

## **Mark G. Burnett, MD**

### **Education:**

1994-98	Doctor of Medicine University of Maryland School of Medicine
1993-94	J. William Fulbright Scholar
1989-93	Bachelor of Arts, Yale University

### **Clinical Appointments:**

2007-Present	Neurosurgeon NeuroTexas, PLLC  Executive Medical Director Director of Neuroscience Research Program NeuroTexas Institute
2005-2006	Fellow Barrow Neurological Institute Director: Volker KH Sonntag, M.D. Phoenix, Arizona
2004-2005	Chief Resident Department of Neurosurgery Chairman: MS Grady, M.D. Hospital of the University of Pennsylvania Philadelphia, Pennsylvania
1999-2004	Resident Department of Neurosurgery Chairman: MS Grady, M.D. Hospital of the University of Pennsylvania Philadelphia, Pennsylvania
1998-99	Intern Department of Surgery Chairman: Clyde F. Barker, M.D. Hospital of the University of Pennsylvania Philadelphia, Pennsylvania

### **Licensure & Board Certification:**

- Texas
- Arizona
- Maryland
- Board Certification – American Board of Neurological Surgery (2009)

**Grants and Awards**

National Institute of Neurological Disorders and Stroke  
National Institutes of Health  
Diffuse Light Imaging of Flow, oxygen and brain metabolism  
Grant # R01 HL077699-01 (March 1, 2004 to February 29, 2008)  
Position: Co-Investigator

National Institute of Neurological Disorders and Stroke  
National Research Service Award  
National Institutes of Health  
Grant # 1 F32 NS4 4750-01 (July 1, 2002 to June 30, 2004)  
Project Title: Activation Flow Coupling: Effects of Graded Ischemia  
Position: Principal Investigator

Resident Research Award, Pan-Philadelphia Neurosurgery Conference, 2001

William H. Mosberg, Jr., M.D. Award for Neurosurgery 1998  
University of Maryland School of Medicine

American Dermatology Association Research Fellowship 1995  
American Academy of Dermatology

Short Term Research Training Program Grant 1994  
University of Maryland School of Medicine

J. William Fulbright Scholarship 1993-94  
J. William Fulbright Foreign Scholarship Board  
(in association with McGill University, Montreal, Canada)

Robert C. Bates Fellowship 1992  
Yale University  
(in association with Oxford University, Oxford, UK)

Foundation for Advanced Education in the Sciences Grant 1991  
National Institutes of Health / National Institute on Aging

**Manuscripts:**

Burnett JW, Burnett MG, Kaufman CL. Another sea pest. Arch Dermatol 1995;131(8):965.

Burnett MG and Grover SA. Use of the emergency room for non-urgent care during regular business hours. Canadian Med Assoc J 1996; 154 (9):1345-51.

Yang T, Tzeng S, Cheng I, Burnett MG, Yoshizawa Y, Fukuyama K, Less S, Epstein WL. Identification of the mouse calcium-binding proteins, MRP8 and MRP14, in *Schistosoma mansoni*-induced granulomas: biochemical and functional characterization. *J Leukoc Bio* 1997; 61(3):258-66.

Burnett JW, Burnett HW, Burnett MG. Sargassum dermatitis. *Cutis* 1997;59(6):303-4.

Burnett JW and Burnett MG. Sea urchin. *Cutis* 1999;64(1): 21-22.

Burnett, MG and Grady MS. Journal Club Review, *Neurosurg Focus*, 9(3), Sept 2000.

Burnett, MG and Grady, MS. Journal Club Review, *Neurosurg Focus*, 9(5), Nov 2000.

Stein SC and Burnett MG. Decision analysis to estimate cost-effectiveness in neurosurgery. *Neurosurg Focus* 12:E5, April 2002.

Burnett MG and Grady MS, Spinal hemangioblastomas: evaluation and operative treatment. *Operative Techniques in Neurosurgery* 6 (3): 141-148, Sept 2003.

Burnett MG, Stein SC, Grady, MS. What we research: survey of American Association of Neurological Surgeons and Congress of Neurological Surgeons member publications. *J Neurosurg* 100:73-78, Jan 2004.

Gomi S, Burnett MG, Karp A, Greenberg JH. Nimodipine does not affect the flow-metabolism couple in permanent cerebral ischemia. *Exp Brain Res* 155(4): 469-76. Apr 2004.

