

Robert N. Bryan, MD, PhD

Eugene P. Pendergrass Professor of Radiology

Email: bryan@oasis.rad.upenn.edu

Address:

University of Pennsylvania Health System
3400 Spruce Street - 1 Silverstein
Philadelphia, Pennsylvania 19104

Education

- 1965 Johns Hopkins University, Pre Med
- 1969 M.D. University of Texas Medical Branch, Galveston, Texas
- 1973 Ph.D. University of Texas Medical Branch, Galveston, Texas
Anatomy

Postgraduate Training and Fellowship Appointments

7/69-6/70 Internship: Rotating/Radiology, University of Texas Medical Branch, Galveston, Texas

7/70-6/71 Fellowship in Neuroanatomy: NIH Postdoctoral with Dr. W.D. Willis, Marine Biomedical Institute

7/71-6/73 Radiology Residency: University of Texas Medical Branch, Galveston, Texas

7/73-6/74 NIH Special Fellow (Neuroradiology), Neurological Institute of New York, NYC with Dr. E.H. Wood

Military Service

7/74-6/76 LTCDR, United States Navy Chief, Neuroradiology National Naval Medical Center, Bethesda MD

Faculty Appointments

1966-1968 Instructor in Anatomy, University of Texas Medical Branch, Galveston TX.

1976-1977 Associate Professor of Clinical Radiology, Columbia University, New York City, NY

1977-1978 Assistant Professor, Department of Radiology, Baylor College of Medicine, Houston TX 1977-78

1978-1983 Associate Professor, Department of Radiology, Baylor College of Medicine, Houston TX

1983-1988 Professor of Radiology, Baylor College of Medicine, Houston TX

1986-1988 Professor in the Center for Biotechnology, Baylor College of Medicine, Houston TX

1988-1998 Professor of Radiology and Neurosurgery, Johns Hopkins University School of Medicine, Baltimore MD

1990-1998 Professor of Otolaryngology-Head & Neck Surgery, Johns Hopkins University School of Medicine, Baltimore MD

1999- Eugene P. Pendergrass Professor of Radiology, University of Pennsylvania School of Medicine, Philadelphia, PA.

Hospital and Administrative Appointments

1974-1976 Radiologist and Chief of Special Procedures Lab. LCDR, MC, USNR, National Naval Medical Center, Bethesda MD

1976-1977 Associate Attending Radiologist, Presbyterian Hospital, New York City NY

1977-1985 Director of Neuroradiology, The Methodist Hospital, Houston TX

1977-1988 Active Attending Radiologist, The Methodist Hospital, Houston TX

1978-1983 Associate Chairman, Department of Radiology, Baylor College of Medicine, Houston TX

1979-1988 Associate Attending Radiologist, Ben Taub General Hospital, Houston TX

1979-1988 Consultant in Radiology, Texas Children's Hospital, Houston TX

1981-1988 Director, Biomedical NMR Center, Baylor College of Medicine, Houston TX

1985-1988 Director of MRI, The Methodist Hospital, Houston TX

1988-1998 Director of Neuroradiology Division, Johns Hopkins University School of Medicine, Baltimore MD

1996-1997 Vice Chairman, Department of Radiology, Johns Hopkins University School of Medicine, Baltimore MD

1998-2000 Director of Diagnostic Radiology and Associate Director, Radiologic and Imaging Sciences Program, Warren Grant Magnuson Clinical Center, National Institutes of Health, Bethesda MD

2000- Chairman, Department of Radiology, University of Pennsylvania Health System, Philadelphia, Pennsylvania.

Specialty Certification

1973 American Board of Radiology

1995 Certification of Added Qualifications (CAQ)

Licensure

1999-Present Pennsylvania # MD-068981-L

1988-Present Maryland # D-17790

1969-Present Texas #D 5925

(New York, Virginia, District of Columbia - all expired)

Awards, Honors and Membership in Honorary Societies

Alpha Omega Alpha, Honorary Medical Society, 1969

University of Texas Medical Branch, Galveston, Texas - George Sealy Memorial Award in Research in Neurology, 1972

Fulbright Senior Scholar, Marseilles, France, Brain Map Project, 1994-95

Honorary Member, Japanese Society of Neuroradiology

Memberships in Professional and Scientific Societies

American Society for Neuroscience, 1970

American College of Radiology, 1974

Publications Committee

American Society of Neuroradiology, 1976

President, 1991-1992

American Society of Head & Neck Radiology, 1979

President 1984-85

Radiological Society of North America, 1979
Board of Directors -- 1996 -
Chairman of the Board -- 1999-2000
President-Elect -- 2000-2001

Radiological Society of North America - Research and Education Foundation
Board of Trustees – 1999 -

World Federation of NeuroRadiological Society
Alternate Delegate
Appointed to Commission on Research – 2000-2002

Association of University Radiologists, 1979
Publications Committee 1997-2000

American Roentgen Ray Society, 1980
Publications Committee

International Society of Magnetic Resonance in Medicine, 1983
Board of Trustees, 1990-1992
Subcommittee on Young Investigator Awards, 1997-99

Pennsylvania Radiological Society (Transfer)
Governance Committee

Texas Medical Association, 1977

American Heart Association--Stroke Council,
Neuroimaging Committee, 1995-1997

American Association for the Advancement of Science, 1979

Editorial Activities

Current

Editorial Board, Magnetic Resonance in Medicine
Editorial Executive Committee, Academic Radiology

Past

Associate Editor, Radiology
Editorial Board, Magnetic Resonance Imaging
Editorial Board, Journal of Magnetic Resonance Imaging
Senior Editor, American Journal of Neuroradiology

Government Study Sections (Grant Review) and Advisory Committees

Diagnostic Radiology Study Section, 1991-1995
U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health
External Advisory Committee For the Cooperative
Radio-Imaging Study to Assess Progression In Polycystic Kidney Disease
(CRISP Study, 2000)
Pediatric Brain Imaging Consortium

Lectures by Invitation

9/24/01

"The Analog to Digital Revolution in Radiology" and "What little we know about fMRI", Visiting Professor at the Indiana University School of Medicine, Indianapolis, IN.

