abushehab, N., Benzil, D., Huntoon, K., Mazzola, C., McGuire, L., Heary, R., Parr, A., Hussain, N., Perez-Cruet, M., Shuer, et al  
AMER ASSOC NEUROLOGICAL SURGEONS.2023
- **Mechanisms of Peer Review and their Potential Impact on Neurosurgeons: A Pilot Survey.** *World neurosurgery*  
Lepard, J. R., Yaeger, K., Mazzola, C., Stacy, J., Shuer, L., Kimmel, K.  
2022
- **Balamuthia mandrillaris brain infection: a rare cause of a ring-enhancing central nervous system lesion. Illustrative case.** *Journal of neurosurgery. Case lessons*  
Levinson, S., Kumar, K. K., Wang, H., Tayyar, R., Dunning, M., Toland, A., Budvytiene, I., Vogel, H., Chang, A., Banaei, N., Shuer, L.  
2022; 3 (15)
- **External validation of a predictive model of adverse events following spine surgery.** *The spine journal : official journal of the North American Spine Society*  
Fatemi, P., Zhang, Y., Han, S. S., Purington, N., Zygourakis, C. C., Veeravagu, A., Desai, A., Park, J., Shuer, L. M., Ratliff, J. K.  
2021
- **Intracranial Grade II Meningioma Oligometastatic to the Cervical Spine.** *Cureus*  
Natarajan, J. M., Born, D. E., Harsh, G., Shuer, L. M., Soltys, S. G.  
2021; 13 (1): e12809
- **Intracranial Grade II Meningioma Oligometastatic to the Cervical Spine** *CUREUS*  
Natarajan, J. M., Born, D. E., Harsh, G., Shuer, L. M., Soltys, S. G.  
2021; 13 (1)
- **Contemporaneous evaluation of patient experience, surgical strategy, and seizure outcomes in patients undergoing stereoelectroencephalography or subdural electrode monitoring.** *Epilepsia*  
Kim, L. H., Parker, J. J., Ho, A. L., Feng, A. Y., Kumar, K. K., Chen, K. S., Ojukwu, D. I., Shuer, L. M., Grant, G. A., Graber, K. D., Halpern, C. H.

2020

- **Patient Satisfaction and Press Ganey Scores for Spine Versus Nonspine Neurosurgery Clinics.** *Clinical spine surgery*  
Chen, Y., Johnson, E., Montalvo, C., Stratford, S., Veeravagu, A., Tharin, S., Desai, A., Ratliff, J., Shuer, L., Park, J.  
2019
- **Unholy Alliance, Pathway to Scholarly Work, or Just an Association?** *WORLD NEUROSURGERY*  
Shuer, L.  
2017; 104: 985–86
- **Predicting complication risk in spine surgery: a prospective analysis of a novel risk assessment tool.** *Journal of neurosurgery. Spine*  
Veeravagu, A., Li, A., Swinney, C., Tian, L., Moraff, A., Azad, T. D., Cheng, I., Alamin, T., Hu, S. S., Anderson, R. L., Shuer, L., Desai, A., Park, et al  
2017: 1-11
- **Real-Time Fluoroscopic and C-Arm Computed Tomography Evaluation of Ommaya Reservoir Integrity.** *Cureus*  
Moraff, A. M., Hayden Gephart, M., Shuer, L. M., Heit, J. J.  
2017; 9 (3)
- **Cervical Osteochondroma Causing Myelopathy in Adults: Management Considerations and Literature Review** *WORLD NEUROSURGERY*  
Veeravagu, A., Li, A., Shuer, L. M., Desai, A. M.  
2017; 97
- **Outcomes of cervical laminoplasty-Population-level analysis of a national longitudinal database.** *Journal of clinical neuroscience : official journal of the Neurosurgical Society of Australasia*  
Veeravagu, A. n., Azad, T. D., Zhang, M. n., Li, A. n., Pendharkar, A. V., Ratliff, J. K., Shuer, L. M.  
2017
- **Comparison of porcine and bovine collagen dural substitutes in posterior fossa decompression for Chiari I malformation in adults.** *World neurosurgery*  
Lee, C. K., Mokhtari, T. n., Connolly, I. D., Li, G. n., Shuer, L. M., Chang, S. D., Steinberg, G. K., Gephart, M. H.  
2017
- **Cervical Osteochondroma Causing Myelopathy in Adults: Management Considerations and Literature Review.** *World neurosurgery*  
Veeravagu, A., Li, A., Shuer, L. M., Desai, A. M.  
