

Name: Patrick D. Barnes, M.D. 2021

Retired: Inaugural Chief, Pediatric Neuroradiology
Inaugural Director, Pediatric MRI & CT Center
Lucile Packard Children's Hospital at Stanford
Professor of Radiology, Emeritus
Pediatric Radiology and Neuroradiology
Stanford University Medical Center

Former Office Address: Department of Radiology
Lucile Salter Packard Children's Hospital
Stanford University Medical Center
725 Welch Road
Palo Alto, CA 94304

E-Mail: pbarnes@stanford.edu

Website: <http://www.stanford.edu/~pbarnes/>

Stanford Profile: <https://profiles.stanford.edu/patrick-barnes>

Date & Place of Birth: February 3, 1948 Oklahoma City, Oklahoma, USA

Education:

1965-1969	Letters / Pre-Medicine	University of Oklahoma, Norman, OK
1969-1973	Doctor of Medicine	University of Oklahoma College of Medicine, Oklahoma City, OK

Postdoctoral Training:

Residency:

1973-1976 Diagnostic Radiology, University of Oklahoma College of Medicine, Oklahoma City, Oklahoma

Fellowship:

1976-1977 Fellow in Pediatric Neuroradiology and Cardiovascular Radiology, Children's Hospital and Harvard Medical School, Boston, MA

Licensure and Certification:

1973	Federal Licensure Examination Certificate
1974	Oklahoma State Board of Medical Examiners
1977	American Board of Radiology Certificate in Diagnostic Radiology
1986	Commonwealth of Massachusetts Board of Registration in Medicine
2000	Medical Board of California C50437
1995	American Board of Radiology Certificate of Added Qualifications in Neuroradiology
2008	American Board of Radiology Maintenance of Certification in Neuroradiology

Academic Appointments:

1976-1977 Instructor in Radiology, University of Oklahoma College of Medicine

1977-1986 Lecturer in Radiologic Technology, University of Oklahoma College of Health

1977-1982 Assistant Professor of Radiology, University of Oklahoma College of Medicine

1980-1986 Adjunct Faculty, Radiologic Technology, Oscar Rose Junior College

1980-1986 Clinical Assistant Professor of Neurosurgery, University of Oklahoma College of Medicine

1982-1986 Associate Professor of Radiology, University of Oklahoma College of Medicine

1987-1992 Assistant Professor Radiology, Harvard Medical School

1992-2000 Associate Professor of Radiology, Harvard Medical School

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2000- Clinical Associate Professor of Radiology, Stanford University Medical Center

2002- Associate Professor of Radiology, Stanford University Medical Center

2007- Professor of Radiology, Stanford University Medical Center

2018 - Emeritus Professor of Radiology (Pediatric Radiology – Neuroradiology), Stanford University Medical Center, Stanford CA.

Hospital and Affiliated Institution Appointments:

1977-1986 Pediatric Radiologist, Neuroradiology and Cardiovascular Radiology, Oklahoma Children's Memorial Hospital, Oklahoma City, Oklahoma

1977-1986 Consulting Radiologist, Oklahoma Memorial Hospital and Veterans Administration Hospital, Oklahoma City, Oklahoma

1984-1986 Consulting Radiologist, Oklahoma Diagnostic Imaging Center, Oklahoma City, Oklahoma

1987-1991 Associate Radiologist, Neuroradiology, The Children's Hospital, Boston, MA

1987-2000 Consulting Radiologist, Brigham and Women's Hospital, Beth Israel Hospital, New England Deaconess Hospital, Dana Farber Cancer Institute, Boston, MA

1990-1997 Clinical Coordinator, Magnetic Resonance Imaging, Children's Hospital, Boston, MA

1992-1995 Chief, Section of Neuroradiology, Department of Radiology, Children's Hospital, Boston, MA

1995-1999 Chief, Division of Neuroradiology, Department of Radiology, Children's Hospital, Boston, MA

1995-2000 Board of Directors, Children's Hospital Radiology Foundation, Inc.

1996-2000 Clinical Executive Committee, Department of Radiology, Children's Hospital, Boston, MA

1997-1998 Associate Director of CT, Department of Radiology, Children's Hospital, Boston, MA

1997-1999 Director of MRI, Department of Radiology, Children's Hospital, Boston, MA

- 1999-2000 Director, Division of Neuroradiology, Department of Radiology, Children's Hospital, Boston, MA
- 1999-2000 Treasurer, Children's Hospital Radiology Foundation, Inc.
- 1999-2000 Associate Chief for Clinical Operations, Department of Radiology, Children's Hospital, Boston, MA
- 2000 Senior Associate Neuroradiologist, Department of Radiology, Beth Israel Deaconess Medical Center, and Harvard Medical Faculty Physicians, Inc.
- 2000- Staff Physician, Pediatric Neuroradiologist, Lucile Salter Packard Children's Hospital and Stanford University Medical Center
- 2001- Interim Director, Pediatric Radiology, Lucile Salter Packard Children's Hospital (Jun-Aug./ JCAHO Survey)
- 2002- Chief, Section of Pediatric Neuroradiology, Lucile Salter Packard Children's Hospital, Stanford University Medical Center, Palo Alto, CA
- 2002- Co-Medical Director, MRI/CT Center, Lucile Salter Packard Children's Hospital

Other Professional Positions and Major Visiting Appointments:

- 1988 Visiting Professor, The Western Pennsylvania Hospital, Pittsburg, PA
- 1989 Visiting Professor, New England Medical Center and Tufts University Medical School, Boston, MA
- 1989 Visiting Professor, Akron Children's Hospital, Akron General Hospital, and Northeastern Ohio Universities College of Medicine, Akron, Ohio
- 1990 Visiting Professor, Rhode Island Hospital and Brown University College of Medicine, Providence, R.I.

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- 1991 Visiting Professor, University of Massachusetts Medical Center and Medical School, Worcester, MA
- 1993 Visiting Professor, Columbus Children's Hospital and the Ohio State University Hospitals, Columbus, OH
- 1993 Visiting Professor, Christchurch Hospital, University of Otago, Christchurch, New Zealand
- 1993 Visiting Professor, Royal Children's Hospital, University of Melbourne, Melbourne, Australia
- 1993 Visiting Professor, Royal Alexandra Hospital for Children, University of Sydney, Sydney, Australia
- 1993 Visiting Professor, Prince of Wales Children's Hospital, University of New South Wales, Sydney, Australia
- 1997 Visiting Professor, Montreal Children's Hospital, Montreal General Hospital, Montreal Neurologic Institute, McGill University, Montreal, Quebec, Canada
- 1998 Visiting Professor, Children's Hospital of Pittsburgh, University of Pittsburgh, Pittsburgh, PA
- 1998 Visiting Professor, William Beaumont Hospital, Royal Oak, MI
- 2000 Visiting Professor, Rhode Island Hospital and the Hasbro Children's Hospital Brown University School of Medicine, Providence, RI

- 2000 Visiting Professor, Massachusetts General Hospital, The Mass General Hospital for Children, and Harvard Medical School, Boston, MA
- 2008 Visiting Professor, Department of Radiology, Duke University Medical Center, Durham NC.
- 2009 Visiting Professor, Department of Radiology, Hospital for Sick Children, University of Toronto, Toronto Ontario Canada.
- 2010 Visiting Professor, Department of Radiology, University of Arizona Medical Center, Tucson AZ.
- 2010 Visiting Professor, Department of Radiology, Vancouver General Hospital, BC Children's Hospital, University of British Columbia, Vancouver BC, Canada.

Hospital and Health Care Organization Service Responsibilities:

- 1977-1986 Staff Pediatric Radiologist and Section Chief, Pediatric Neuroradiology and Cardiovascular Radiology, Oklahoma Children's Memorial Hospital
- 1987-1992 Associate Radiologist, Neuroradiology, The Children's Hospital, Harvard Medical School, Boston, MA
- 1992-1995 Chief, Section of Neuroradiology, Department of Radiology, Children's Hospital, Boston, MA
- 1995-2000 Chief, Division of Neuroradiology, Department of Radiology, Children's Hospital, Boston, MA
- 1997-1998 Associate Director of CT, Department of Radiology, Children's Hospital, Boston, MA
- 1997-1999 Director of MRI, Department of Radiology, Children's Hospital, Boston, MA
- 1999-2000 Director, Division of Neuroradiology, Department of Radiology, Children's Hospital, Boston, MA
- 1999-2000 Associate Chief for Clinical Operations, Department of Radiology, Children's Hospital, Boston, MA
- 2000- Pediatric Neuroradiologist, Lucile Salter Packard Children's Hospital and Stanford University Medical Center
- 2001- Section Chief, Pediatric Neuroradiology, Lucile Salter Packard Children's Hospital, Stanford University Medical Center
- 2001- Interim Director, MRI/CT Center, Lucile Salter Packard Children's Hospital, Stanford University Medical Center
- 2002- Interim Director, Pediatric Radiology, Lucile Salter Packard Children's Hospital (Jun-Aug./ JCAHO Survey)
- 2002- Chief, Section of Pediatric Neuroradiology, Lucile Salter Packard Children's Hospital, Stanford University Medical Center, Palo Alto, CA
- 2002- Medical Co-Director, MRI/CT Center, Lucile Salter Packard Children's Hospital

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Major Administrative Responsibilities:

- 1984-1986 Clinical Project/Program Consultant, Oklahoma Diagnostic Imaging Center, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma
- 1985-1986 Clinical Project/Program Director, Oklahoma Teaching Hospitals, Magnetic Resonance Center
- 1987-1990 Clinical Coordinator, The Children's Hospital MRI Determination-Of-Need Process, Department of Public Health, The Commonwealth of Massachusetts, DON Certification, Jan. 1988.
- 1987-1990 Clinical Coordinator for MRI, The Children's Hospital and The Joint Center for Magnetic Resonance Imaging
- 1990-1997 Clinical Coordinator, Children's Hospital MRI Service.
- 1992-1995 Chief, Section of Neuroradiology, Department of Radiology, Children's Hospital, Boston, MA
- 1992-1999 Co-Director, Combined Neuroradiology Fellowship Program, Brigham & Women's Hospital, Beth Israel Hospital, Children's Hospital, New England Deaconess Hospital, Boston, MA
- 1992-1999 Director, Pediatric Neuroradiology Fellowship Program, Department of Radiology, Children's Hospital, Boston, MA
- 1995-2000 Chief, Division of Neuroradiology, Department of Radiology, Children's Hospital, Boston, MA
- 1996-2000 Board of Directors, Children's Hospital Radiology Foundation, Inc (CHRFI), Children's Hospital, Boston, MA
- 1996-2000 Clinical Executive Committee, Department of Radiology, Children's Hospital, Boston, MA
- 1997-1998 Associate Director of CT, Department of Radiology, Children's Hospital, Boston, MA
- 1997-1999 Director of MRI, Department of Radiology, Children's Hospital, Boston, MA
- 1998-1999 Chair, Bylaws Committee, Children's Hospital Radiology Foundation, Inc (CHRFI), Children's Hospital, Boston, MA
- 1999-2000 Treasurer, Children's Hospital Radiology Foundation, Inc.
- 1999-2000 Director, Division of Neuroradiology, Department of Radiology, Children's Hospital, Boston, MA
- 1999-2000 Associate Chief for Clinical Operations, Department of Radiology, Children's Hospital, Boston, MA
- 2000- Pediatric Neuroradiologist, Lucile Salter Packard Children's Hospital and Stanford University Medical Center
- 2001- Interim Director, Pediatric Radiology, Lucile Salter Packard Children's Hospital (Jun-Aug./ JCAHO Survey)
- 2002- Chief, Section of Pediatric Neuroradiology, Lucile Salter Packard Children's Hospital, Stanford University Medical Center, Palo Alto, CA
- 2002- Medical Co-Director, MRI/CT Center, Lucile Salter Packard Children's Hospital

Major Committee Assignments:

Hospital and Medical School:

- 1977-1981 Safety Committee, Oklahoma Children's Memorial Hospital

1977-1986 Neonatal Care Committee, Oklahoma Children's Memorial Hospital
1977-1986 Utilization Review Committee, Oklahoma Children's Memorial Hospital