6/21/01

"Neuroimaging of Cortex", XVII World Congress of Neurology, London, England

3/24/01

"Functional and Molecular MR Imaging of the Brain", American Association for Cancer Research, New Orleans, LA

2/19/01

"Diffusion and Perfusion MRI and its Clinical Applications" and "MR Spectroscopy and its Clinical Applications", 27th Annual North American Neuro-ophthalmology Society Meeting, Palm Springs, CA

2/9/01

"Advances in MRI", 30th Annual Meeting of the Japanese Society of Neuroradiology, Osaka, Japan

12/12/00

"Acute Stroke" The Irvin I. Kricheff Lecturer, and "Radiology in the Electronic Age", Guest Lecturer at New York University School of Medicine, New York, NY

11/25/00

"Functional Brain Imaging" RSNA Refresher Course, RSNA Annual Meeting, Chicago, IL.

9/25/00

"Research in Radiology: Past and Present". 4th Joint International Conference: Cancer Therapies: Basic and Clinical Perspectives in Brain, Prostate and Lung Tumors, Naples, Italy

6/16/00

"What is Functional Brain Imaging?", 25th Annual Eugene P. Pendergrass Symposium, University of Pennsylvania, Philadelphia, PA

5/19/00

"Functional Brain", Clinical Spectroscopy; The Basics and Beyond", University of Miami School of Medicine, Miami, FL

11/24/99

"Functional Brain Imaging" RSNA Refresher Course, RSNA Annual Meeting, Chicago, IL

10/6/99

"Human Brain Imaging: Form to Function" NIH Research Festival Plenary Session

5/25/99

"NIH Research Opportunities-Internal Opportunities", American Society of Neuroradiology Annual Meeting, San Diego, CA

4/21/99

"Medical Imaging: The Digital Age", Grand Rounds, National Institutes of Health, Bethesda MD

4/20/99

"Imaging My Brain", Smithsonian Institutions, Washington DC

2/7/99

"Cerebral Vascular Brain Disease and the Aging Brain"

"The Role of Imaging in Acute Stroke"

"MR Imaging of Intracranial Hemorrhage"

"Functional Neuroimaging", 33rd Annual Course of Radiology and Imaging, Mexican Radiological Society, Mexico City, Mexico

1/12/99

"Imaging the Brain Attack" Grand Rounds, Vanderbilt University, Nashville TN

11/10/98

"Diagnostic Imaging Network – ACROIN", NABITT CNS Consortium Fall Meeting, BWI Airport MD

10/22/98

Imaging The Brain Attack; Cerebrovascular Disease and The Aging Brain, Visiting Professor Program, Medical College of Virginia, Richmond VA

10/11/98

“Supratentorial Tumors“, XIX Interamerican Congress of Radiology, Miami FL

10/6/98

“Imaging My Brain“, Medicine for the Public Series, National Institutes of Health, Bethesda MD

4/27/98

“Imaging Research from Mice to Man“, 1998 Distinguished Lecturer, University of Virginia, Charlottesville VA

4/8/98

“Cerebrovascular Disease and the Aging Brain“, Grand Rounds, National Institutes of Health, Bethesda MD

3/14/98

“Supratentorial Brain Tumors“, “Sella and Parasellar Tumors“, Principles and Practice of Clinical MRI, Johns Hopkins MRI Course, Marco Island FL

5/16/97

“Magnetic Resonance Spectroscopy in Acute Stroke“, American Society of Neuroradiology Annual Meeting, Focus Session lecture, Toronto Canada

5/14/97

“Cerebral Vascular Disease and the Aging Brain“, Distinguished Faculty Lecture honoring Sadek K. Hilal, M.D., Ph.D., Visiting Professor, Department of Radiology, Columbia University, New York, New York

4/11/97

“The Role of Imaging in Acute Stroke Management”

“The Aging Brain and Cerebrovascular Disease“, ACR North Carolina Chapter, Wrightsville Beach NC

4/5/97

“Guest Neuroradiologist“, Frank B. Walsh Neuro-Ophthalmic Pathology Conference, Baltimore, Md.

2/13/97

“Neuroimaging“, Johns Hopkins University Annual Neurology/Neuropathology Course, Baltimore MD

12/16/96

International Business Communications “Recent Advances in the Understanding, Therapy and Diagnosis of Ischemic Stroke.”