2016
- **Purification and Characterization of Progenitor and Mature Human Astrocytes Reveals Transcriptional and Functional Differences with Mouse** *NEURON*  
Zhang, Y., Sloan, S. A., Clarke, L. E., Caneda, C., Plaza, C. A., Blumenthal, P. D., Vogel, H., Steinberg, G. K., Edwards, M. S., Li, G., Duncan, J. A., Cheshier, S. H., Shuer, et al  
2016; 89 (1): 37-53
- **Building an electronic health record integrated quality of life outcomes registry for spine surgery.** *Journal of neurosurgery. Spine*  
Azad, T. D., Kalani, M., Wolf, T., Kearney, A., Lee, Y., Flannery, L., Chen, D., Berroya, R., Eisenberg, M., Park, J., Shuer, L., Kerr, A., Ratliff, et al  
2016; 24 (1): 176-185
- **Building an electronic health record integrated quality of life outcomes registry for spine surgery** *JOURNAL OF NEUROSURGERY-SPINE*  
Azad, T. D., Kalani, M., Wolf, T., Kearney, A., Lee, Y., Flannery, L., Chen, D., Berroya, R., Eisenberg, M., Park, J., Shuer, L., Kerr, A., Ratliff, et al  
2016; 24 (1): 176-185
- **A survey of human brain transcriptome diversity at the single cell level** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Darmanis, S., Sloan, S. A., Zhang, Y., Enge, M., Caneda, C., Shuer, L. M., Gephart, M. G., Barres, B. A., Quake, S. R.  
2015; 112 (23): 7285-7290
- **Rehospitalization and emergency department use rates before and after vagus nerve stimulation for epilepsy: use of state databases to provide longitudinal data across multiple clinical settings.** *Neuromodulation*  
Kalanithi, P. S., Arrigo, R. T., Tran, P., Gephart, M. H., Shuer, L., Fisher, R., Boakye, M.  
2014; 17 (1): 60-64
- **Rehospitalization and emergency department use rates before and after vagus nerve stimulation for epilepsy: use of state databases to provide longitudinal data across multiple clinical settings.** *Neuromodulation*

- Kalanithi, P. S., Arrigo, R. T., Tran, P., Gephart, M. H., Shuer, L., Fisher, R., Boakye, M.  
2014; 17 (1): 60-65
- **Neurosurgical interventions for spondyloepiphyseal dysplasia congenita: clinical presentation and assessment of the literature.** *World neurosurgery*  
Veeravagu, A., Lad, S. P., Camara-Quintana, J. Q., Jiang, B., Shuer, L.  
2013; 80 (3-4): 437 e1-8
  - **Fungal infection of a ventriculoperitoneal shunt: histoplasmosis diagnosis and treatment.** *World neurosurgery*  
Veeravagu, A., Ludwig, C., Camara-Quintana, J. Q., Jiang, B., Lad, N., Shuer, L.  
2013; 80 (1-2): 222 e5-13
  - **Fungal infection of a ventriculoperitoneal shunt: histoplasmosis diagnosis and treatment.** *World neurosurgery*  
Veeravagu, A., Ludwig, C., Camara-Quintana, J. Q., Jiang, B., Lad, N., Shuer, L.  
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  - **Occult pigmented ganglioglioma in an adult male with chronic posttraumatic epilepsy.** *Clinical neuropathology*  
Plowey, E. D., Vogel, H., Salmi, D., Shuer, L. M.  
2013; 32 (3): 192-195
  - **Predictors of Clinical and Angiographic Outcome After Surgical or Endovascular Therapy of Very Large and Giant Intracranial Aneurysms** *NEUROSURGERY*  
Darsaut, T. E., Darsaut, N. M., Chang, S. D., Silverberg, G. D., Shuer, L. M., Tian, L., Dodd, R. L., Do, H. M., Marks, M. P., Steinberg, G. K.  
2011; 68 (4): 903-915
  - **A giant cell tumor of the cranial base treated by stereotactic radiosurgery** *JOURNAL OF RADIOSURGERY AND SBRT*  
Kim, E., Murovic, J. A., Gibbs, I. C., Shuer, L. M., Chang, S. D.  
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  - **Predictors of Clinical and Angiographic Outcome Following Surgical or Endovascular Therapy of Very Large and Giant Intracranial Aneurysms**  
Darsaut, T. E., Darsaut, N. M., Chang, S. D., Silverberg, G. D., Shuer, L. M., Tian, L., Dodd, R. L., Do, H. M., Marks, M. P., Steinberg, G. K.  
LIPPINCOTT WILLIAMS & WILKINS.2010: E266
  - **Episodic encephalopathy due to an occult spinal vascular malformation complicated by superficial siderosis** *CLINICAL NEUROLOGY AND NEUROSURGERY*  
Gonella, M. C., Fischbein, N. J., Lane, B., Shuer, L. M., Greicius, M. D.  