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1979-1986 Education and Research Committee, Oklahoma Children's Memorial Hospital
1984-1985 Chairman, State of Oklahoma Teaching Hospitals Task Force on Magnetic Resonance, Oklahoma City, OK
1985-1986 Quality Assurance Committee, Oklahoma Children's Memorial Hospital
1988-1990 Chairman, Joint Center for Magnetic Resonance Imaging, Consortium Clinical and Research Committee, Boston, MA
1988-2000 Pediatric Brain Tumor Working Group, The Children's Hospital and Dana-Farber Cancer Institute, Boston
1988 Steering Committee, Magnetic Resonance Imaging, Department of Radiology, The Children's Hospital, Boston
1989-1991 Chair, Radiology Quality Assurance/Quality Improvement Audit Committee, Children's Hospital, Boston
106. Radiology Quality Improvement/Risk Management Committee, Children's Hospital, Boston
1992- Neuroradiology Consultant, Child Protection Service, Children's Hospital, Boston
1992-2000 Department of Radiology Sedation & Contrast Media Committee, Children's Hospital, Boston
1996 Review of the Department of Neurology, Ad Hoc Review Committee, Children's Hospital, Boston
1998-1999 Neuroscience Business Planning Steering Committee and Marketing Team, Children's Hospital, Boston
1998-1999 Harvard Medical School Information Technology Initiative, Hospital and Clinical Linkages Committee, Harvard Medical School and Children's Hospital, Boston
1991-1999 Representative, Department of Radiology, Physician's Leadership Council of the Physician's Organization, Children's Hospital, Boston
2000- Sedation Committee, Lucile Salter Packard Childrens Hospital at Stanford, Palo Alto, CA
2000- MR / CT Imaging Facility Planning Committee, Lucile Salter Packard Childrens Hospital at Stanford, Palo Alto, CA
2000- 6-Sigma GEMS MR Capacity Committee, Stanford University Medical Center, Palo Alto, CA.
2005- Phases I, II LPCH Expansion Committee, Imaging.

Regional:

1985-1986 Consultant on MRI, Oklahoma Health Planning Commission, Technical Advisory Committee, Oklahoma City, OK

2008- Member, Child Abuse Task Force, SCAN Team, Lucile Packard Children's Hospital, Stanford University Medical Center, and Santa Clara Valley Medical Center.

National:

1987-1999 Quality Assurance Review Center, National Brain Tumor Committee, and Diagnostic Imaging Committee, Pediatric Oncology Group - High-risk Medulloblastomas, Providence RI

1991-1993 Pediatric Medical Advisory Board for MRI, General Electric Medical Systems.

1991-2000 Member, Neurology Major Test Committee, American Board of Psychiatry and Neurology, National Board of Medical Examiners, Philadelphia, PA

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1998 Expert Panel Participant, Evidence-Based Guideline Development for the Management of Children Younger than Two Years of Age with Minor Head Trauma, Packard Foundation.

2000- Expert Panel Participant, Evidence-Based Neuroimaging in the Neonate-Practice Parameter Development Committee, American Academy of Neurology.

2005- Neuroradiologic Consultant / Central Reviewer, Neuroimaging and Neurodevelopmental Outcome for Extreme Preterm Infants, SUPPORT Multicenter Project, for the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD), Neonatal Research Network.

2006- Neuroradiologic Consultant / Central Reviewer, Intervention Trial of Hypothermia for Term HIE Multicenter Project, for the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD), Neonatal Research Network

2007-2008 Chair, Child Abuse Task Force, Society for Pediatric Radiology.

2015-2016 Neuroradiology consultant, AACPD (American Academy for Cerebral Palsy and Developmental Medicine) Neuroimaging Diagnostics Work Group.

Professional Societies and Offices:

1977-1986 Oklahoma County Medical Society

1977-1986 Oklahoma State Medical Association

1977-1986 Central Oklahoma Radiological Society

1977-1986 Oklahoma State Radiological Association

1977-1986 Central Oklahoma Pediatric Society

1977-1986 Oklahoma City Clinical Society

1977-1986 Oklahoma Neurological Society

1977- American Medical Association

1977- Radiologic Society of North America

1977- American College of Radiology
 1980-1986 Rocky Mountain Neurosurgical Society
 1980- Society for Pediatric Radiology
 1980- American Society of Neuroradiology
 1980- American Roentgen Ray Society
 1987- New England Roentgen Ray Society
 1987- Boston Neuroradiology Club
 1987- Boston Pediatric Radiology Club
 1987- Massachusetts Radiological Society
 1988-1998 Society of Magnetic Resonance Imaging
 1991-1992 Member, Pediatric Neuroradiology Subcommittee on Training and Practice Standards, American Society of Neuroradiology
 1991- The Kirkpatrick Society
 1992-1996 Chair, Pediatric Neuroradiology Committee, Society for Pediatric Radiology
 1992-1998 Chair, Pediatric Neuroradiology Subcommittee on Training and Standards, American Society of Neuroradiology
 1992-1993 Co-Founder and member-at-large, Steering Committee, Pediatric Neuroradiology Section of the American Society of Neuroradiology - the American Society of Pediatric Neuroradiology
 1993-1995 Member-at-Large, Executive Committee, American Society of Pediatric Neuroradiology, and alternate Representative to Subspecialty Council, American Society of Neuroradiology
 1995-1996 Treasurer, American Society of Pediatric Neuroradiology
 1996-1997 Secretary and Chair, Membership Committee, American Society of Pediatric Neuroradiology
 1996 Chair, Subcommittee "Standard for Cranial Computed Tomography in Infants and Children", The Society for Pediatric Radiology and American College of Radiology

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1997 Chair, Subcommittee "Standard for Cranial Magnetic Resonance Imaging in Infants and Children", The Society for Pediatric Radiology and American College of Radiology
 1996 Member, Subcommittee "Standard for Sedation/Analgesia in Pediatric Radiology" (M. Cohen, Chair), The Society for Pediatric Radiology and American College of Radiology
 1997-1998 Vice President, President-Elect, and Chair, Nominating/Award Committee, American Society of Pediatric Neuroradiology
 1998 Member, Caffey Awards Committee, Society for Pediatric Radiology 41st Annual Meeting, Tucson, AZ, May 7-9
 1998 Chair, Derek Harwood-Nash Award Committee, American Society of Pediatric Neuroradiology, American Society of Neuroradiology 36th Annual Meeting, Philadelphia, PA, May 17-21
 1998-1999 President and Chair, Program/Education Committee, American Society of Pediatric Neuroradiology

- 1998-1999 Member, Executive Committee, Program Committee, Clinical Practice Committee, Clinical Outcomes Research Committee, American Society of Neuroradiology
- 1999-2000 Chair, Board of Directors, American Society of Pediatric Neuroradiology
- 2000- Chair, Standards and Guidelines Committee, American Society of Pediatric Neuroradiology
- 2000- Member, Child Abuse Committee, Society for Pediatric Radiology
- 2007 Chair, Child Abuse Task Force, Society for Pediatric Radiology
- 2008- Member, Child Abuse Task Force, Society for Pediatric Radiology
- 2008- Member, Neuroradiology Committee, Society for Pediatric Radiology

Editorial Boards:

- 1988- Reviewer, Radiology (journal of the Radiological Society of North America)
- 1988- Reviewer, American Journal of Neuroradiology (journal of the American Society of Neuroradiology)
- 1991- Editorial Board, Reviewer, Journal of Child Neurology
- 1991- Reviewer, American Journal of Roentgenology (American Roentgen Ray Society)
- 1993- Reviewer, Neuroradiology
- 1993- Reviewer, Pediatrics
- 1993- Reviewer, Journal of Pediatrics
- 1994- Editorial Board, Reviewer, Pediatric Radiology (Journal of The Society for Pediatric Radiology and the European Society for Pediatric Radiology)
- 1995-1997 Associate Editor for Pediatric Neuroradiology, International Medical Image Registry
- 1995- Reviewer, Journal of Computed Assisted Tomography
- 1997- Reviewer, Neurology

Awards and Honors:

- 1966 President, President’s Leadership Class, University of Oklahoma
- 1967 Beta Theta Pi Fraternity, Academic Chair, University of Oklahoma
- 1969 Letseizer Honor List, University Of Oklahoma
- 1969 PE-ET Top Ten Men’s Honor Society, University of Oklahoma
- 1972 Alpha Omega Alpha Society, University Oklahoma College of Medicine
- 1973 Graduation with Honors, Doctor of Medicine, University of Oklahoma College of Medicine

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- 1995 Derek Harwood-Nash Outstanding Pediatric Neuroradiology Paper: Tzika AA, Barnes PD (mentor), Tarbell NJ, Nelson SJ, Scott RM. “Multivoxel proton spectroscopy of childhood brain tumors”, presentation at ASNR 33rd Annual Meeting, Chicago, IL.
- 1996 Spirit Award, Children's Hospital, Boston, MA.
- 1996 Honorary Member, Australasian Society of Pediatric Imaging

- 1997 Kirkpatrick Young Investigator Award: Alberico RA, Barnes PD (mentor), Robertson RL, Burrows PE. "Dynamic cerebrovascular imaging in pediatric patients with use of helical CT angiography", paper presentation at the Society for Pediatric Radiology 40th Annual Meeting, St. Louis, MO.
- 1997 Cum Laude Citation (Scientific Exhibit): Levine D, Barnes PD (mentor), Madsen JR, Hulka CA, Li W, Edelman RR. "HASTE MR imaging improves sonographic diagnosis of fetal central nervous system anomalies", scientific exhibit and paper presentation at Radiological Society of North America 83rd Scientific Assembly and Annual Meeting, Chicago, IL.
- 1998 John A. Kirkpatrick Jr. Teaching Award, Pediatric Radiology Fellowship Program, Department of Radiology, Children's Hospital and Harvard Medical School, Boston, MA.
- 1999 Derek Harwood-Nash for Outstanding Pediatric Neuroradiology Paper: Robertson RL, Ben-Sira L, Schlaug G, Maier SE, Mulkern RV, Duplessis A, Barnes PD (mentor), Robson CD. Line scan diffusion imaging of the brain in neonatal cerebral infarction, paper presented at the ASNR/ASPNR Annual Meeting, San Diego, CA.
- 2000 Medical Intelligence Corporation Scientific Achievement Award for Outstanding Contributions to Neuroimaging in Enhancing Understanding of Timing of Fetal Injury, Las Vegas, Nevada, October 19, 2000.
- 2000 Outstanding Head & Neck Radiology Paper: Robson CD, Mulliken JB, Robertson RL, Proctor MR, Barnes PD (mentor). Prominent basal emissary foramina in syndromic craniosynostosis – correlation with phenotype and molecular diagnosis, paper presented at the ASNR/ASPNR/ASHNR Annual Meeting, Atlanta, GA, May 2000.
- 2001 Award of Appreciation for Service & Leadership as Past President 1998-1999, The American Society of Pediatric Neuroradiology, American Society of Neuroradiology 39th Annual Meeting, Boston, MA, April 23, 2001.
- 2003 Stanford B. Rossiter Senior Faculty of the Year 2002-2003. Outstanding Contributions to Resident Education, Compassionate Patient Care, and Research, Department of Radiology, Stanford University Medical Center.
- 2005 Senior Faculty of the Year 2004-2005. Outstanding Contributions to Resident Education, Compassionate Patient Care, and Research, Department of Radiology, Stanford University Medical Center.
- 2006 Senior Faculty of the Year 2005-2006. Outstanding Contributions to Resident Education, Compassionate Patient Care, and Research, Department of Radiology, Stanford University Medical Center.
- 2008 The Herman Grossman Lecturer, Department of Radiology, Duke University Medical Center, In Appreciation for Your Contributions to Pediatric Radiology and the Eleventh Annual Herman Grossman Lecturer, April 10, 2008.
- 2010 Caffey Award Scientific Paper. Bammer R, Holdsworth S, Skare S, Yeom K, Barnes P. Clinical evaluation of readout-segmented-EPI for diffusion-

- weighted imaging. Scientific Paper Presentation Society for Pediatric Radiology Annual Meeting, Boston MA April 2010.
- 2010 Caffey Award Scientific Paper. Skare S, Holdsworth S, Yeom K, Barnes P, Bammer R. High-resolution motion-corrected diffusion-tensor imaging (DTI) in infants. Scientific Paper Presentation Society for Pediatric Radiology Annual Meeting, Boston MA April 2010.
- 2010 Caffey Award Scientific Paper. Bammer R, Holdsworth S, Skare S, Yeom K, Barnes P. 3D SAP-EPI in motion-corrected fast susceptibility weighted imaging (SWI). Scientific Paper Presentation Society for Pediatric Radiology Annual Meeting, Boston MA April 2010.
- 2010 Caffey Award Scientific Paper. Bammer R, Holdsworth S, Skare S, Yeom K, Barnes P. T1-weighted 3D SAP-EPI for use in pediatric imaging. Scientific Paper Presentation Society for Pediatric Radiology Annual Meeting, Boston MA April 2010.
- 2012 - 2018 An America's Top Doctor - US News & World Report (Top 1% of neuroradiologists in the nation for 5 years, Castle Connolly Medical Ltd.) <health.usnews.com/top-doctors>.