“1H MR Spectroscopy of Acute Cerebral Ischemia“, Washington, DC,

12/14/96

Johns Hopkins University "Neurology for the Primary Practitioner"
"The Optimal Use of Neuroradiological Procedures", Baltimore MD

11/26/96

Johns Hopkins University "Topics in Neuroscience", "Neuro Imaging.", Baltimore MD

10/31/96

Beyond Structure: First Heidelberg Conference on "Dynamic and Functional Radiological Imaging of the Brain"

"Spectroscopy and Perfusion MRI in Acute Stroke", Heidelberg, Germany

10/7-9/96

NYU Postgraduate Medical School Course, "MRI: Clinical State-of-the-Art, 1996"
"MRI Imaging of the Aging Brain: A Practical Approach", "MRI of Acute Cerebral Ischemia", "Imaging of the Patient with Acute Stroke". NYU Medical Center, New York NY

Organizing Roles in Scientific Meetings

XVI Symposium Neuroradiologicum, Program Chairman 1998

Bibliography (Peer-Reviewed Publications)

Bryan RN, Cie JE: Experimental alteration of cerebrospinal fluid production following cyrosurgery of the choroid plexus. J Neurosurg 30:62-69, 1969.

Bryan RN, Walker BE: Cellular response of the brain to concussion. Texas Rep Biol Med 27:27-33, 1969.

Bryan RN, Trevino DL, Willis WD: Evidence for a common location of alpha and gamma motoneurons. Brain Res 38:193-196, 1972.

Trevino DL, Maunz RA, Bryan RN, Willis WD: Location of cells of origin of the spinothalamic tract in the lumbar enlargement of the cat. Exp Neurol 34:64-77, 1972.

Swischuk LE, Meyer GA, Bryan RN: Infantile hydrocephalus and cerebral angiography: Assessment and indications. Am J Roentgenol 115:50-61, 1972.

Hancock MB, Rigamonti DD, Bryan RN: Convergence in the lumbar spinal cord of pathways activated by splanchnic nerve and hindlimb cutaneous nerve stimulation. Exp Neurol 38:337-348, 1973.

Willis WD, Weir MA, Skinner RD, Bryan RN: Differential distribution of spinal cord field potentials. *Exp Brain Res* 17:169-176, 1973.

Bryan RN, Trevino DL, Coulter JD, Willis WD: Location and somatotopic organization of the cells of origin of the spinocervical tract. *Exp Brain Res* 17:177-189, 1973.

Culp WC, Bryan RN, Morettin LB: Placenta membranacea: A case report with arteriographic findings. *Radiol* 108:309-310, 1973.

Bryan RN, Coulter JD, Willis WD: Cells of origin of spinocervical tract in the monkey. *Exp Neurol* 42:574-586, 1974.

Swischuk LE, Bryan RN: Double midline intracranial atypical teratomas: A recognizable neuroendocrinologic syndrome. *Am J Roentgenol* 122:517-524, 1974.

Waldron RL II, Bryan RN: Effects of contrast agents on the blood-brain barrier: An electron microscopic study. *Radiol* 116:195-198, 1975.

Johnsonbaugh RE, Bryan RN, Hierlwimmer UR, Georges LP: Premature craniosynostosis: A common complication of juvenile thyrotoxicosis. *J Ped* 93:188-191, 1978.

Bryan RN, Drewyer RG, Gee W: Separate origins of the left internal and external carotid arteries from the aorta. *Am J Roentgenol* 130:362-365, 1978.

Stern J, Correll JW, Bryan RN: Persistent hypoglossal artery and persistent trigeminal artery presenting with posterior fossa transient ischemic attacks. Report of two cases. *J Neurosurg* 49:614-619, 1978.

Fink LH, Early CB, Bryan RN: Glossopharyngeal schwannomas. *Surg Neurol* 9:239-245, 1978.

Bryan RN, Shah CP, Hilal SK: Evaluation of subarachnoid hemorrhage and cerebral vasospasm by computed tomography. *J Comput Tomogr* 3:144-153, 1979.

Greenberg SB, Taber LH, Septimus EJ, Kohl S, Puck J, Bryan RN: Computerized tomography in brain biopsy-proven herpes simplex encephalitis. *Arch Neurol* 38:58-59, 1981.

Bryan RN, Sessions RB, Horowitz BL: Radiographic management of juvenile angiofibromas. *AJNR* 2:157-166, 1981.

Sessions RB, Bryan RN, Naclerio RM, Alford BR: Radiographic staging of juvenile angiofibroma. *Head & Neck Surg* 3:279-283, 1981.

Bryan RN, Dauth GW, Gilman S, Hilal SK: Effects of radiographic contrast agents on spinal cord physiology. *Invest Radiol* 16:234-239, 1981.

Sessions RB, Zarin DP, Bryan RN: Juvenile nasopharyngeal angiofibroma. *Am J Dis Child* 135:535-537, 1981.

Bryan RN, Johnston D: Epileptogenic effects of radiographic contrast agents: Experimental study. *AJNR* 3:117-120, 1982.

Hershkowitz N, Bryan RN: Neurotoxic effects of water-soluble contrast agents on rat hippocampus - Extracellular recordings. *Invest Radiol* 17:271-275, 1982.

Bryan RN, Miller RH, Ferreyro RI, Sessions RB: Computed tomography of the major salivary glands. *AJR* 139:547-554, 1982.

Bryan RN: Computed tomography evaluation of Alzheimer's disease. *Neurol Clin* 4:19-23, 1982.

Som PM, Cohen BA, Sacher M, Choi IS, Bryan RN: The angiomatous polyp and the angiofibroma: Two different lesions. *Radiology* 144:329-334, 1982.