Durduran T, Burnett MG, Yu G, Zhou C, Furuya D, Yodh AG, Detre JA, Greenberg JH. Spatio-temporal quantification of cerebral bloodflow during functional activation in rat somatosensory cortex using laser speckle flowmetry. *J Cereb Bloodflow Metab* 518-25, May 2004.

Burnett MG and Zager EL, Pathophysiology of peripheral nerve injury: a brief review. *Neurosurg Focus* 16(5): E1, May 2004.

Durduran T, Yu G, Burnett MG, Zhou C, Detre JA, Greenberg JH, Yodh AG. Diffuse optical measurements of oxygen metabolism in human brain during sensorimotor cortex activation. *Optics Letters* 29(15): 1766-68, Aug 2004.

Danish SF, Burnett MG, Stein SC. Prophylaxis for deep venous thrombosis: a review. *Neurosurg Focus* 17(4): E2, Oct 2004.

Danish SF, Burnett MG, Sonnad S, Maloney-Wilensky E, Ong J, Stein SC. Prophylaxis for deep venous thrombosis: a decision analysis. *Neurosurgery* 56(6); 1286-92, Jun 2005.

Burnett MG, Detre JA, Greenberg JH. Activation flow coupling during graded cerebral ischemia. *Brain Res* 1047(1); 112-18, Jun 2005.

Simon SL, Moonis G, Judkins AR, Scobie MD, Burnett MG, Riina HA, Judy KD. Intracranial capillary hemangioma: a case report and review of the literature. *Surg Neurol* 64(2); 154-9, Aug 2005.

Burnett MG, Stein SC, Sonnad SS, Zager EL. Cost-effectiveness of intraoperative imaging in carotid endarterectomy. *Neurosurgery* 57(3) 478-85, Sept 2005.

Burnett MG, Shimazu T, Szabados T, Muramatsu H, Detre JA, Greenberg JH. Electrical stimulation during reversible forebrain ischemia decreases infarct volume. *Stroke* 37(5) 1327-31, Mar 2006.

Edlow BL, Burnett MG, Belasco J, D'Angio G, Marcotte PJ. Recurring polysomatic hemangiomatosis: a new syndrome? *J Pediatr Hematol Oncol* 28(7) 471-75, Jul 2006.

Stein SC, Burnett MG, Glick HA. Indications for CT scanning in mild traumatic brain injury: a cost-effectiveness study. *J Trauma* 61(3) 558-66, Sept 2006.

Chen HI, Burnett MG, Huse JT, Lustig RA, Bagley LJ, Zager EL. Recurrent delayed cerebral necrosis with aggressive characteristics after radiosurgical treatment of an arteriovenous malformation. *J Neurosurg* 105(3) 455-60, Sept 2006.

Burnett MG and Sonntag VK. Return to contact sports after spinal surgery. *Neurosurg Focus* 21(4) 1-3, Oct 2006.

Stein SC, Burnett MG, and Sonnad SS. Shunts in normal-pressure hydrocephalus: do we place too many or too few? *J Neurosurg* 105(6): 815-22, Dec 2006.

Burnett MG, Sonnad SS, Stein SC. Screening tests for normal-pressure hydrocephalus: sensitivity, specificity, and cost. *J Neurosurg* 105(6): 823-9, Dec 2006.

Stein SC, Burnett MG, Zager EL, Riina HA, Sonnad SS. Completion angiography for surgically-treated cerebral aneurysms: an economic analysis. *Neurosurgery* 61(6): 1162-7, Dec 2007.

Stein SC, Burnett MG, Fabbri A, Servadei F. Clinical decision rules for CT scanning in mild traumatic brain injury: a critical comparison. *Ann Emerg Med* (Submitted).  
Cowperthwaite MC, Burnett MG. The effects of substance abuse on treatment and outcomes following traumatic injury. (submitted *J Trauma* 2009).

Burnett MG, Bartels R, Stein SC. Treatment of lumbar stenosis: a cost-effectiveness study of laminectomy, X-stop and conservative care. (Submitted *J Neurosurgery* 2009).

Cowperthwaite MC, Burnett MG. Association between weather and spontaneous intracranial hemorrhage admissions in 155 United States hospitals. (Submitted *Stroke* 2009).

## **Abstracts:**

Pauly RR, Sollott S, Monticone R, Weinstein C, Burnett M, Balasubramanian S, Crow M, Passaniti A, Lakatta EG. Vascular smooth muscle cell invasion but not chemotaxis is inhibited by buffering intracellular calcium. Clin Res 410: 345A, 1992. Also published in J Cell Biochem, 16A:17, 1992.