Career Summary (see Biosketch, Bibliography):

1. **Pioneering and ongoing collaborative MRI development for pediatrics.** When I completed my pediatric neuroradiology fellowship in 1977, the existing imaging modalities were limited to ultrasound, radiography, computed tomography, myelography, angiography, and nuclear medicine. I did early work in the development of magnetic resonance imaging (MRI) for investigating the pediatric central nervous system. With researchers from the University of Oklahoma and Oral Roberts University, we showed magnetic resonance imaging (MRI) to be a reliable, non-invasive methodology to screen patients for lumbosacral dysraphism (a). With this research, we effectively replaced myelography with magnetic resonance imaging. I led the development of MRI research programs and centers throughout the country – in Oklahoma City, at Boston's Children's, and at Lucile Packard Children's Hospital Stanford. At Boston Children's we published the very first paper using MR to image vascular anomalies (b). MR replaced CT and angiography as the standard of care and allowed us to establish a multi-disciplinary approach to care. We also pioneered a faster imaging technique (c), which was especially helpful for pediatric patients as it increased access for pediatric patients, shortened imaging times, and lessened the need for prolonged anesthesia. At Stanford using software by Roland Bammer, we developed motion-correction software thus further reducing the need for sedation and anesthesia in pediatric patients receiving MR imaging (d).
 - a. Barnes P, Lester P, Yamanashi W, Prince J. MRI in infants and children with spinal dysraphism. *Am J Roentgenol.* 1986;47:339-46.
 - b. Meyer J, Hoffer F, Barnes P, Mulliken J. Biological classification of soft-tissue vascular anomalies: MR correlation. *Am J Roentgenol.* 1991;157:559.
 - c. Ahn S, Mantello M, Jones K, Mulkern R, Melki P, Higuchi N, Barnes P. Rapid MR imaging of the pediatric brain using the fast spin-echo technique. *Am J Neuroradiol.* 1992;13(4):1169.
 - d. Skare S, Holdsworth S, Yeom K, Barnes P, Bammer R. High-resolution motion corrected diffusion-tensor imaging (DTI) in infants. *Caffey Award Scientific Paper, Society for Pediatric Radiology, Boston MA April 2010.*

- e. Yeom K, Straka M, Iv M, Moseley M, Barnes P, Skare S, Holdsworth S. Intensity-Corrected Dual-Echo Echo-Planar Imaging (DE- EPI) for Improved Pediatric Brain Diffusion Imaging. PLoS One. 2015 Jun 12;10(6):e0129325. doi: 10.1371/journal.pone.0129325. eCollection 2015.

2. Pioneering and ongoing collaborative advances in imaging for pediatric neurooncology.

At the Boston Children's Hospital, I collaborated with Dr. Nancy Tarbell and other leaders in the subspecialties of Pediatric Oncology (Dana Farber Cancer Institute), Radiation Oncology, and Neurosurgery to establish one of the first Pediatric Brain Tumor Working Groups eventually leading to the formation of the Pediatric Brain Tumor Consortium. This collaboration successfully developed image-guided techniques that have allowed more effective and safer therapeutic interventions with improved outcomes (a, b, c). In studying central nervous system tumors using MRI, we found the termination of the caudal sac to be highly variable among pediatric patients, indicating imaging should guide craniospinal irradiation (a). In another study of pediatric and adult patients with intracranial neoplasms we showed the overall benefits of image guided stereotactic radiation therapy, which delivered localized treatment to a target area thus providing more effective delivery of the radiation and sparing normal brain (b). The adverse outcomes seen including central endocrinopathies and impaired cognitive function were reduced. MRI proved critical in terms of distinguishing hemorrhage from tumor progression following the treatment of CNS neoplasia in pediatric patients (c). Progress in pediatric neuro-oncology continues at the Lucile Packard Children's Hospital Stanford, where we recently determined that distinctive MRI features, notably the apparent diffusion coefficient, can be used to predict medulloblastoma histologic subtypes (d).

- a. Dunbar S, Barnes P, Tarbell N. Radiologic determination of the caudal border of the spinal field in cranial spinal irradiation. *Int J Radiat Oncol Biol Phys* 1993;15;26(4):669.
- b. Dunbar S, Tarbell N, Kooy H, Alexander E, Black P, Barnes P, Goumnerova L, Scott R, Pomeroy S, La Vally B, et al. Stereotactic radiotherapy for pediatric and adult brain tumors. *Int J Radiat Oncol Biol Phys* 1994;15;30(3):531.
- c. Poussaint T, Siffert J, Barnes P, Pomeroy S, Goumnerova L, Anthony D, Sallan S, Tarbell N. Hemorrhagic vasculopathy after treatment of central nervous system neoplasia in childhood. *Am J Neuroradiol.* 1995;16:693.
- d. Yeom K, Mobley B, Lober R, Andre J, Partap S, Vogel H, Barnes P. Distinctive MRI features of pediatric medulloblastoma subtypes. *Am J Roentgenol.* 2013;200:895.

3. Pioneering and ongoing collaborative advances in fetal MRI. While at the Boston Children's Hospital, I collaborated with Dr. Deborah Levine of the Beth Israel Deaconess Medical Center in her revolutionary work to develop fetal MRI, including for the early diagnosis of central nervous system anomalies and other abnormalities. When an ultrasound shows that a central nervous system anomaly is suspected, we found that a fetal MRI can add information to imaging findings and/or alter diagnoses. Importantly, MRI findings may decrease the ambiguity in counseling expectant parents (a, c). We observed that changes in diagnosis and maternal counseling were significantly associated with gestational age, with MRI findings more likely to impact the course of care for fetuses evaluated at older gestational ages (d). Additionally, fetal MRI also allows for the evaluation of cortical anatomy and can identify secondarily acquired CNS injuries. It provides faster imaging and improved resolution (b). I provided leadership in neuroradiology for these studies, which contributed to the impetus for creating Fetal Medicine programs and decreased ambiguity in counseling expectant parents.

- a. Levine D, Barnes PD, Madsen J, Li W, Edelman R. Fetal central nervous system anomalies: MR imaging augments sonographic diagnosis. *Radiology*. 1997;204:635.
- b. Levine D, Barnes P, Madsen J, Abbott J, Wong G, Hulka C, Mehta T, Li W, Edelman R. Fetal CNS anomalies revealed on ultrafast MR imaging. *Am J Roentgenol* 1999;172:813.
- c. Levine D, Barnes P, Madsen J, Abbott J, Mehta T, Edelman R. Central nervous system abnormalities assessed with prenatal magnetic resonance imaging. *Obstet Gynecol* 1999; 94:1011.
- d. Levine D, Barnes P, Robertson R, Wong G, Mehta T. Fast MR imaging of fetal central nervous system abnormalities. *Radiology* 2003;229:51.
- e. Katz J, Chock V, Davis A, Blumenfeld Y, Hahn J, Barnes P, Barth R, Rubesova E, Hintz, S. Utility of prenatal MRI in the evaluation and management of fetal ventriculomegaly. *J. Perinatol* 2018;38:1444.

4. Pioneering and ongoing collaborative advances in neonatal neuroimaging. Prior to the use of diffusion-weighted imaging, T1- and T2-weighted MR imaging was often normal in the first few hours after an ischemic insult. This early period overlaps with the narrow and finite “therapeutic window” during which neuroprotective therapies can be effective. In collaboration with Dr. Joseph Volpe’s neonatal neurology team we showed that differences in line-scan diffusion imaging (LSDI) of symmetric/diffuse and focal/multifocal lesions reflect differences in pathophysiology or timing of the injury (a). Neonates with brain ischemia were observed to develop either symmetric/diffuse injury or focal/multifocal injury. At Stanford, I have focused on neonatal neuroimaging, one project was to compare the utility of serial cranial ultrasound with a single near term MRI to predict cerebral palsy (b). Early cranial US is the usual practice. We found that MR was superior however both demonstrated high specificity. I have continued this important work with Dr. Susan Hintz and the NICHD Neonatal Research Network (NRN) (c). We prospectively evaluated MRI white matter abnormalities and cerebellar lesions and serial CUS findings as predictors of outcomes at 18-22 months corrected age in 480 infants. We found that both late CUS and MRI were associated with outcomes independent of early CUS and other factors underscoring the prognostic value of near-term neuroimaging. This study is the largest of its kind and the findings are likely to significantly impact the practices and recommendations for neuroimaging in preterm infants. In a second collaboration with the NICHD NRN, we investigated the relationship between brain injury on MRI and outcome within a randomized controlled trial of whole body cooling for neonatal hypoxic-ischemic encephalopathy (d). Fewer areas of infarction and a trend towards more normal scans were noted following whole body hypothermia. We were able to use MRI scans to categorize all areas of brain injury, including hemispheric devastation, and show the NRN pattern of brain injury is strongly associated with death or disability at 18-22 months no matter the treatment modality. This may prove beneficial when counseling parents. I served as the sole pediatric neuroradiology collaborator on these investigations.

- a. Robertson R, Maier S, Robson C, Mulkern R, Karas P, Barnes P. MR line scan diffusion imaging of the brain in children. *Am J Neuroradiol*. 1999;20:419. Derek Harwood-Nash Award for Outstanding Pediatric Neuroradiology Paper. ASNR/ASPNR Meeting, San Diego, 1999; *Am J Neuroradiol* 1999;20:1658.
- b. Mirmiran M, Barnes P, Keller K, Constantinou J, Fleisher B, Hintz S, Ariagno R. Neonatal brain magnetic resonance imaging before discharge is better than serial cranial ultrasound in predicting cerebral palsy in very low birth weight preterm infants. *Pediatrics*. 2004;114:992.