Sessions RB, Lehane DE, Smith RJH, Bryan RN, Suen JY: Intra-arterial cisplatin treatment of adenoid cystic carcinoma. *Arch Otol* 108:221-224, 1982.

Bryan RN, Centeno RS, Hershkowitz, N, Poelstra RJ, Osato MS: Neurotoxicity of iohexol - a new non-ionic contrast agent. *Radiol* 145:379-382, 1982.

Bryan RN, Willcott MR III, Schneiders NJ, Rose JE: NMR evaluation of stroke in the rat. *AJNR* 4:344-346, 1983.

Bryan RN, Miller SL, Roehm JOF Jr., Weatherall PT: Neuroangiography with iohexol. *AJNR* 4:415-417, 1983.

Horowitz BL, Hamilton DJ, Sommers CJ, Bryan RN, Boyd AE III: The effect of bromocriptine and pergolide on pituitary tumor size and serum prolactin. *AJNR* 4:415-417, 1983.

Bryan RN, Lewis RA, Miller SL: Choroidal osteoma. *AJNR* 4:491-494, 1983.

Bryan RN, Willcott MR III, Schneiders NJ, Ford JJ, Derman HS: Nuclear magnetic resonance evaluation of stroke - a preliminary report. *Radiol* 149:189-192, 1983.

Schneiders NJ, Post H, Brunner P, Ford JJ, Bryan RN, Willcott MR III, Accurate T2 NMR images. *Med Phys* 10:642-645, 1983.

Lehane DE, Bryan RN, Horowitz BL, DeSantos LA, Ehni GJ, Zubler MA, Moiel RH, Adama-Leubbert AE, Mahoney DH, Harper RL: Intra-arterial cis-platinum chemotherapy for patients with primary and metastatic brain tumors. *Cancer Drug Delivery* 1:69-77, 1983.

Kleinberg DL, Boyd AE III, Wardlaw S, Frantz AG, George A, Bryan RN, Hilal SK, Greising J, Hamilton DJ, Seltzer T, Sommers CJ: Pergolide for the treatment of pituitary tumors secreting prolactin or growth hormone. *New Eng J Med* 309:704-709, 1983.

Prasad N, Bushong SC, Thornby JI, Bryan RN, Hazlewood CF, Harrell JE: Effect of nuclear magnetic resonance on chromosomes of mouse bone marrow cells. *Magn Reson Imaging* 2:37-39, 1984.

Hershkowitz N, Bryan RN: Neurotoxic effects of water-soluble contrast agents on rat hippocampus. *Invest Radiol* 19:192-201, 1984.

Bryan RN, Hershkowitz N: Neuronal effects of water-soluble contrast agents. *Invest Radiol* 19:329-332, 1984.

Jackson JA, Derman HS, Harper RL, Willcott MR III, Ford JJ, Schneiders NJ, McCary JA III, Kelly A, Bryan RN: Nuclear magnetic resonance diagnosis of an anaplastic astrocytoma. *Magn Reson Imaging* 2:227-233, 1984.

Lipkin AF, Bryan RN, Jenkins HA: Pneumolabyrinth after temporal bone fracture: documentation by high-resolution CT. *AJNR* 6:294-295, 1985.

Schneiders NJ, Ford JJ, Bryan RN: Accurate T1 and spin density NMR images. *Med Phys* 12:71-76, 1985.

Jackson JA, Leake DR, Schneiders NJ, Rolak LA, Kelley GR, Ford JJ, Appel SH, Bryan RN: Magnetic resonance imaging in multiple sclerosis: results in 32 cases. *AJNR* 6:171-176, 1985.

Sessions RB, Lehane DE, Bryan RN, Horowitz BL: Intra-arterial cisplatin in the treatment of aerodigestive squamous carcinoma and nasopharyngeal carcinoma. *Head Neck Cancer* 1:451-455, 1985.

Wendt RE III, Murphy PH, Ford JJ, Bryan RN, Burdine JA: Alterations of spin echoes by flow and motion in NMR imaging gradients. *Magn Reson in Med* 2:527-533, 1985.

Rokey R, Verani MS, Bolli R, Kuo LC, Ford JJ, Wendt RE III, Schneiders NJ, Bryan RN, Roberts R: Quantification of myocardial infarct size by magnetic resonance imaging early after coronary artery occlusion in dogs. *Radiology* 158(3):771-774, 1986.

Chakeres DW, Bryan RN: Acute subarachnoid hemorrhage: In vitro comparison of magnetic resonance and computed tomography. *AJNR* 7(2):223-228, 1986.

Brown EW, Riccardi VM, Mawad M, Handel S, Goldman A, Bryan RN. MR imaging of optic pathways in patients with neurofibromatosis. *Am J Neuroradiol* 8:1031-36, 1987.

Simpson RK, Harper RL, Bryan RN. Emergency balloon occlusion for massive epistaxis due to traumatic carotid cavernous aneurysm—case report. *J Neurosurg* 68(2):142-144, 1988.

Schneider SJ, Grossman RG, Bryan RN. Magnetic-resonance imaging of transdural herniation of a cervical disc. *Surg Neurol* 30:216-219, 1988.

Hayman LA, Ford JJ, Taber KH, Saleem A, Round ME, Bryan RN. T2 effect of hemoglobin concentration—assessment with invitro MR spectroscopy. *Radiology* 168:489-491, 1988.