Burnett MG and Varma SD. Implications of oxidative stress in galactosemia. Proceedings of the 1994 Student Research Forum, Abstract #94.23. University of Maryland School of Medicine, Baltimore, Maryland, August, 1994.

Burnett MG, Tzeng S, Yang TH, Cheng I, Yoshizawa Y, Fukuyama K, Epstein WL. In vivo effects of the Ca<sup>++</sup> binding proteins MRP8 and MRP14 in murine skin. J Inv Derm 1996; 106: A766. Also presented at the meeting of the Society of Investigative Dermatology, May 1996.

Durduran T, Yu G, Burnett M, Furuya D, Zhou C, Detre JA, Greenberg JH, Yodh AG. Characterization of the activation-flow coupling response during forepaw stimulation in the rat using laser speckle contrast imaging. SPIE Photonics West, San Jose, CA, January 2003.

Durduran T, Yu G, Burnett MG, Furuya D, Detre JA, Greenberg JH, Yodh G. Measuring oxygen metabolism during cortical spreading depression at altered ventilation states. SPIE Photonics West, San Jose, CA, January 2003.

Garg S, Simon S, Burnett M, Sutton L, Dormans J. Spinal deformity following surgical excision of intramedullary spinal cord tumors in children. Ped Orth Soc of North America, Amelia Island, FL, May 2003.

Burnett MG, Durduran T, Yu G, Cardenas A, Detre JA, Greenberg JH. Characterization of the activation-flow coupling response during forepaw stimulation in the rat using laser speckle contrast imaging. Brain 03, Calgary, Canada, June 2003.

Yu G, Durduran T, Burnett MG, Detre JA, Greenberg JA, Yodh AG. Diffuse optical measurement of hemodynamics in human brain. Engineering Conferences International (ECI), Banff, Canada, Aug. 2003.

Burnett MG, Stein SC, Grady, MS. What we research: a portrait of AANS and CNS member publications. American Association of Neurological Surgeons Annual Meeting, Orlando, FL, May 2004.

Danish SF, Burnett MG, Stein SC. Prevention of deep vein thrombosis after craniotomy: a decision analysis. Pennsylvania Neurosurgical Society Annual Meeting, Hershey, PA, July 2004.

Zhou C, Durduran T, Yu G, Burnett MG, Detre JA, Greenberg JH, Yodh AG. Diffuse optical measurements of oxygen metabolism in human brain during sensorimotor stimulus. Optical Imaging Workshop from Bench to Bedside at the NIH, Bethesda, MD, Sept. 2004.

Zhou C, Durduran T, Yu G, Burnett MG, Detre JA, Greenberg JH, Yodh AG. 3D in vivo imaging by diffuse correlation tomography. Optical imaging Workshop from Bench to Bedside at the NIH, Bethesda, MD, Sept. 2004.

Sonnad SS, Danish SF, Burnett MG, Stein SC. Effectiveness of adding anticoagulation to mechanical prophylaxis for preventing DVT in craniotomy. Society for Medical Decision Making Meeting, Atlanta, GA, Oct. 2004.

Shimazu T, Durduran T, Burnett MG, Detre JA, Greenberg JH. Acute recovery of functional activation following forebrain ischemia in the rat: a laser speckle study. Society of Neuroscience 2004, San Diego, CA, Oct. 2004.

Durduran T, Shimazu T, Yu G, Burnett MG, Zhou C, Detre JA, Greenberg JH, Yodh AG. Characterization of the spatio-temporal behavior of cerebral blood flow using laser speckle flowmetry during electrical and mechanical stimulation of the forepaw and whiskers and during transient forebrain ischemia. SPIE Photonics West, San Jose, CA, January 2005.

Durduran T, Yu G, Burnett MG, Zhou C, Wang J, Detre JA, Greenberg JH, Yodh AG. Diffuse optical measurement of cerebral oxygenation, blood flow, and oxygen metabolism in adult human brain. SPIE Photonics West, San Jose, CA, January 2005.

Stein SC, Burnett MG, Zager EL. Cost-effectiveness in carotid endarterectomy. American Academy of Neurological Surgeons 2005, New Orleans, LA April 2005.

Burnett MG, Shimazu T, Szabados T, Muramatsu H, Detre JA, Greenberg JH. Functional stimulation during cerebral ischemia. Brain 05, Amsterdam, June 2005.