- c. Hintz S, Barnes P, Bulas D, Slovis T, Finer N, Wrage L, Das A, Tyson J, Stevenson D, Carlo W, Walsh M, Laptook A, Yoder B, Van Meurs K, Faix R, Rich W, Newman N, Cheng H, Heyne R, Vohr B, Acarregui M, Vaucher Y, Pappas A, Peralta-Carcelen M, Wilson-Costello D, Evans P, Goldstein R, Myers G, Poindexter B, McGowan E, Adams-Chapman I, Fuller J, Higgins R; SUPPORT Study Group of the Eunice Kennedy Shriver National Institute of Child Health and Human Development Neonatal Research Network. Neuroimaging and neurodevelopmental outcome in extremely preterm infants. *Pediatrics*. 2015;135(1):e32.
- d. Shankaran S, Barnes P, Hintz S, Laptook A, Zaterka-Baxter K, McDonald S, Ehrenkranz R, Walsh M, Tyson J, Donovan E, Goldberg R, Bara R, Das A, Finer N, Sanchez P, Poindexter B, Van Meurs K, Carlo W, Stoll B, Duara S, Guillet R, Higgins R; Eunice Kennedy Shriver National Institute of Child Health and Human Development Neonatal Research Network. Brain injury following trial of hypothermia for neonatal hypoxic-ischaemic encephalopathy. *Arch Dis Child Fetal Neonatal Ed*. 2012;97(6):F398. *Arch Dis Child Fetal Neonatal Ed*. 2014;99:301.
- e. Shankaran S, McDonald S, Laptook A, Hintz S, Barnes P, Das A, Pappas A, Higgins R; Eunice Kennedy Shriver National Institute of Child Health and Human Development Neonatal Research Network. Neonatal Magnetic Resonance Imaging Pattern of Brain Injury as a Biomarker of Childhood Outcomes following a Trial of Hypothermia for Neonatal Hypoxic-Ischemic Encephalopathy. *J Pediatr*. 2015;167:e3.
- f. Shankaran S, Laptook A, McDonald S, Hintz S, Barnes P, Das A, Higgins R. Eunice Kennedy Shriver National Institute of Child Health, and Human Development Neonatal Research Network. Acute perinatal sentinel events, neonatal brain injury pattern, and outcome of infants undergoing a trial of hypothermia for neonatal hypoxic-ischemic encephalopathy. *J Pediatr*. 2017;180:275.e2.
- g. Barnes P. Neuroimaging in the evaluation of pattern and timing of fetal and neonatal brain abnormalities. Stevenson D, Benitz W, Sunshine P, Hintz S, Druzin M, eds. *Fetal and Neonatal Brain Injury*. 5th ed. Cambridge: Cambridge University Press; 2018:283.
- h. Hintz S, Vohr B, Bsns C, Taylor H, Das A, Gustafson K, Yolton K, Watson V, Lowe J, DeAnda M, Ball M, Finer N, Van Meurs, K, Shankara, S, Pappas, A, Barnes P, Bulas D, Newman J, Wilson-Costello D, Heyne R, Harmon H, Peralta-Carcelen, M, Adams-Chapman I, Duncan A, Fuller J, Vaucher Y, Colaizy T, Winter S, McGowan e, Goldstein R, Higgins, R. Eunice Kennedy Shriver National Institute of Child Health and Human Development, Pregnancy and Perinatology Branch. Preterm neuroimaging and school-age cognitive outcomes. *Pediatrics* 2018;142:e20174058.
- i. Laptook A, Shankaran S, Barnes P, Rollins N, et al. Eunice Kennedy Shriver National Institute of Child Health, and Human Development Neonatal Research Network. Limitations of conventional MRI as predictor of death or disability following neonatal hypoxic-ischemic encephalopathy in the late hypothermia trial. *J Pediatr* 2021; 230:106-111.

5. Imaging of infant and child trauma, including child abuse and the mimics. Having served as a pediatric radiologist and pediatric neuroradiologist consultant and member of child protection teams at Oklahoma Children’s Memorial Hospital and Boston Children’s Hospital, I then co-founded the Child Abuse SCAN team at Lucile Packard Children’s Hospital Stanford in 2008. I have also collaborated with leaders in medicine and law in recognizing the “mimics” of child abuse which has led to more comprehensive and compassionate management strategies (a-d). I review case histories in the literature and find that there is no evidence base for reliably distinguishing non-accidental injury (NAI) from accidental injury from medical mimics. Radiologists must provide a detailed report of their findings and differential diagnosis, and communicate any concern for NAI. Considering a case series of rickets versus abuse, we often found severe maternal vitamin D deficiencies. This led us to claim that the diagnosis and treatment of vitamin D deficiency is most important in improving the health of pregnant women and infants (a, b). Laboratory studies showed that rickets does occur that’s linked to maternal health and when observed in the fetus, it can mimic the symptoms of abuse. Our findings influenced the American Congress of Obstetricians and Gynecologists and the American Academy of Pediatrics to raise the level of vitamin D supplementation recommended for pregnant mothers and neonatal breastfed babies. We found that findings of subdural hemorrhage, retinal hemorrhage and encephalopathy cannot reliably identify abuse or the timing of such (d). I was the lead neuroradiologist on these studies.

- a. Keller KA, Barnes PD. Rickets vs. abuse: a national and international epidemic. *Pediatr Radiol.* 2008 Nov;38:1210.
- b. Keller K, Barnes P. Rickets vs. Abuse—the evidence: Reply. *Pediatr Radiol.* 2009; 39:1130.
- c. Barnes P. Imaging of nonaccidental injury and the mimics: issues and controversies in the era of evidence-based medicine. *Radiol Clin North Am.* 2011;49:205.
- d. Findley K, Barnes P, Moran D, Squier W. Shaken baby syndrome, abusive head trauma, and actual innocence: getting it right. *Legal Studies Research Paper Series, Paper No. 1195.* Houston J Health Policy. Social Science Research Network Electronic Paper Collection, 2012 <http://ssrn.com/abstract=2048374> .
- e. Miller D, Barnes P, Miller M. The significance of macrocephaly or enlarging head circumference in infants with the triad: further evidence of mimics of shaken baby syndrome. *Am J Forensic Med Pathol.* 2015;36:111.
- f. Findley K, Risinger D, Barnes P, Mack J, Moran D, Scheck B, Bohan T. Feigned Consensus: Usurping the Law in shaken baby syndrome / abusive head trauma prosecutions. University of Wisconsin Law School. Legal Studies Research Paper Series Paper No. 1461, 2019. <https://ssrn.com/abstract=3328996>

RESEARCH, TEACHING, AND CLINICAL CONTRIBUTIONS

Research Activities:

- | | |
|------|--|
| 1985 | Surface Coil Magnetic Resonance Imaging Clinical Research and Development Project, Dan Galloway, M.D., Patrick Barnes, M.D., and John Prince, Ph.D., Principal Co-Investigators, Oklahoma Diagnostic Imaging Center, University of Oklahoma Health Sciences Center and General Electric Medical Systems, Inc. (IRB#02926). |
| 1986 | Magnetic Resonance Imaging and the Evaluation of Morphologic and Biochemical Abnormalities. Patrick Barnes, M.D., and John Prince, Ph.D., Radiology, Principal Co-Investigators, University of Oklahoma Health |

Sciences Center (IRB#02958), Oklahoma Teaching Hospitals and Philips Medical Systems, Inc. (FDA-PMA-#P840063A).

1987-1991 Pre-Radiation Chemotherapy in the Treatment of Children with Brain Stem Neoplasia, Evaluation with CT and MRI, Pediatric Oncology Group, Cynthia Kretschmer, M.D., The Massachusetts General Hospital, Coordinator (POG8833); Neuroradiologic consultant.

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1988-1997 Infant Heart Surgery: CNS Sequelae of Circulatory Arrest, evaluation including Magnetic Resonance Imaging, Jane Newburger, M.D., Principal

1988-1998 Investigator, Department of Cardiology, The Children's Hospital (NIH 1R01HL4178601); Neuroradiologic consultant.

1990-1991 Fast Spin Echo Magnetic Resonance Neuroimaging Project, Patrick Barnes, M.D. and Robert Mulkern, Ph.D., Principal Investigators, Children's Hospital, General Electric Medical Systems, Inc. (CH90-10-099).

1990-1997 Chemotherapy and Radiation Therapy in the Treatment of Seeding Tumors of the CNS in Children, Amy Billett, M.D. and Nancy Tarbell, M.D., Study Chairpersons (DFCI 90-114); Neuroradiologic consultant.

1990-1997 Radiosensitizer Chemotherapy (Etanidazole-SR 2508) and Radiotherapy in Children with Brain Stem Gliomas, Nancy Tarbell, M.D., Study Chairperson (DFCI 90-080); Neuroradiologic consultant.

1991-1999 High Stage Medulloblastomas, Quality Assurance Review Center, Pediatric Oncology Group, Nancy Tarbell, M.D. and Patrick D. Barnes, M.D., Co-Principal Investigators

1992-1997 Stereotactic Radiotherapy for Pediatric Brain Tumors, Nancy Tarbell, M.D., Study Chairperson (DFCI 92-077); Neuroradiologic consultant.

1992-1997 Stereotactic Radiation Therapy for Recurrent or Metastatic CNS Tumors, J. Fontanesi, M.D., J. Loeffler, M.D., P. Barnes, M.D., et al, Coordinators, Pediatric Oncology Group SRS #9373 Protocol.

1994-2000 MR-Techniques in the Assessment of the Newborn Brain, Steven A. Ringer, M.D., Ph.D., Petra S. Huppi, M.D., Co-Principal Investigators, JPN Clinical Research Initiative and Reynolds-Rich-Smith Fellowship; Neuroradiologic Consultant.

1996 Efficacy And Cost-Effectiveness of Fast-Screening Brain MRI Versus Conventional MRI in Children Suspected of Having a Brain Tumor L. Santiago Medina, M.D., Patrick D. Barnes, M.D., A.D. Paltiel, M.D., David Zurakowski, The Society for Pediatric Radiology Research and Education Fund Grant.

1996-2000 Metabolic and Hemodynamic MR Characterization of Pediatric Brain Tumors, A. Aria Tzika, Principal Investigator, Patrick Barnes, M.D., et al, Co-Investigator, American Cancer Society (EDT-80188)

1996-2000 Rehabilitation, Brain Lesions, and Movement in Infants, Edward E. Tronick, Ph.D., Linda Fetter, Ph.D., Alan Leviton, M.D., Co-Principal Investigators (NIH RO1); Neuroradiologic Consultant.

1996-2000 Ultrafast MRI of the Fetal Brain, D. Levine, M.D., Principal Investigator (NIH R29 NS37945-01), Beth Israel Deaconess Medical Center; Neuroradiologic Consultant.

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1999-2000 Pediatric Brain Tumor Consortium, M. Kieran, M.D., Nancy J. Tarbell, M.D. Co-Principal Investigators (NIH/NCI 1 U01 CA 81452-01), Children's Hospital, Massachusetts General Hospital, and Dana Farber Cancer Center; Member, Neuroradiology Committee and Senior Site Neuroradiologic Consultant.

1999-2000 Pediatric Centers for MRI Study of Normal Brain Development, NIH-NINDS-98-13, Michael Rivkin, M.D., principal investigator; Co-investigator and Consultant.

2001- PAR-98-017 (Reiss) NIMH Longitudinal MRI Study of Brain Development in Fragile X (7.5% effort funded).

2001- 2 R01 MH50047 (Reiss) NIMH Longitudinal Outcomes and Neuroimaging of Fragile X Syndrome (5% effort funded).

2001- Barth R, MRI of Fetal Ventriculomegaly.

2001 Arriagno R (NIH) Neonatal Diagnosis of Possible Brain Injury in Very Low Birth Weight Preterm Infants.

2001- Reiss et al. Velocardiofacial syndrome – neuroimaging.

2001- Reiss et al. Bipolar disorder – neuroimaging.

2001- Reiss et al. Coffin-Lowry syndrome – neuroimaging.

2002- Barnes P, et al. Stanford University Certification of Human Subjects Approval IRB Protocol ID 78050: Magnetic Resonance Imaging (MRI) of the Developing Central Nervous System (CNS), March 5, 2002.

2002- Diabetic Ketoacidosis Cerebral Edema Multicenter Study (N. Glaser et al [1% effort funded]).

2006- 2U HD 27880-16 Van Meurs (PI). Project period: 04/01/06–03/31/11 NIH/NICHD *Multicenter Network of Neonatal Intensive Care Units Intervention Trial of Hypothermia for Term Hypoxic Ischemic Encephalopathy*. Role: Central MRI reader/Neuroimaging consultant

2006- 2U HD 27880-16 Van Meurs (PI). Project period: 04/01/06–03/31/11 NIH/NICHD *Multicenter Network of Neonatal Intensive Care Units Neuroimaging and Neurodevelopmental Outcome, SUPPORT Multi-Center Project* This project investigates the value of brain magnetic imaging (MRI) in predicting neurodevelopmental outcome in extremely low birthweight (ELBW) infants. Role: Central MRI reader / Neuroimaging consultant

2008 The Well-Nourished and Sleeping Preterm Infant Will Have Improved Brain (Ariagno). Development and Neurodevelopmental Outcome. The Gerber Foundation. Consultant. 08/01/2005-07/31/2008

2008- NIH 1R01 EB008706 Bammer (PI) Project period: 09/01/08 – 08/31/13 Effort: 4.5% ADC: \$414,692 “Short Axis EPI MRI at High Field”

2008- Neuroradiologic Consultant / Central Reviewer, National

- Holoprosencephaly Project, The Carter Center.
- 2009- NIH 1R01 MH083972 Antonio Hardan (PI); Project period: 3/1/09 – 12-31-13; Effort: 4.5%; ADC: \$391,595 ; "A Neuroimaging Study of Twin Pairs with Autism"
- 2009- LPCH Center for Brain Behavior Awards in Pediatric Neurosciences K. Yeom (PI); Project Period: 2009-2011; Effort: 1%; ADC: \$145,000 "MR Imaging Correlates for Cognitive Dysfunction in Pediatric Medulloblastoma Treated with Cranial Irradiation."