Loar CM, McCormack S, Bryan RN, Plishker GA, Hazelwood CF. A comparative-analysis of the NMR relaxation-times of two colon cancer cell-lines. *Physiol Chem Phys Med* 20:15-22, 1988.

Wendt RE, Willcott MR, Nitz W, Murphy PH, Bryan RN. MR imaging of susceptibility-induced magnetic-field inhomogeneities. *Radiology* 168:837-841, 1988.

Wendt RE, Nitz W, Murphy PH, Bryan RN. Characterization of fluid-flow using low-spatial resolution velocity spectra from NMR images. *Magnet Reson Med* 10:71-88, 1989.

Yousem DM, Arrington JA, Zinreich SJ, Kumar AJ, Bryan RN. Pituitary-adenomas—possible role of bromocriptine on intratumoral hemorrhage. *Radiology* 170:239-243, 1989.

Hayman LA, McArdle CB, Taber KH, Saleem A, Baskin D, Lee HS, Kirkpatrick JB, Herrick RC, Bryan RN. MR imaging of hyperacute intracranial hemorrhage in the cat. *Am J Neuroradiol* 10:681-686, 1989.

Hayman LA, Taber KH, Ford JJ, Saleem A, Gurgun M, Mohamed S, Bryan RN. Effect of clot formation and retraction on spin-echo MR images of blood—an in vitro study. *Am J Neuroradiol* 10:1155-1158, 1989.

Horowitz BL, Chari MV, James R, Bryan RN. MR of intracranial epidermoid tumors—correlation of in vivo imaging with C-13 spectroscopy. *Am J Neuroradiol* 11(2):299-302, 1990.

Yousem DM, Balakrishnan J, Debrun GM, Bryan RN. Hyperintense thrombus on GRASS MR images—Potential pitfall in flow evaluation. *Am J Neuroradiol* 11:51-58, 1990.

Balakrishnan J, Becker PS, Kumar AJ, Zinreich SJ, McArthur J, Bryan RN. Acquired-immuno-deficiency-syndrome—Correlation of radiologic and pathologic findings in the brain. *Radiographics* 10(2):201-215, 1990.

Eleff SM, Barker PB, Blackband SJ, Chatham JC, Johns DR, Hurko O, and Bryan RN: Phosphorous magnetic resonance spectroscopy of patients with mitochondrial cytopathies demonstrates decreased levels of brain phosphocreatine. *Ann Neurol* 27:626-630, 1990.

Meltzer CC, Bryan RN, Holcomb HH, Kimball AW, Mayberg HS, Sadzot B, Leal JP, Wagner HN, Frost JJ. Anatomical localization for PET using MR imaging. *J Comput Assist Tomogr* 14(3)418-426, 1990.

Shuper A, Bryan RN, Singer HS. Destructive encephalopathy in incontinentia pigmenti—A primary disorder. *Pediatr Neurol* 6:137-140, 1990.

Meltzer CC, Leal JP, Mayberg HS, Wagner HN Jr., Frost JJ, Bryan RN: Correction of PET data for partial volume effects in human cerebral cortex by MR imaging. *JCAT* 14(4):561-570, 1990.

Blews DE, Wang H, Kumar AJ, Robb PA, Phillips PC, Bryan RN. Intradural spinal metastases in pediatric-patients with primary intracranial neoplasms—Gd-DTPA enhanced MR vs CT myelography. *J Comput Assist Tomogr* 14(5)730-735, 1990.

Yousem DM, Arrington JA, Kumar AJ, Bryan RN. Bright lesions on sellar parasellar T1-weighted scans. *Clin Imag* 14:99-105, 1990.

Magnaldi S, White RM, Bryan RN: Encephalic lesions in neurofibromatosis: clinical manifestations and typical magnetic resonance findings. *Radiol Med (Torino)* 80(6):796-807, 1990.

Bryan RN, Levy LM, Whitlow WD, Killian JM, Preziosi JM, Rosario JA. Diagnosis of acute cerebral infarction—comparison of CT and MR imaging. *Am J Neuroradiol* 12:611-620, 1991. *Am J Roentgenology* 1991; 157:585-594.

Mayberg HS, Sadzot B, Meltzer CC, Fisher RS, Lesser RP, Dannals RF, Lever JR, Wilson AA, Ravert HT, Wagner HN, Bryan RN, Cromwell CC, Frost JJ. Quantification of mu-opiate and non-mu-opiate receptors in temporal-lobe epilepsy using positron emission tomography. *Ann Neurol* 30:3-11, 1991.

Zyed A, Hayman LA, Bryan RN. MR imaging of intracerebral blood—Diversity in the temporal pattern at 0.5-T and 1.0-T. *Am J Neuroradiol* 12:469-474, 1991. *Am J Roentgenol* 157:133-138, 1991.

Hart J, Lesser RP, Fisher RS, Schwerdt P, Bryan RN, Gordon B. Dominant-side intracarotid amobarbital spares comprehension of word meaning. *Arch Neurol* 48:55-58, 1991.

Cohen SM, Taber KH, Malatesta PF, Shpungin J, Berman C, Carlin JR, Werrmann JG, Prahalada S, Bryan RN, Cordes EH. Magnetic-resonance-imaging of the efficacy of specific-inhibition of 5alpha-reductase in canine spontaneous benign prostatic hyperplasia. *Magnet Reson in Med* 21:55-70, 1991.