2010; 112 (1): 82-84
  - **Two-year-old girl with cervicomedullary junction stenosis and an unknown type of skeletal dysplasia** *JOURNAL OF NEUROSURGERY-PEDIATRICS*  
Cheshier, S. H., Kalani, M. Y., Pendakaur, A., Higgins, D., Kahn, D., Shendel, S., Shuer, L.  
2008; 2 (3): 200-202
  - **Intracerebral hemorrhage caused by cerebral amyloid angiopathy in a 53-year-old man** *JOURNAL OF NEUROLOGY*  
Campbell, D. M., Bruins, S., Vogel, H., Shuer, L. M., Wijman, C. A.  
2008; 255 (4): 597-598
  - **Primary paraspinal leiomyosarcoma invading the cervical spinal canal successfully treated with surgery, radiotherapy, and chemotherapy - Case report** *JOURNAL OF NEUROSURGERY-SPINE*  
Lehman, N. L., Jacobs, C. D., Holsten, P. A., Jaikumar, S., Lehman, T. D., Gibbs, I. C., Shuer, L. M.  
2007; 6 (5): 441-446
  - **Comparison of endovascular and surface cooling during unruptured cerebral aneurysm repair** *NEUROSURGERY*  
Steinberg, G. K., Ogilvy, C. S., Shuer, L. M., Connolly, E. S., Solomon, R. A., Lam, A., Kassell, N. F., Baker, C. J., Giannotta, S. L., Cockroft, K. M., Bell-Stephens, T. E., Allgren, R. L.  
2004; 55 (2): 307-314
  - **Comparison of endovascular cooling to surface cooling during unruptured cerebral aneurysm repair** *28th International Stroke Conference*  
Steinberg, G. K., Bell-Stephens, T. E., Shuer, L. M., Ogilvy, C. S., Connolly, E. S., Solomon, R., Lam, A., Giannotta, S., Cockroft, K., Hershey, M. S., Dobak, J., Allgren, R. L.

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- **Idiopathic giant-cell granulomatous hypophysitis - Report of a case with autopsy follow-up** *75th Annual Meeting of the American-Association-of-Neuropathologists*  
Wilson, J. D., Jacobs, M., Shuer, L., Atlas, S., Horoupian, D. S.  
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- **Current source density analysis of synaptic generators of human interictal spike** *Stereotactic and functional neurosurgery*  
Heit, G., Ulbert, I., Halgren, E., Karmos, G., Shuer, L.  
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- **A model of coccidioidal meningoencephalitis and cerebrospinal vasculitis in the rabbit** *JOURNAL OF INFECTIOUS DISEASES*  
Williams, P. L., Sobel, R. A., Sorensen, K. N., Clemons, K. V., Shuer, L. M., Royalty, S. S., Yao, Y., Pappagianis, D., Lutz, J. E., Reed, C., River, M. E., Lee, B. C., Bhatti, et al  
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- **Noninvasive measurement of pulsatile intracranial pressure using ultrasound** *10th International ICP Symposium*  
Ueno, T., Ballard, R. E., Shuer, L. M., Cantrell, J. H., Yost, W. T., Hargens, A. R.  
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- **Intracranial ictal recordings in mesial frontal lobe epilepsy** *JOURNAL OF CLINICAL NEUROPHYSIOLOGY*  
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- **Central neurocytoma: One associated with a fourth ventricular PNET/medulloblastoma and the second mixed with adipose tissue** *HUMAN PATHOLOGY*  
Horoupian, D. S., Shuster, D. L., KAARSOHERRICK, M., Shuer, L. M.  
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- **Clinical comments** *CLINICAL JOURNAL OF SPORT MEDICINE*  
Shuer, L. M.  
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- **MULTIPLE-SUTURE SYNOSTOSIS SUBSEQUENT TO VENTRICULAR SHUNTING** *PLASTIC AND RECONSTRUCTIVE SURGERY*  
Schendel, S. A., Shuer, L. M.  
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- **PLEOMORPHIC GRANULAR-CELL ASTROCYTOMA OF THE PINEAL-GLAND** *CANCER*  
Snipes, G. J., Horoupian, D. S., Shuer, L. M., Silverberg, G. D.  
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- **STEREOTAXIC HELIUM ION BRAGG PEAK RADIOSURGERY FOR INTRACRANIAL ARTERIOVENOUS-MALFORMATIONS - DETAILED CLINICAL AND NEURORADIOLOGICAL OUTCOME** *HARVARD RADIOSURGERY UPDATE COURSE ON RADIOSURGERY : ENHANCEMENT OF CLINICAL EXCELLENCE*  
Steinberg, G. K., FABRIKANT, J. I., Marks, M. P., Levy, R. P., Frankel, K. A., Phillips, M. H., Shuer, L. M., Silverberg, G. D.  