Teaching:

Local Contributions (113):

- 1976-1979 Course Director and Conference Leader, Pediatric House Staff Core Lecture Series, Pediatric Radiology, Oklahoma Children's Memorial Hospital
- 1976-1980 Conference Co-leader, Monthly Orthopaedic Radiology-Pathology Conference, Oklahoma Teaching Hospitals
- 1977-1979 Physician Associates Radiology Lecture Series, College of Allied Health, University of Oklahoma
- 1977-1982 Conference Co-Leader, Weekly Pediatric Cardiology and Cardiac Surgery Conference
- 1977-1982 Conference Co-Leader - "Sickle Cell Anemia", Annual Clinical Demonstration for First Year Medical Students, College of Medicine, University of Oklahoma.
- 1977-1982 Pediatric Cardiac Cine-Angiocardiographic case review and consultation weekly with Pediatric, Pediatric Cardiology, Thoracic Surgery Staff, Residents and Fellows
- 1977-1985 Pediatric Grand Rounds, Oklahoma Children's Memorial Hospital.
- 1977-1986 Attending Physician and Conference Leader, Daily and Weekly Clinical Teaching Rounds, Children's Memorial Hospital, University of Oklahoma College of Medicine; Pediatric Radiology Film and Fluoroscopy Review with Radiology, Pediatric, Family Medicine Residents and Medical Students.
- 1977-1986 Pediatric Neuroradiology Case Review and Consultation daily with Neurosurgery, Neurology, Pediatric, and Adolescent Medicine Staff, Residents, Fellows and Medical Students
- 1977-1986 Pediatric Computed Tomography, Conventional Tomography, and Special Procedures case review and consultation daily with Pediatric, Pediatric Surgery, Adolescent Medicine, and Orthopedic Staff, Residents, Fellows and Medical Students
- 1977-1986 Elective Tutorials in Pediatric Neuroradiology and Cardiovascular Radiology for Pediatric, Radiology, Neurosurgery, Neurology and Pediatric Surgery Residents, Fellows, and Students
- 1977-1986 Weekly Diagnostic Radiology Residency Lecture Series, University of Oklahoma College of Medicine

- 1977-1986 Quarterly Radiologic Technology Inservice in Pediatric Neuroradiology and Cardiovascular Radiology Special Procedures
- 1977-1986 Co-Leader, Weekly Neurosurgery/Neurology Grand Rounds, Oklahoma Teaching Hospitals and St. Anthony Hospital, Oklahoma City, Oklahoma
- 1978-1982 Course Lecturer, Annual Department of Radiological Sciences Continuing Medical Education Courses, University of Oklahoma Health Sciences Center
- 1978-1985 Lecturer, Annual Graduate Physics Seminar, College of Allied Health, University of Oklahoma Health Sciences Center
- 1979-1981 Lecturer, Annual Radiology Grand Rounds, Oklahoma Teaching Hospitals
- 1980-1985 Lecturer, Pediatric Surgery Core Lecture Series in Pediatric Radiology, Oklahoma Children's Memorial Hospital
- 1981-1986 Lecturer, Neurology/Pediatric Neuroradiology Lecture Series, Oklahoma Teaching Hospitals
- 1982-1985 Participant, Senior Radiology Resident Pre-Board Examinations, University of Oklahoma College of Medicine
- 1982-1986 Lecturer, Pediatric House Staff Core Lecture Series in Pediatric Radiology, Oklahoma Children's Memorial Hospital
- 1983-1986 Course Developer and Director, Resident Final Examination in Pediatric Radiology, University of Oklahoma College of Medicine
- 1985-1986 Oklahoma Diagnostic Imaging Center Lecture Series, Course Co-Developer and Co-Director
- 1985-1986 Oklahoma Teaching Hospitals Department of Radiological Sciences, Magnetic Resonance Imaging Lecture Series (Course Developer and Director)
- 1986 "Magnetic Resonance Imaging for the Referring Physician", Continuing Medical Education Seminar, Program Co-Director, Session Moderator, and Lecturer, Oklahoma Teaching Hospitals and the University of Oklahoma College of Medicine
- 1987- Daily Neuroradiology Case Review and Consultation with Pediatric and Adolescent Medicine, Neurology, Neurosurgery, Radiology, Oncology, Radiation Therapy, Orthopedic, ORL/Head and Neck Surgery, Ophthalmology, Plastic Surgery, Oral Surgery, and Neuropathology Staff, Fellows, Residents, Medical Students, and visitors, Children's Hospital, Boston, MA
- 1987- Weekly Pediatric Neurology-Neuroradiology Rounds with Staff, Fellows, Residents, Medical Students, and visitors, Conference Co-Leader, Children's Hospital, Boston, MA
- 1987- Weekly Pediatric Neurosurgery-Neuroradiology Rounds with Staff, Fellows, Residents, Medical Students, and visitors, Conference Co-Leader, Children's Hospital, Boston, MA

- 1987- Weekly Pediatric Neurooncology-Neuroradiology Rounds with Pediatric Oncology, Radiation Oncology, and Neurosurgery Staff, Fellows, Residents, Medical Students, and visitors (The Children's Hospital and Dana-Farber Cancer Institute), Conference Co-Leader, Children's Hospital, Boston, MA
- 1987- Weekly Longwood Medical Area Neuroradiology Conference with Staff, Fellows, Residents, Medical Students, and visitors (The Children's Hospital, Brigham & Women's Hospital, Beth Israel Hospital, New England Deaconess Hospital, Dana-Farber Cancer Institute), Conference Co-Leader, Children's Hospital, Boston, MA
- 1987- Monthly Pediatric ORL/Head & Neck Radiology Rounds with Staff, Fellows, Residents, Medical Students, and visitors, Conference Co-Leader, Children's Hospital, Boston, MA
- 1987- Monthly Pediatric Radiology Difficult Case Conference (Risk Management and Quality Improvement) with Staff, Fellows, Residents, Medical Students, and visitors, Children's Hospital, Boston, MA
- 1987- Monthly Boston Area Neuroradiology Club Case Conference with Staff, Fellows, Residents, Medical Students, and visitors (Massachusetts General Hospital)
- 1987- Pediatric Neuroradiology Annual Lecture Series, Course Co-Director and Lecturer, for Staff, Fellows, Residents, Medical Students, and visitors.
- 1987- Pediatric Neuroradiology Introductory Lectures for Harvard Medical Students and Rotating Radiology Residents, Radiology, Children's Hospital, Boston, MA
- 1987-1988 Cardiac Radiology Lecture Series, Course Developer and Lecturer, Radiology, Children's Hospital, Boston, MA
- 1987-1990 Magnetic Resonance Imaging Lecture Series, Course Developer, Director, and Lecturer, Radiology, Children's Hospital, Boston, MA
- 1987 Invited Lecturer, MRI in Pediatric Neuroradiology, Radiology Grand Rounds, Brigham and Women's Hospital, Boston, MA
- 1987 Lecturer, "Scoliosis and the Neuroradiologist", "The Impact of MR on Central Nervous System Imaging in Childhood", and "Magnetic Resonance-Diagnostic Imaging Principles", The Children's Hospital and Harvard Medical School Post- Graduate Course, Pediatric Imaging, Boston, MA
- 1987 Lecturer, "Pediatric Central Nervous System Imaging, The Brigham & Women's Hospital and Harvard Medical School Post-graduate Course, CT and MRI Update, Cambridge, MA
- 1988 Invited Lecturer, "MRI in Pediatric Neurooncology", Joint Center for Radiation Therapy Grand Rounds, Children's Hospital, Boston, MA, June 8, 1988
- 1988 Invited Lecturer, "Magnetic Resonance in Pediatric Imaging", The Children's Hospital and Harvard Medical School Post-graduate Course, Pediatric Medicine

- 1988 Lecturer, "Magnetic Resonance Imaging of the Pediatric Central Nervous System, Part I - Brain" ; "Magnetic Resonance Imaging of the Pediatric Central Nervous System, Part II – Spine”, & Case Review Panel, The Brigham & Women's Hospital and Harvard Medical School Post-graduate Course, CT and MRI Update, Cambridge, MA
- 1988 Invited Lecturer, "Magnetic Resonance Imaging", The Children's Hospital, Massachusetts General Hospital, and Harvard Medical School Post-graduate Course, Child Neurology
- 1989 Lecturer, "Magnetic Resonance in Pediatric Neuroimaging" ; "Magnetic Resonance Imaging in Spinal Dysraphism", The Brigham & Women's Hospital and Harvard Medical School Post-graduate Course, CT and MRI Update, Boston, MA
- 1989 Invited Lecturer, "Magnetic Resonance in Pediatric and Adolescent Neuroimaging", The Children's Hospital, Massachusetts General Hospital, and Harvard Medical School Post-graduate Course, Child Neurology
- 1990 Lecturer, "MR Imaging of the Pediatric Central Nervous System", The Brigham & Women's Hospital and Harvard Medical School Post-graduate Course, CT and MRI Update, Cambridge, MA
- 1991 Invited Lecturer, “MRI Signal Patterns-I”, & “MRI Signal Patterns-II”, Radiology Resident Lecture Series, University of Massachusetts Medical Center and Medical School, Worcester, MA, March 8, 1991
- 1991 Invited Lecturer, “Pediatric Spine Imaging”, Radiology Grand Rounds, University of Massachusetts Medical Center and Medical School, Worcester, MA, March 8, 1991
- 1991 Invited Lecturer, “MRI of Congenital Spine Lesions”, Neurology Grand Rounds, University of Massachusetts Medical Center and Medical School, Worcester, MA, March 9, 1991
- 1991 Invited Lecturer, “MRI of the Pediatric Central Nervous System”, Western Massachusetts Radiological Society, Holyoke, MA, Sept. 24, 1991
- 1991 Lecturer, "MR Imaging of the Pediatric Central Nervous System", The Brigham & Women's Hospital and Harvard Medical School Post-graduate Course, CT and MRI Update, Cambridge, MA
- 1991 Invited Lecturer, "MRI in the Pediatric CNS", Harvard Longwood Neurological Training Program Post-graduate Course, Intensive Review of Neurology
- 1991 Invited Lecturer, “MRI in Pediatrics”, Anesthesiology Grand Rounds, Children’s Hospital, Boston, MA, Dec. 18, 1991
- 1992 Invited Lecturer, “Pediatric Brain Tumors”, Radiology Grand Rounds, Boston City Hospital, University Hospital, and Boston University Medical School, Boston, MA, Feb. 25, 1992
- 1991 Invited Lecturer, "Cerebral Dysgenetic Syndromes, Clinical and MRI Correlates", Child Neurology Course, Massachusetts General Hospital, Children's Hospital, and Harvard Medical School Post-Graduate Course, September 1992, Boston, MA