Wang H, Kumar AJ, Zinreich SJ, Higgins YM, Long DM, Bryan RN. Iohexol cervical myelography in adult outpatients. *Spine* 16:1356-1358, 1991.

Capito PR, Wang H, Brem H, Ahn HS and Bryan RN: MRI diagnosis of an intracranial metastasis of adenocarcinoma of the prostate: Case report. *Md Med J* 40(2):113-5, 1991.

Holroyd S, Reiss AL, Bryan RN. Autistic features in Joubert syndrome—a genetic disorder with agenesis of the cerebellar vermis. *Biol Psychiatr* 29:287-294, 1991.

Eleff SM, Maruki Y, Monsein LH, Traystman R, Bryan RN, Koehler RC. Sodium, ATP and intracellular pH transients during reversible complete ischemia of dog cerebrum. *Stroke* 22: 233-241, 1991.

Reiss AL, Aylward E, Freund L, Joshi P, Bryan RN. Neuroanatomy of fragile-X-Syndrome—The posterior Fossa. *Ann Neurol* 29:26-32, 1991.

Hayman LA, Taber KH, Ford JJ, Bryan RN. Mechanisms of MR signal alteration by acute intracerebral blood—Old concepts and new theories. *Am J Neuroradiol* 12(5):899-907, 1991.

Barker PB, Bryan RN, Kumar AJ, and Naidu S. Proton NMR-spectroscopy of Canavans disease. *Neuropediatrics* 23:263-267, 1992.

Conturo TE, Barker PB, Mathews VP, Monsein LH, Bryan RN. MR imaging of cerebral perfusion by phase-angle reconstruction of bolus paramagnetic-induced frequency-shifts. *Magn Reson Med* 27:375-390, 1992.

MullerGartner HW, Links JM, Prince JL, Bryan RN, McVeigh E, Leal JP, Davatzikos C, Frost JJ. Measurement of radiotracer concentration in brain gray-matter using positron emission tomography—MRI-based correction for partial volume effects. *J Cerebr Blood F Metab* 12:571-583, 1992.

Mathews VP, Alo PL, Glass JD, Kumar AJ, Mcarthur JC, Bryan RN: AIDS-related CNS cryptococcosis:Radiologic-Pathologic Correlation. *AJNR* 13:1477-1486, 1992.

Ettinger WH, Wahl PW, Kuller LH, Bush TL, Tracy RP, Manolio TA, Borhani NO, Wong NE, Oleary DH, Fursberg CD, Bond ME, Heiss G, Klopfenstein S, et al. Lipoprotein lipids in older people—results from the Cardiovascular Health Study. *Circulation* 86:858-869, 1992.

Schreiber MH, Bryan RN, Jones B, McNiesch LM, Ringertz HG, Rubin SA. Image interpretation session—Sunday, November 29, 1992. *RadioGraphics* 12:997-1009, 1992.

Barker PB, Blackband SJ, Chatham JC, Soher B, Bryan RN. Quantitation of proton NMR-spectra of the human brain using tissue, water as an internal concentration reference. *NMR in Biomedicine* 6:89-94, 1993.

Monsein LH, Mathews VP, Barker PB, Pardo CA, Blackband SJ, Whitlow WD, Wong DF, Bryan RN. Irreversible regional cerebral-ischemia—Serial MR-imaging and proton MR spectroscopy in a nonhuman primate model. *Am J Neuroradiol* 14:963-970, 1993.

Candy EJ, Hoon AH, Capute AJ, Bryan RN. MRI in motor delay—Important adjunct to classification of cerebral-palsy. *J Pediatr Neurol* 9(6)421-429, 1993.

Singer HS, Reiss AL, Brown JE, Aylward EH, Shih B, Chee E, Harris EL, Reader MJ, Chase GA, Bryan RN, Denckla MB. Volumetric MRI changes in basal ganglia of children with Tourettes-syndrome. *Neurology* 43:950-956, 1993.

Huson FR, Bryan RN, MacKay WW, Herrick RC, Colvin J, Ford JJ, Pissanetzky S, Plishker GA, Rocha R, Schmidt W, Teodorescu M, Shotzman G, Zeigler J. A high-field superferric NMR magnet. *Magn Reson Med* 29:25-31, 1993.

Ackerman SJ, Gitlin JN, Gayler RW, Flagle CD, Bryan RN. Receiver operating characteristic analysis of fracture and pneumonia detection—Comparison of laser-digitized workstation images and conventional analog radiographs. *Radiology* 186:263-268, 1993.

Zinreich SJ, Tebo S, Long DM, Brem H, Mattox DE, Loury ME, Vanderkolk CA, Koch WM, Kennedy DW, Bryan RN. Frameless stereotactic integration of CT imaging data—Accuracy and initial applications. *Radiology* 188(3):735-742, 1993.

Reiss AL, Faruque F, Naidu S, Abrams M, Beaty T, Bryan RN, Moser H. Neuroanatomy of Rett-syndrome. *Ann Neurol* 34:227-234, 1993.

Manolio TA, Ettinger WH, Tracy RP, Kuller LH, Borhani NO, Lynch JC, Fried LK, Burke GL, Cody ME, Cruise RG, Ettinger WH, et al. Epidemiology of low cholesterol levels in older adults—The Cardiovascular Health Study. *Circulation* 87:728-737, 1993.