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- **Maternally administered esmolol decreases fetal as well as maternal heart rate.** *Journal of clinical anesthesia*  
LARSON, C. P., Shuer, L. M., Cohen, S. E.  
1990; 2 (6): 427-429
- **OCCULT VASCULAR MALFORMATIONS OF THE OPTIC CHIASM - MAGNETIC-RESONANCE-IMAGING DIAGNOSIS AND SURGICAL LASER RESECTION** *NEUROSURGERY*  
Steinberg, G. K., Marks, M. P., Shuer, L. M., SOGG, R. L., Enzmann, D. R., Silverberg, G. D.  
1990; 27 (3): 466-470
- **STEREOTAXIC HEAVY-CHARGED-PARTICLE BRAGG-PEAK RADIATION FOR INTRACRANIAL ARTERIOVENOUS-MALFORMATIONS** *NEW ENGLAND JOURNAL OF MEDICINE*  
Steinberg, G. K., FABRIKANT, J. I., Marks, M. P., Levy, R. P., Frankel, K. A., Phillips, M. H., Shuer, L. M., Silverberg, G. D.  
1990; 323 (2): 96-101

- **EFFECT OF HYPERGLYCEMIA ON NEURONAL CHANGES IN A RABBIT MODEL OF FOCAL CEREBRAL-ISCHEMIA** *STROKE*  
KRAFT, S. A., Larson, C. P., Shuer, L. M., Steinberg, G. K., BENSON, G. V., Pearl, R. G.  
1990; 21 (3): 447-450
- **HYPERGLYCEMIA DECREASES ACUTE NEURONAL ISCHEMIC CHANGES AFTER MIDDLE CEREBRAL-ARTERY OCCLUSION IN CATS** *STROKE*  
ZASSLOW, M. A., Pearl, R. G., Shuer, L. M., Steinberg, G. K., LIEBERSON, R. E., Larson, C. P.  
1989; 20 (4): 519-523
- **CORONARY VASOSPASM DURING PERCUTANEOUS TRIGEMINAL RHIZOTOMY** *ANAESTHESIA*  
Swerdlow, B., Shuer, L., ZELCER, J.  
1988; 43 (10): 861-863
- **PEEP DOES NOT AFFECT LEFT ATRIAL-RIGHT ATRIAL PRESSURE DIFFERENCE IN NEUROSURGICAL PATIENTS** *ANESTHESIOLOGY*  
ZASSLOW, M. A., Pearl, R. G., Larson, C. P., Silverberg, G., SHUER, L. F.  
1988; 68 (5): 760-763
- **REDUCTION CRANIOPLASTY AND SEVERE HYPOTENSION** *ANESTHESIOLOGY*  
Parsons, D., SAMUELS, S. I., Steinberg, G., Shuer, L.  
1988; 68 (1): 145-146
- **CSF PULSATIONS WITHIN NONNEOPLASTIC SPINAL-CORD CYSTS** *AMERICAN JOURNAL OF ROENTGENOLOGY*  
Enzmann, D. R., ODOHUE, J., Rubin, J. B., Shuer, L., Cogen, P., Silverberg, G.  
1987; 149 (1): 149-157
- **CSF PULSATIONS WITHIN NONNEOPLASTIC SPINAL-CORD CYSTS** *AMERICAN JOURNAL OF NEURORADIOLOGY*  
Enzmann, D. R., ODOHUE, J., Rubin, J. B., Shuer, L., Cogen, P., Silverberg, G.  
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- **EVOLUTION AND OUTCOME IN MALIGNANT ASTROGLIAL NEOPLASMS OF THE CEREBELLUM** *JOURNAL OF NEUROSURGERY*  
Steinberg, G. K., Shuer, L. M., CONLEY, F. K., HANBERY, J. W.  
1985; 62 (1): 9-17
- **TUMORS OF THE CENTRAL NERVOUS-SYSTEM STUDIED BY COMPUTED-TOMOGRAPHY AND ULTRASOUND** *RADIOLOGY*  
Enzmann, D. R., Wheat, R., Marshall, W. H., Bird, R., MURPHYIRWIN, K., KARBON, K., HANBERY, J., Silverberg, G. D., BRITT, R. H., Shuer, L.  
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- **LONG-TERM USE OF DIAZEPAM** *JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*  
Hollister, L. E., CONLEY, F. K., BRITT, R. H., Shuer, L.  
1981; 246 (14): 1568-1570