- 1992 Invited Lecturer, "Pediatric CNS Tumor Imaging", The Harvard Medical School Post-Graduate Course in Neurosurgery-Brain Tumors, November 30, Boston, MA
- 1993 Invited Lecturer, Massachusetts General Hospital and Harvard Medical School Radiology Review Course, "Congenital CNS Abnormalities". April, Cambridge, MA
- 1993 Lecturer, "Neuroimaging Techniques in Pediatrics", Child Psychiatry Lecture, Children's Hospital, Boston, MA, June 8, 1993
- 1993 Lecturer, "Neuroimaging in Pediatrics", Radiologic Technologist Inservice Lecture, Children's Hospital, Boston, MA, June 23, 1993
- 1993 Lecturer, "Neuroimaging-The Pediatric Brain", The Children's Hospital and Harvard Medical School Post-Graduate Course in Practical Pediatric Radiology, July 29, Brewster, MA.
- 1993 Invited Lecturer, "Malformations of the Brain", "Posterior Fossa and Craniocervical Junction Anomalies", The Massachusetts General Hospital and Harvard Medical School Post-Graduate Course in Neuroradiology, September 21 and 22, Boston, MA
- 1994 Lecturer, "Pediatric Neuroimaging: The Brain", The Children's Hospital and Harvard Medical School Post-Graduate Course in Practical Pediatric Imaging: Update '94, August 4, New Seabury, MA
- 1994 Presenter, "Brain Tumors in Children", The Massachusetts General Hospital and Harvard Medical School Post-Graduate Course in Neuroradiology, October 3-7, Boston, MA
- 1994 Lecturer, "Pediatric Brain Imaging", The Brigham and Women's Hospital and Harvard Medical School Post-Graduate Course, Pediatric Brain Imaging, MRI and CT Update, October 27 and 28, Cambridge, MA
- 1995 Invited Lecturer, "Congenital CNS Abnormalities", Massachusetts General Hospital, Brigham and Women's Hospital, and Harvard Medical School Radiology Review Course, April, Cambridge, MA
- 1995 Lecturer, "Pediatric Brain Imaging- Protocols and Pitfalls", The Children's Hospital and Harvard Medical School Post-Graduate Course in Practical Pediatric Imaging: Update '95, July 26, New Seabury, MA
- 1995 Invited Lecturer, "Inflammatory CNS Conditions in Childhood", "Spine and Spinal Cord Anomalies in Childhood", The Massachusetts General Hospital and Harvard Medical School Post-Graduate Course, Basic and Current Concepts in Neuroradiology, Head & Neck Radiology, and Neuro MRI, September 19 and 20, Boston, MA
- 1995 Moderator, Pediatric Neuroradiology Session, The Brigham and Women's Hospital and Harvard Medical School Post-Graduate Course, MRI and CT Update, October 12 and 13, Cambridge, MA
- 1995 Lecturer, "Pediatric CNS Imaging: Protocols & Pitfalls", "Developmental Brain Abnormalities", The Brigham and Women's Hospital and Harvard Medical School Post-Graduate Course, MRI and CT Update, October 12 and 13, Cambridge, MA

- 1996 Invited Lecturer, "Pediatric Neuroradiology", Massachusetts General Hospital, Brigham and Women's Hospital, and Harvard Medical School Radiology Review Course, April, Cambridge, MA
- 1996 Moderator, Pediatric Neuroradiology Session, The Children's Hospital and Harvard Medical School Post-Graduate Course in Practical Pediatric Imaging: Update 1996, July 22, Boston, MA
- 1996 Invited Lecturer, "Imaging of the Orbits and Sinuses: Part I", "Imaging of the Orbits and Sinuses: Part II", The Children's Hospital and Harvard Medical School Post-Graduate Course in Practical Pediatric Imaging: Update 1996, July 22, Boston, MA
- 1996 Invited Lecturer, "Congenital Brain Anomalies" and "Brain Tumors in Children", The Massachusetts General Hospital and Harvard Medical School Post-Graduate Course, Basic and Current Concepts in Neuroradiology, Head & Neck Radiology, and Neuro MRI, October 8, Boston, MA
- 1996 Moderator, Pediatric Neuroradiology Session, The Brigham and Women's Hospital and Harvard Medical School Post-Graduate Course, MRI & CT Update, October 25, Cambridge, MA
- 1996 Lecturer, "Hydrocephalus", The Brigham and Women's Hospital and Harvard Medical School Post-Graduate Course, MRI & CT Update, October 25, Cambridge, MA
- 1996 Invited Lecturer, "Imaging of Cranial and Intracranial Tumors of Childhood", The Brain Tumor Center, Brigham and Women's Hospital, Children's Hospital, Joint Center of Radiation Therapy, and Dana Farber Cancer Institute, Tumors of the Central Nervous System Post-Graduate Course, November 25, Boston, MA
- 1997 Invited Lecturer, "Potential Problems and Pitfalls in Pediatric Neuroradiology", Boston University Medical Center, Department of Radiology Grand Rounds, March 20, Boston, MA
- 1997 Lecturer, "Imaging of Macrocephaly, Parts I and II", The Children's Hospital and Harvard Medical School Post-Graduate Course in Practical Pediatric Imaging: Update 1997, July 21, Boston, MA
- 1997 Invited Lecturer, "Brain Tumors in the Pediatric Age", and "Congenital and Developmental Conditions of the Spine and Spinal Cord", The Massachusetts General Hospital and Harvard Medical School Post-Graduate Course, Basic and Current Concepts in Neuroradiology, Head & Neck Radiology, and Neuro MRI, September 15 and 16, Boston, MA
- 1997 Moderator, Pediatric Neuroradiology Session, The Brigham and Women's Hospital and Harvard Medical School Post-Graduate Course, MRI & CT Update 1997, October 31, Boston, MA
- 1997 Lecturer, "Congenital Brain Anomalies--A Problem-Oriented Approach", The Brigham and Women's Hospital and Harvard Medical School Post-Graduate Course, MRI & CT Update 1997, October 31, Boston, MA

- 1997 Invited Lecturer, “Radiologic Diagnosis of Brain Tumors in Children”, Joint Venture Neuroncology, The Partners Health Care System, Dana Farber Cancer Institute, and Harvard Medical School and Brain Tumor Management, November 24, Boston, MA
- 1997 Moderator, Pediatric Neuroradiology Session, Joint Venture Neuroncology The Partners Health Care System, Dana Farber Cancer Institute, and Harvard Medical School Post-Graduate Course, Tumors of the Central Nervous System and Brain Tumor Management, November 24, Boston, MA
- 1998 Invited Lecturer, The Brigham & Women’s Hospital and Massachusetts General Hospital Radiology Review Post-Graduate Course, “Pediatric Neuroradiology”, April 6, Cambridge, MA
- 1998 Invited Lecturer, “Congenital and Developmental Conditions of the Spine and Spinal Cord”, The Massachusetts General Hospital and Harvard Medical School Post-Graduate Course, Basic and Current Concepts in Neuroradiology, Head & Neck Radiology, and Clinical Functional MRI and Spectroscopy, September 16, Boston, MA
- 1998 Moderator, Pediatric Neuroradiology Session, The Brigham and Women’s Hospital and Harvard Medical School Post-Graduate Course, MRI/CT Update 1998, October 30, Boston, MA
- 1998 Lecturer, “Major Congenital Brain Anomalies”, The Brigham and Women’s Hospital and Harvard Medical School Post-Graduate Course, MRI/CT Update 1998, October 30, Boston, MA
- 1999 Invited Lecturer, "Neonatal MRI: New Techniques", Division of Newborn Medicine Clinical Conferences, Children's Hospital, January 4, Boston, MA
- 1999 Invited Speaker, Imaging of Brain Tumors in Children, Parents Workshop, Jimmy Fund Clinic, Dana-Farber Cancer Institute, May 1, Boston, MA.
- 1999 Invited Speaker, Radiologic Diagnosis of Brain Tumors in Children, Tumors of the Central Nervous System: Management of Brain Tumors Post-graduate Course, Brigham and Women’s Hospital, Massachusetts General Hospital, Children’s Hospital, Dana-Farber Cancer Institute, Harvard Medical School, September 13, Boston, MA
- 1999 Invited Speaker, Congenital and Developmental Conditions of the Spine and Spinal Cord, Neuroradiology, Head & Neck Radiology, Clinical Functional MRI and Spectroscopy Post-graduate Course, Massachusetts General Hospital, Massachusetts Eye & Ear Infirmary, Harvard Medical School, October 6, Boston, MA
- 1999 Invited Speaker, Potential Pitfalls in Pediatric Neuroradiology, and Session Moderator, Pediatric Neuroradiology Session, MRI/CT Update Post-graduate Course, Brigham & Women’s Hospital, Harvard Medical School, October 29, Boston, MA

- 2000 Invited Discussant, Pediatric Neuroncology, Neurosurgery, and Neurology Conferences, Department of Radiology, Massachusetts General Hospital, Jan.-Feb., Boston, MA
- 2000 Basic Technical and Biological Principles of Magnetic Resonance Imaging Lecture Series, Department of Radiology, Beth Israel Deaconess Medical Center, Feb.-May, Boston, MA
- 2000 Pediatric Neuroradiology Resident Pre-Board Review, Department of Radiology, Beth Israel Deaconess Medical Center, May, Boston, MA
- 2000- Daily Pediatric Neuroradiology and Head & Neck CT and MRI Case Review / Consultations with Fellows, Residents, Medical Students, and Visiting Physicians, Lucile Salter Packard Children's Hospital and Stanford University Medical Center, Palo Alto, CA
- 2000- Conference Co-Leader, Weekly Pediatric Neuroncology Conference, Lucile Salter Packard Children's Hospital at Stanford, Palo Alto, CA
- 2000- Conference Leader, Weekly Pediatric Neuroradiology, Neurology, and Neurosurgery Conference, Lucile Salter Packard Children's Hospital at Stanford, Palo Alto, CA
- 2000- Pediatric Neuroradiology Lectures, Neuroradiology Lecture Series, Department of Radiology, Stanford University Medical Center, Palo Alto, CA
- 2000- Faculty Participant, Weekly Neuroradiology Case Review / QI Conference Department of Radiology, Stanford University Medical Center, Palo Alto, CA
- 2000- Faculty Participant, Weekly Neurology Case Conference, Stanford University Medical Center, Palo Alto, CA
- 2000- Faculty Participant, Weekly Perinatal Conference, Lucile Salter Packard Children's Hospital at Stanford, Palo, Alto, CA
- 2000 Invited Lecturer, Pitfalls in Pediatric Neuroradiology, Neurosurgery Grand Rounds, Stanford University Medical Center, Palo Alto, CA Sept. 1, 2000
- 2000- Faculty Participant, International Perinatal Teleconferences (Hong Kong), Lucile Salter Packard Children's Hospital at Stanford, Palo Alto, CA
- 2000 Medical Student Clerkship Lecture, Pediatric Neuroradiology, Department of Radiology, Stanford University Medical Center, Palo, Alto, CA, Oct. 12, 2000
- 2000 Invited Lecturer, Imaging of Neonatal Encephalopathy, Neonatal Intensive Care Clinical Research Conference, Lucile Salter Packard Children's Hospital at Stanford, Palo Alto, CA, Oct. 16, 2000.
- 2001 Invited Lecturer, Potential Pitfalls in Pediatric Neuroradiology-The Impact of Advancing Neuroimaging Techniques, Department of Radiology, Stanford University Medical Center, Palo Alto, CA, Feb. 13, 2001.
- 2001 Faculty participant, Weekly Epilepsy Conference, Stanford University Medical Center, Palo Alto, CA.
- 2001- Monthly Pediatric Neuroradiology Lecture Series for Neurology Residents & Fellows, Stanford University Medical Center, Palo Alto, CA.

- 2001- Monthly Pediatric Neuroradiology Lecture Series for Neurosurgery Residents and Fellows Stanford University Medical Center, Palo Alto, CA.
- 2001- Monthly Pediatric Head & Neck Imaging Lecture Series for ORL/Head & Neck Residents and Fellows, Stanford University Medical Center, Palo Alto, CA.
- 2001- Pediatric Neuroradiology Lectures, Pediatric Radiology Lecture Series, Department of Radiology, Stanford University Medical Center, Palo Alto, CA.