Tell GS, Rutan GH, Kronmal RA, Bild DE, Polak JF, Wong ND, Borhani NO, Burke GL, Ettinger WH, Elster A, Furberg CD, et al. Correlates of blood-pressure in community-dwelling older adults—The Cardiovascular-Health Study. *Hypertension* 23:59-67, 1994.

Breiter SN, Arroyto S, Mathews VP, Lesser RP, Bryan RN, Barker PB. Proton magnetic resonance spectroscopy in patients with seizure disorders. *Am J Neuroradiol* 15:373-384, 1994.

Fellows DF, King D, Conturo T, Bryan RN, Merz WG, Zinreich SJ. In Vitro evaluation of hypo-intensity in aspergillus colonies. *Am J Neuroradiol* 15:1139-1144, 1994.

Itoh T, Magnaldi S, White RM, Denckla MB, Hofman K, Naidu S, Bryan RN. Neurofibromatosis Type 1—The evolution of deep gray and white-matter abnormalities. *Am J Neuroradiol* 15:1513-1519, 1994.

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Williams MA, Razumovsky AY, Diringer MN, Monsein LH, Debrun GM, Bryan RN, Hanley DF: Transcranial doppler sonographic (TCD) monitoring of basilar artery thrombolysis. in Thrombolytic Therapy in Acute Ischemic Stroke II, delZoppo G.J., Mori E, Hacke W (Eds.), Springer-Verlag, Berlin, 298-298-300, 1993.

Vander Kolk CA, Zinreich SJ, Carson BS, Bryan N and Manson PN: An interactive 3d-CT surgical localizer for craniofacial surgery. in Craniofacial Surgery. Montoya AD (Ed), Monduzzi Bologna, Italy, 25-26, 1993.

Mathews VP, Whitlow WD, Bryan RN: Clinical magnetic resonance evaluation of cerebral ischemia and infarction. In Atlas (eds.), Magnetic Resonance Imaging of Brain and Spine, Raven Press, 1996

Beauchamp, N, Bryan RN: Neuroimaging of stroke. Primer on Cerebrovascular Disease. Welch KMA, Kaplan L, Reis D, Siesjo B, Weir B (Eds.)

Davatzikos C, Vaillant M, Resnick S, Prince JL, Letovsky S, RN: Morphological analysis of brain structures using spatial normalization. Lecture Notes in Computer Science 1996; 1131: 355-360. Proceedings of Visualization in Biomedical Computing, pp. 366-360, Hamburg, September, 1996.

Valliant M, Davatzikos C, Taylor RH, Bryan RN. A path-planning algorithm for image-guided neurosurgery. Lecture Notes in Computer Science 1205:467-476, 1997.

Bryan, RN., Libuitti, SK. Image-Guided Surgery. Chapter 64 of Cancer: Principles and Practice of Oncology, June 2001.

Books

DISORDERS OF THE HEAD AND NECK (Third Series). Edited by Potter GD, Som PM, Wever AL, Weinberg PE, Bryan RN, Hanafee WN. Chicago, American College of Radiology, 1984. DISORDERS OF THE HEAD AND NECK (Fourth Series). Edited by Weinberg PE, Batnitsky S, Bentson JR, Bryan RN, Naidich TP, Sackett JF, Zimmerman RA. Chicago, American College of Radiology, 1986.

Films

Peyster and Bryan. Videotape "Orbital Imaging", November 1990

Bryan RN. "Imaging My Brain", 1992, updated 1999.

Patents

4T Magnet
ISG Wand

Past Grant Support

Early Markers of Alzheimer's Disease in Selected Baltimore Longitudinal Study of Aging Participants
5 yrs; 9/30/93 - 9/29/98

Spatially Oriented Database for Digital Brain Images
2 yr; 9/30/95 - 6/30/97

The Physiologic Imaging of Human Brain Tumors
5 yr; 7/1/91 - 6/30/96

Magnetic Resonance Imaging Reading Center for Atherosclerosis Risk in Communities Study (ARIC)
3.25 yr; 12/1/92 - 2/28/96

Cerebral Magnetic Resonance Imaging for Evaluation of Stroke: Risk Factors in the Cardiovascular Health Study.
8.5 yr; 9/6/91 - 5/31/00

Nuclear Magnetic Resonance Evaluation of Stroke
6 yr; 1/1983 - 12/1989

Biomedical Visualization Supercomputer
4/01/96

Neurotoxicity of Radiographic Contrast Agents
4 yr; 1990-94

Trainees

Neuroradiology Fellows(Clinical)
1977-78

Barry L. Horowitz, M.D. (1st yr)
Walter C. Stickel, M.D. (1st yr)

1978-79

Barry L. Horowitz, M.D., (1st yr)
Emil Garnil, M.D. (1st yr)
Roque I. Ferreyro, M.D., (1st yr)

1979-80

Roque L. Ferreyro, M.D., (2nd yr)

1980-81

Ricardo S. Centeno, M.D. (2nd yr)

1981-82

Larry E. Yeager, M.D. (2nd yr)

1982-83

Eric E. Awwad, M.D. (1st yr)
David R. Leake, M.D., (1st yr)
Susan W. Weathers, M.D. (1st yr)

1983

George W. Allibone, M.D., (1st yr)

1983-84

David R. Leake, M.D. (18 mo)
Eric Awwad, M.D., (2nd yr)
Susan W. Weathers, M.D., (2nd yr)
Marlin E. Sandlin, M.D., (1st yr)

1984

John T. Forsythe, M.D., (1st yr)