Burnett MG, Metkus T, Stein SC. Effectiveness of laminectomy for cervical spondylotic myelopathy in the elderly. Annual Meeting AANS/CNS Joint Section of the Spine and Peripheral Nerves, Orlando, March 2006.

Ramakrishna R, Malhotra N, Burnett MG, Schuster J. Survival in patients with Glioblastoma Multiforme as a Function of Post-Operative Ambulation Status. American Academy of Neurological Surgeons, San Francisco, April 2006.

Durduran T, Zhou C, Yu G, Burnett MG, Tang K, Maloney-Wilensky E, Bloom S, Pelligrini C, Kasner S, Cucchiara B, Messe S, Shah Q, Levine J, Margulies S, Ichord R, Wang JJ, Detre JA, Greenberg JH, Yodh AG. Optical methods for hemo-dynamics and metabolism. Optical Society of America (Biomedical Optics), Fort Lauderdale, March 2006.

## **Speaker Presentations:**

Burnett MG and Stein SC. Screening minor head injuries in the emergency department. Presented at the Pan-Philadelphia Neurosurgery Conference, Philadelphia, PA, December 2001.

Burnett MG, Stein SC, Mickel HS. The safety and cost-effectiveness of common screening strategies for mild closed head injury. Presented at the Congress of Neurological Surgeons, Philadelphia, PA October 2002.

Grady MS, Burnett MG, Stein SC. Cerebrovascular decision making. Presented at the Pan-Philadelphia Neurosurgery Conference, Philadelphia, PA, November 2002.

Simon SL, Burnett MG, Garg S, Telfeian A, Dormans J, Sutton LN. The efficacy of prophylactic spinal fusion in the prevention of post-surgical spinal deformity in pediatric medullary spinal cord tumors. Presented at the Joint Annual Meeting of the AANS/CNS Section on Pediatric Neurologic Surgery, Phoenix, AZ, December 2002.

Burnett MG, Durduran T, Yu G, Chao Z, Detre JA, Greenberg JH, Yodh AG. A novel bedside instrument for non-invasive measurement of cerebral hemodynamics: development and results of human testing during cortical sensorimotor activation. Presented at the Congress of Neurological Surgeons, San Francisco CA, October 2004.

Burnett MG, Durduran T, Yu G, Chao Z, Detre JA, Greenberg JH, Yodh AG. Non-invasive monitoring of cerebral hemodynamics. Presented at the Pan-Philadelphia Neurosurgery Conference, Philadelphia, PA, December 2004.

Durduran T, Yu G, Burnett MG, Zhou C, Wang J, Detre JA, Yodh AG, Greenberg JH. Diffuse optical measurement of cerebral metabolic rate of oxygen in adult brain. Presented at European Conference on Biomedical Optics, Munich, June 2005.

Stein SC, Sonnad SS, Burnett MG. Diagnostic tests for NPH: guidelines for the guidelines. Presented at IV International Hydrocephalus workshop, Rhodes, Greece, May 2007.

## **Book Chapters:**

Burnett MG, Danish SF, McKhann GM, Le Roux P. Pathology and pathophysiology of aneurysmal subarachnoid hemorrhage. In Le Roux PD and Winn HR, (eds.). Management of Cerebral Aneurysms WB Saunders, Philadelphia 2003.

Marcotte PJ and Burnett MG. Degenerative disease of the cervical spine. In Moore AJ and Newell DW editors: Neurosurgery: Principles and Practice Springer-Verlag, London 2004.

Stein SC and Burnett MG. When are CT scans and skull x-rays indicated for patients with minor head injury? In: Valadka A, Andrews BT (eds) Neurotrauma: Evidence Based Answers to Common Questions. Thieme, New York 2004.

Stein SC, Burnett MG. When are CT scans and skull x-rays indicated for patients with minor head injury? In: Rengachary S, Ellenbogen R, eds. Principles of Neurosurgery 2<sup>nd</sup> Edition. Mosby, London 2004.

Burnett MG, Sonntag VK Atlantoaxial Stabilization. In Fundamentals of Operative Techniques in Neurosurgery. 2<sup>nd</sup> Edition. Thieme, New York (forthcoming 2009).

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## **U.S. Patents:**

*Optical Measurement of Tissue Blood Flow, Hemodynamics and Oxygenation*, Yodh, A.G., Greenberg, J.G., Yu, G., Detre, J.A., Durduran, T., Burnett, M.G., Mohler, III, E.R., Hahn, S., and Quon, H., (U.S. Patent Application No. 11/106,390, filed April 13, 2005 )