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Regional, national, or international contributions (147):

- 1988 Invited Lecturer, “Neurocutaneous Syndromes”, & “Pediatric Spine Imaging-Spinal dysraphism”, Western Pennsylvania Hospital, Pittsburgh, PA, Nov. 3, 1988
- 1989 Invited Lecturer, “Pediatric Spine Imaging”, New England Medical Center and Tufts Medical School, Feb. 9, 1989
- 1989 Invited Lecturer, “MRI-Basic Principles and Pediatric Applications”, Akron Children’s Hospital, Akron, OH, May 3, 1989
- 1989 Invited Lecturer, “MRI in Pediatric Spine Imaging”, Northeast Ohio University Medical Center, Akron, OH, May 3, 1989
- 1989 Invited Lecturer, “MRI in Pediatric and Adolescent Neuroimaging”, Akron Radiological Society, Akron, OH, May 3, 1989
- 1989 Invited Discussant, Neuroimaging-Neuropathology Correlation Conference, Akron Children’s Hospital, Akron, OH, May 4, 1989
- 1989 Invited Lecturer, “Imaging of the Neurocutaneous Syndromes”, Akron Children’s Hospital, Akron, OH, May 4, 1989
- 1990 Invited Lecturer, “MRI in Pediatric Neuroimaging-Guidelines”, & “Pediatric Spine Imaging”, Rhode Island Hospital and Brown University Medical School, April 2, 1990
- 1990 Invited Lecturer, “ Neuroimaging of the Neurocutaneous Syndromes”, Radiology Grand Rounds, Rhode Island Hospital and Brown University Medical School, April 2, 1990
- 1991 Moderator, Pediatric Neuroradiology, Special Scientific Session, American Society of Neuroradiology, 29th Annual Meeting, Washington, D.C.
- 1991 Moderator and Discussant, Pediatric Neuroradiology Scientific Session, Radiological Society of North America 77th Annual Meeting, Chicago
- 1992 Invited Lecturer, “Signal Intensity Patterns in MRI of the Pediatric CNS”, Radiology Resident Lecture, Ohio State University Health Sciences Center, Columbus, OH, April 8, 1992
- 1992 Invited Lecturer, “MRI in Pediatric CNS Imaging”, Columbus Radiological Society, Columbus, OH, April 8, 1992
- 1991 Invited Lecturer, “Pediatric Spine Imaging”, Radiology Grand Rounds, Columbus Children’s Hospital, Columbus, OH, April 9, 1992

- 1992 Co-Moderator and Discussant, Scientific Session on Pediatric Neuroradiology, Society for Pediatric Radiology 35th Annual Meeting, May 17, Orlando, FL
- 1992 Invited Lecturer and Panelist, "Sedation in Pediatric Neuroradiology", American Society of Neuroradiology 30th Annual Meeting, June 3, St. Louis, MO
- 1992 Panelist, Scientific Session on Pediatric Neuroradiology, American Society of Neuroradiology 30th Annual Meeting, June 3, St. Louis, MO

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- 1993 Co-Moderator and Co-Discussant, Neuroradiology Long Papers Session, Society for Pediatric Radiology, 36th Annual Meeting, Seattle, Washington, May 13, 1993
- 1993 Co-Discussant, Pediatric Scientific Session, American Society of Neuroradiology, 31st Annual Meeting, Vancouver, B.C., Canada, May 19, 1993
- 1993 Discussant, Pediatric Specialties Scientific Session, American Society of Neuroradiology, 31st Annual Meeting, Vancouver, B.C., Canada, May 19, 1993
- 1993 Invited Lecturer, "MRI in Pediatric Imaging", Christchurch Hospital, University of Otago, Christchurch, New Zealand, Oct. 4, 1993
- 1993 Invited Lecturer, "Basics of MRI", & "Signal Intensity Patterns in MRI of the Pediatric CNS", and Discussant, Epilepsy Conference, Royal Children's Hospital, University of Melbourne, Melbourne, Australia, Oct. 11, 1993
- 1993 Invited Lecturer, "MRI in Pediatric Cerebrovascular Disease", and Discussant, Pediatric Neurology and Neurosurgery Conference, Prince of Wales Hospital, University of Sydney, Sydney, New South Wales, Australia, Oct. 13, 1993
- 1993 Invited Discussant, Radiology Resident Case Review Lecture, Royal Alexandra Hospital for Children, University of Sydney, Sydney, New South Wales, Australia, Oct. 13, 1993
- 1993 Invited Lecturer, "Imaging in Pediatric Neuroncology", "Neurocutaneous Syndromes", "Pediatric Neurovascular Diseases", Australasian Society for Paediatric Imaging (ASPI), October 15-17, Leura, New South Wales, Australia.
- 1993 Invited Lecturer, "Congenital & Developmental Brain Abnormalities", "Intracranial Inflammatory Processes", "Metabolic and Neurodegenerative Disorders", "Vascular Diseases and Trauma", "Cranial and Intracranial Tumors", "Neurocutaneous Syndromes", "Developmental and Acquired Abnormalities of the Spine and Spinal Neuraxis". ASPI MRI Symposium, October 18, Leura, New South Wales, Australia
- 1994 Invited Lecturer, "Imaging of the Pediatric Central Nervous System: Current Concepts", The Denby Bowdler Lecture, The Annual Post-

- Graduate Meeting, The Royal Alexandra Hospital for Children, Sydney, New South Wales, Australia, Oct. 21, 1993
- 1994 Moderator and Invited Lecturer, Update Course in Pediatric Radiology-Neuroradiology, Radiologic Society of North America, November 28, Chicago, IL.
- 1995 Invited Lecturer, Current Concepts in Pediatric Imaging-Neuroradiology, The Society for Pediatric Radiology, April 27, Colorado Springs, CO.
- 1995 Invited Lecturer, Society of Magnetic Resonance Technologists, Pediatric MRI-Sedation and Monitoring, 1994 Annual Regional Meeting, October 8, Boston, MA
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- 1995 Moderator and Invited Lecturer, Update Course in Pediatric Radiology-Neuroradiology, Radiological Society of North America, November 27, Chicago, IL
- 1995 Co-Moderator and Co-Discussant, Pediatric Scientific Session, American Society of Neuroradiology 33rd Annual Meeting, April 23, Chicago, IL
- 1995 Co-Moderator and Co-Discussant, Neuroradiology Scientific Session, Society for Pediatric Radiology, 38th Annual Meeting, April 29, Washington, D.C.
- 1995 Invited Lecturer, Emergency Pediatric Radiology Categorical Course-"Increased Intracranial Pressure"-American Roentgen Ray Society 95th Annual Meeting, April 30, Washington, D.C.
- 1995 Invited Lecturer, Update Course in Clinical Neuroradiology: Pediatric Neurovascular Imaging, Refresher Course, Radiological Society of North America, 81st Annual Meeting, November 29, Chicago, IL
- 1995 Invited Lecturer, Special Focus Session: Pediatric Sedation. Radiological Society of North America, 81st Annual Meeting, November 30, Chicago, IL
- 1996 Co-Moderator, and Co-Director, Pediatric Neuroradiology Session, IPR '96 Pediatric Neuroimaging Symposium, International Pediatric Radiology 3rd Conjoint Meeting, SPR, ESPNR, ASPI, May 25, Boston, MA
- 1996 Invited Lecturer, "Current and New Concepts in Imaging of the Pediatric Spine" IPR 96 Pediatric Neuroimaging Symposium., International Pediatric Radiology 3rd Conjoint Meeting, SPR, ESPNR, ASPI, May 25, Boston, MA
- 1997 Invited Lecturer, "Imaging of Head and Neck Masses in Childhood", McGill University, Department of Diagnostic Radiology Grand Rounds, January 20, Montreal, Quebec, Canada
- 1997 Invited Lecturer, "Cranial and Intracranial Tumors of Childhood: An Overview", Montreal Children's Hospital, Department of Diagnostic Imaging, January 21, Montreal, Quebec, Canada
- 1997 The Dr. Bernadette Nogrady Lecturer, "Imaging of the Neurocutaneous Syndromes in Childhood", Medical Grand Rounds, Montreal Children's Hospital, McGill University, Jan. 21, Montreal, Quebec, Canada.
- 1997 Invited Lecturer, "Congenital Malformations of the Brain", Practical MRI

- Categorical Course, American Roentgen Ray Society, 97th Annual Meeting, May 4, Boston, MA.
- 1997 Invited Lecturer, “MRI and Other Advanced Imaging Techniques”, Spinal Dysraphism Workshop, Society for Pediatric Radiology, May 15, St.Louis, MO.
- 1997 Invited Lecturer, “Advanced Techniques in Pediatric Neuroradiology”, New England Conference of Radiologic Technologists and New England Chapter of the American Radiology Nurses Association 39th Annual Fall Symposium, September 26, Sturbridge, MA

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- 1998 Invited Lecturer, “Imaging of the Pediatric Spine, Part I”, Department of Radiology, Children’s Hospital of Pittsburgh and University of Pittsburgh Medical Center, February 9, Pittsburgh, PA
- 1998 Invited Lecturer, “Potential Pitfalls in Imaging of the Pediatric CNS”, Department of Radiology, Children’s Hospital of Pittsburgh and University of Pittsburgh Medical Center, February 9, Pittsburgh, PA
- 1998 Invited Lecturer, Department of Radiology, Children’s Hospital of Pittsburgh and University of Pittsburgh Medical Center, Teaching Session with Residents and Fellows, February 9, Pittsburgh, PA
- 1998 Invited Lecturer, “Imaging of the Pediatric Spine, Part II”, Department of Radiology, Children’s Hospital of Pittsburgh and University of Pittsburgh Medical Center, February 10, Pittsburgh, PA
- 1998 Invited Lecturer, “Imaging of CNS Injury in Child Abuse”, Department of Radiology, Children’s Hospital of Pittsburgh and University of Pittsburgh Medical Center, February 10, Pittsburgh, PA
- 1998 Invited Lecturer, Department of Radiology, Children’s Hospital of Pittsburgh and University of Pittsburgh Medical Center, Teaching Session with Residents and Fellows, February 10, Pittsburgh, PA
- 1998 Invited Lecturer, “Potential Pitfalls in Imaging of the Pediatric CNS”, Department of Radiology, William Beaumont Hospital, March 18, Royal Oak, MI
- 1998 Invited Lecturer, “Imaging of CNS Injury in Child Abuse”, Department of Radiology, William Beaumont Hospital, March 18, Royal Oak, MI
- 1998 Course Director and Moderator, Multimodality Imaging of Head & Neck Lesions in Childhood -- The Oral Cavity, Jaw, and Neck; The Eye and Orbit; The Ear and Temporal bone; The Nose, Paranasal Sinuses, and Craniofacial Structures; Sunrise Sessions, The Society for Pediatric Radiology, 41st Annual Meeting, May 7-9, Tucson, AZ
- 1998 Co-Moderator, Scientific Session VI--Neuroradiology, The Society for Pediatric Radiology, 41st Annual Meeting, May 9, Tucson, AZ
- 1998 Invited Lecturer, Focus Session: Scoliosis “Imaging the Spine in Scoliosis”, the American Society of Neuroradiology, 36th Annual Meeting, May 17-21, Philadelphia, PA

- 1998 Course Director and Moderator, Minicourse in Pediatric Neuroradiology: Session I: "Pediatric Neurovascular Diseases"; Session II: "Pediatric CNS Tumors"; Session III: "Congenital and Developmental Abnormalities"; Session IV: "Traumatic, Inflammatory, and Neurodegenerative Diseases", Radiological Society of North America, 84th Scientific Assembly and Annual Meeting, November 29-December 1, Chicago, IL
- 1998 Invited Speaker, Minicourse in Pediatric Neuroradiology, "Tumors about the Third Ventricle", Radiological Society of North America, 84th Scientific Assembly and Annual Meeting, November 30, Chicago, IL

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- 1998 Invited Speaker, Special Focus Session--Child Abuse Revisited, Radiological Society of North America, 84th Scientific Assembly and Annual Meeting, December 1, Chicago, IL
- 1998 Invited Lecturer, "Potential Pitfalls in Imaging of the Pediatric CNS", The Roger A. Hyman Memorial Lecture, Long Island Radiological Society and Winthrop-University Hospital, Dec. 8, Long Island, NY
- 1999 Invited Speaker, "Shaken Baby Syndrome", Current Issues in Emergency Practice, Seventh Annual Massachusetts Emergency Nurses Association and Massachusetts College of Emergency Physicians Course, April 13, Marlboro, MA
- 1999 Invited Speaker, "The Pediatric Radiologist as Expert Witness: How I do it", Society for Pediatric Radiology, Postgraduate Course, May 12, Vancouver, B.C., Canada
- 1999 Pediatric Focus Sessions Director and Moderator, Session I: "Diagnosis and Management of Head and Neck Vascular Anomalies of Childhood"; Session II: "Diagnosis and Management of Craniofacial Anomalies"; Session III: "Diagnosis and Management of Craniovertebral Anomalies"; Session IV: Basic Science/Applications – Watershed Patterns: Anatomy and Pathology; Session V: Diagnosis and Management of Pediatric Neuroendocrine Disorders"; Session VI: "Diagnosis and Management of Pediatric Epilepsy", American Society of Neuroradiology/American Society of Pediatric Neuroradiology Annual Meeting, May 22-23, San Diego, CA
- 1999 Invited Speaker, Neurooncologic Imaging in Children, Neuroimaging Session, Frontiers of Hope, A Brain Tumor Symposium for Patients, Survivors, Family, Friends, and Professionals, The Brain Tumor Society, November 13, Providence, RI
- 2000 Invited Speaker, Potential Pitfalls in Pediatric Neuroradiology, Parts I & II, Department of Diagnostic Imaging Grand Rounds, Brown University School of Medicine, Rhode Island Hospital, and the Hasbro Children's Hospital, Providence RI.
- 2000 Invited Speaker, Neuroradiology of Pediatric Scoliosis, Practical Spine Imaging & Image Guided Therapy Symposium, The American Society