1984-85

Marlin E. Sandlin, M.d., (2nd yr)
Randall D. Blackwell, M.D. (1st yr)

1985-86

Randall D. Blackwell, M.D. (2nd yr)
Reese J. James, D.O. (1st yr)

1986-87

Reese J. James, D.O. (2nd yr)

1987

David King, M.D. (1st yr)
David Jenkins, M.D., (1st yr)

1988-89

Janaki Balakrishnan, M.D. (2nd yr JHU)
Stuart Point, M.D., (1st yr)
James Lim, M.D. (1st yr)
Warren Whitlow, M.D. (1st yr)
Lucien Levy, M.D. (1st yr)
Lee Monsein, M.D., (1st yr)

1989-90

Errol Candy, M.D. (1st yr)
Clifford Katz, M.D. (1st yr)
Paul Leslie, M.D., (1st yr)
Hector Robles-Gonzales, M.D. (1st yr)
Robert White, M.D. (1st yr)
Stuart Point, M.D., (2nd yr)
James Lim, M.D. (2nd yr)
Warren Whitlow, M.D. (2nd yr)
Lucien Levy, M.D., (2nd yr)
Lee Monsein, M.D., (2nd yr)

1990-91

Victor Aletich, M.D., (1st yr)
Steve Breiter, M.D., (1st yr)
Grace Lee, M.D., (1st yr)
Vincent Mathews, M.D., (1st yr)
Larry Schertz, M.D. (1st yr)
Errol Candy, M.D (2nd yr)
Paul Leslie, M.D. (2nd yr)
Hector Robles-Gonzales, M.D. (2nd yr)
Robert White, M.D., (2nd yr)

1991-92

Douglas Fellows, M.D., (1st yr)
Michael Kraut, M.D., (1st yr)
Tim Miller, M.D., (1st yr)
Nancy Yue, M.D. (1st yr)
Victor Aletich, M.D., (2nd yr)
Steve Breiter, M.D., (2nd yr)
Grace Lee, M.D., (2nd yr)
Vincent Mathews, M.D., (2nd yr)
Larry Schertz, M.D., (2nd yr)

1992-93

Ann Lee, M.D., (1st yr)
Carolyn Meltzer, M.D. (1st yr)
Scott Wells, M.D. (1st yr)
Doug Fellows, M.D., (2nd yr)
Michael Kraut, M.D., (2nd yr)
Tim Miller, M.D., (2nd yr)
Nancy Yue, M.D., (2nd yr)

1993-94

Mark Benson, M.D., (1st yr)
Azar Dagher, M.D., (1st yr)
Elias Melhem, M.D. (1st yr)
Patrick Oliverio, M.D., (1st yr)
Carolyn Meltzer, M.D., (2nd yr)
Scott Wells, M.D., (2nd yr)

1994-95

Norman Beauchamp, M.D. (1st yr)
Mark DeLano, M.D., (1st yr)
Bruce Hall, M.D., (1st yr)
Martin Pomper, M.D., (1st yr)
John Stockel, M.D., (1st yr)
Mark Benson, M.D., (2nd yr)
Azar Dagher, M.D., (2nd yr)
Elias Melhem, M.D., (2nd yr)
Patrick Oliverio, M.D., (2nd yr)

1995-96

Alberto Bizzi, M.D., (1st yr)
Naiyer Imam, M.D., (1st yr)
Edward Herskovits, M. D.(1st yr)
Timothy Eckel, M.D., (1st yr)
Joseph Lurito, M.D., (1st yr)
Bruce Hall, M.D., (2nd yr)
Norm Beauchamp, M.D., (2nd yr)
Mark DeLano, M.D., (2nd yr)
Martin Pomper, M.D. (2nd yr)
John Stockel, M.D., (2nd yr)

1996-97

Alberto Bizzi, M.D., (2nd yr)
Naiyer Imam, M.D., (2nd yr)
Edward Herskovits, M.D., (2nd yr)
Timothy Eckel, M.D., (2nd yr)
Joseph Lurito, M.D., (2nd yr)
Charles H. Cho, M.D., (1st yr)
Clifford J. Belden, M.D., (1st yr)

Research Fellows

Jonathan H. Gillard, M.D. (two years)
Amr El-Khadrawy, M.D. (Two years)
Ahmet Algidere, M.D. (one year)
Takashi Ito, M.D. (one year)
Paul Wang, M.D. (one year)

Manuscripts In Preparation

McClelland RL, Kronmal RA, Bryan RN, Manolio TA, Herskovits E, Kuller LH, O'Leary DH, Price TR. Neurologic Correlates of Infarct Location in the Cardiovascular Health Study.
Eckel TS, DeLano MC, Lenz F, Bryan RN. Evaluation of Deep Gray Matter Anatomy with Fast Spin Echo Inversion Recovery MR: Nuclear Delineation and Application to Stereotaxic Neurosurgery.
Beauchamp, N., Bryan, RN T2-Weighted White Matter Hyperintensity on Cerebral Magnetic Resonance Imaging-A Predictor of Future Stroke Risk.
Grados MA, Slomine E, Gerring JP, Vasa R, Bryan RN, Denckla MB. A Depth of Lesion Model in Children and Adolescents with Moderate-to-Severe Traumatic Brain Injury: Use of SPGR MRI to Predict Severity and Outcome. Journal of Neurology, Neurosurgery and Psychiatry.