- of Spine Radiology, February 23, Marco Island, FL
- 2000 Invited Speaker, Diffusion Imaging in Children, ASNR 2000: Advanced Imaging Symposium, American Society of Neuroradiology, April 2, Atlanta, GA
- 2000 Moderator, Pediatric Scientific Session, American Society of Pediatric Neuroradiology, American Society of Neuroradiology Annual Meeting, April 2-8, Atlanta, GA

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- 2000 Invited Speaker, Pediatric Neuroradiology, Advanced Medical Malpractice Seminar, Office of Legal Education, Executive Office for U.S. Attorneys, United States Department of Justice, May 2, Columbia, SC.
- 2000 Invited Speaker, Course Director, Syllabus Editor / Co-author, & Session Moderator, Problem-Focused Strategies in Pediatric Neuroradiology: An Interactive Symposium, Society for Pediatric Radiology and American Society of Pediatric Neuroradiology Joint Post-graduate Course, May 4-6, Naples, FL.
- 2000 Invited Speaker and Participant, Fetal & Neonatal Neurologic Injury, Part I - Neuroimaging Patterns and the Timing of Fetal Brain Injury – Medical Intelligence Corporation Keynote Address; Part II - The Neuroimaging Expert, Birth Injury and the Law VII, Oct. 19, Las Vegas, NV
- 2001 Invited Speaker and Participant, Imaging of Fetal & Neonatal CNS Injury Parts I-III, 17th Annual Conference on Obstetrics, Gynecology, Perinatal Medicine, Neonatology, and the Law, Jan. 2-5, San Juan, PR
- 2001 Invited Speaker, Pediatric Spine Imaging, Fetal and Infant Neuro-MR, Pediatric Brain Imaging I-II, MR Update 2001, Neuroradiology and Musculoskeletal Imaging Advances, Stanford Radiology, Feb. 16, Las Vegas, Nevada
- 2001 Invited Speaker and Participant, Sam Hersch Cerebral Palsy Symposium at the Salk Institute, Feb. 27-28, La Jolla, CA.
- 2001 Invited Speaker & Session Co-coordinator, RSNA Oncodiagnosis Panel- Pediatric Brain Tumors, Radiologic Society of North America 87th Scientific Assembly and Annual Meeting, Chicago, IL, Dec. 28, 2001.
- 2002 Barnes PD. Invited Speaker. Current and Advanced Techniques in Imaging of the Pediatric Central Nervous System. Department of Neurology Grand Rounds. Stanford University Medical Center, Palo Alto, CA, Jan. 30, 2002.
- 2002 Invited Speaker. Current and Advanced Techniques in Pediatric Otolaryngology / Head & Neck Imaging – A Problem-focused Approach, Western Society of Pediatric Otolaryngology Annual Meeting, Lucile Packard Children’s Hospital at Stanford, Palo Alto, CA, Mar. 16, 2002
- 2002 Invited Speaker. Neuroimaging of congenital and neonatal

- Infections. Postgraduate Course: Perinatal and neonatal imaging, Society for Pediatric Radiology, Philadelphia, PA, May 2, 2002.
- 2002 Session Co-Moderator. White Matter Symposium. American Society of Neuroradiology / American Society of Pediatric Neuroradiology, Vancouver, B.C., May 16, 2002.
- 2003 Barnes PD. Current and Advanced Imaging of the Fetal and Neonatal CNS. Mid-Coastal California Perinatal Outreach Program, 23rd Annual Meeting, Stanford University School of Medicine, Monterey, CA, Jan. 2003.
- 2003 Barnes PD. Neuroimaging: a medical perspective. Litigating catastrophically injured infant cases, Association of Trial Lawyers of America, Feb.22, 2003, Atlanta, GA.
- 2003 Barnes PD. Trauma, including Child Abuse. CT & MRI: State of the Art & Unanswered Questions, SPR Postgraduate Course, San Francisco, CA, May 6, 2003.
- 2004 Barnes PD. Nonaccidental Head Injury in Children. Neurosciences Grand Rounds. Santa Clara Valley Medical Center. San Jose, CA, Feb. 5, 2004.
- 2004 Barnes PD. Forensic Science, Evidence-based Medicine, and the “Shaken Baby Syndrome”: Radiographic Imaging and Findings. American Academy of Forensic Sciences Annual Meeting, Dallas,Tx, Feb. 16, 2004.
- 2004 Barnes PD. Nonaccidental Injury of the Developing Brain: Issues, Controversies, and the Mimics. Moderator and Speaker. Neuroimaging Aspects. Focus Session, American Society of Pediatric Neuroradiology. American Society of Neuroradiology Annual Meeting, Seattle, WA, June 7, 2004.
- 2004 Barnes PD. Co-Moderator, Pediatric scientific session, American Society of Pediatric Neuroradiology, American Society of Neuroradiology Annual Meeting, Seattle, WA, June 8, 2004.
- 2004 Barnes PD. Moderator, Pediatric Session and Speaker. MDCT applications in Pediatric Neuroradiology (Brain, Spine, Head & Neck). 6th Annual International Symposium on Multidetector-Row CT. Stanford University Medical Center, San Francisco CA, June 23, 2004.
- 2004 Barnes PD. Child abuse: the role of neuroimaging in the clinical and forensic evaluation of suspected nonaccidental injury including its mimics. 12th Annual Pediatric Update, Lucille Packard Children’s Hospital and Stanford University Medical Center, July 16, 2004.
- 2005 Barnes PD. Neuroimaging of the pediatric spine – scoliosis. Neuroscience Grand Rounds. Santa Clara Valley Medical Center. San Jose, CA, March 3, 2005.
- 2005 Barnes PD. Diagnostic imaging of neonatal brain injury. California Association of Neonatologists (CAN) and American Academy of Pediatrics (AAP) District IX Section on Perinatal Pediatrics, 11th Annual Conference, Current Topics and Controversies in Perinatal and Neonatal Medicine, Coronado CA, March 6, 2005.
- 2005 Barnes PD. Co-moderator, Neuroradiology scientific session, Society for Pediatric Radiology Annual Meeting, New Orleans, LA, May 7, 2005.

- 2005 Barnes PD. Moderator, CAQ Review Sessions, Pediatric Brain, Head & Neck, and Spine Imaging, American Society of Pediatric Neuroradiology, American Society of Neuroradiology Annual Meeting, Toronto, Ontario, Canada, May 26-27, 2005.
- 2005 Barnes PD. Co-Moderator, Pediatric scientific session, American Society of Pediatric Neuroradiology, American Society of Neuroradiology Annual Meeting, Toronto, Ontario, Canada, May 26, 2005.
- 2005 Barnes P. Child abuse: the role of neuroimaging in the clinical and forensic evaluation of suspected nonaccidental injury including its mimics. 13th Annual Pediatric Update, Lucile Packard Children's Hospital and Stanford University Medical Center, July 8, 2005.
- 2005 Barnes P. Child abuse: the role of neuroimaging in the clinical and forensic evaluation of suspected nonaccidental injury including its mimics. Neurosurgery Grand Rounds, Stanford University Medical Center, July 15, 2005.
- 2006 Barnes P. Imaging of the Pediatric Central Nervous System and Head & Neck: MRI, CT, US, Nuclear Medicine – Which to do? 14th Annual Pediatric Update, Lucile Packard Children's Hospital and Stanford University Medical Center, July 21, 2006.
- 2006 Barnes P. Child Abuse: Issues and Controversies in the Era of Evidence-Based Medicine. Pediatric Grand Rounds, Lucile Packard Children's Hospital and Stanford University Medical Center, October 13, 2006.
- 2006 Hahn J, Barnes P. Prenatal Neurologic Consultations and Management of Brain Malformations. Pediatric Grand Rounds, Lucile Packard Children's Hospital and Stanford University Medical Center, Nov. 3, 2006.
2007. Barnes PD. Co-Director and Co-Moderator. Brain, Head & Neck, and Spine Imaging. Advances in Pediatric CT and MRI. Department of Radiology, Stanford School of Medicine Postgraduate Course. Las Vegas, Nevada, March 17, 2007.
- 2007 Barnes PD. Lecturer. Advances in Pediatric CT and MRI: Head & Neck Imaging I (Orbit, Sinus, Ear), Head & Neck Imaging II (Face & Neck), Spine Imaging I (Developmental Anomalies), Spine Imaging II (Acquired Conditions), Brain Imaging III (Acute neurologic conditions – Trauma [including child abuse], hemorrhage, vascular disease), Brain Imaging V (Subacute neurologic conditions – Tumors, epilepsy). Department of Radiology, Stanford School of Medicine Postgraduate Course. Las Vegas, Nevada, March 17, 2007. Course Syllabus.
- 2007 Barnes PD. Lecturer. How I do it – Advanced Neuro-MRI of Nonaccidental CNS injury and its Mimics. Society for Pediatric Radiology 50th Annual Meeting and Postgraduate Course. Miami FL. April 20, 2007.
- 2007 Barnes P. Lecturer. Child Abuse: Pitfalls in Pediatric Neuroimaging. EBMS Symposium: An Evidence-based Analysis of Infant Brain and Skeletal Injury. Chicago IL, May 10, 2007.
- 2007 Barnes P. Lecturer. Child Abuse: Issues and Controversies in the Era of Evidence-Based Medicine. Department of Social Services and Child Protection, Lucile Packard Children's Hospital and Stanford University

- Medical Center, June 21, 2007.
- 2007 Barnes P. Lecturer. Child Abuse: Issues & Controversies. Pediatrics CME Program. Salinas Valley Memorial Healthcare System, Salinas CA, Nov. 16, 2007.
- 2008 Barnes P. Lecturer. Child Abuse and the Mimics. Imaging of Brain, Blood, & Bones. Death of a Child Symposium. The Center for American and International Law. Plano TX, March 4, 2008.
- 2008 Barnes P. Imaging of Child Abuse: Controversies in the Era of Evidence-Based Medicine. Herman Grossman Visiting Lecturer. Radiology & Pediatrics Grand Rounds. Duke University Medical Center, Durham NC, April 10, 2008.
- 2008 Barnes P. Update on Brain Imaging in Nonaccidental Trauma. Neuroimaging I Session, Pediatric Radiology Series. Radiologic Society of North America, Chicago IL, Nov. 30, 2008.
- 2008 Barnes P. Co-Moderator & Discussant, Neuroimaging I Scientific Paper Session, Pediatric Radiology Series, Radiologic Society of North America, Chicago, IL Nov. 30, 2008
- 2008 Barnes P. Neuroimaging in the Evaluation of Pattern and Timing of Fetal and Neonatal Brain Injury. Fetal & Neonatal Annual Care Conference. Santa Clara Valley Medical Center. San Jose CA, November 7, 2008.
- 2009 Barnes P. Medical Imaging in Brain Trauma; Intracranial Hemorrhage and Thrombosis (Krasnokutsky M): Imaging & Pitfalls. An Evidence-based Analysis of Infant Brain & Skeletal Trauma. EBMS Symposium, Denver CO, February 22, 2009.
- 2009 Barnes P. Imaging of Child Abuse and the Mimics: Controversies in the Era of Evidence-Based Medicine. Innocence Network Conference. South Texas College of Law, Houston TX, March 21, 2009.
- 2009 Barnes P. Neuroimaging in the Evaluation of Pattern and Timing of Fetal and Neonatal Brain Abnormalities. The Latest Tools and Science to Determine the Origin and Timing of Irreversible Brain Damage. Obstetric Malpractice West Coast Conference & Workshop. San Francisco CA, April 28, 2009.
- 2009 Child Abuse and the Mimics: Controversies in the Era of Evidence-Based Medicine. Visiting Professor, Department of Radiology, Hospital for Sick Children, University of Toronto, Toronto Ontario Canada, Sept. 24, 2009.
- 2009 Child Abuse, NAI, and the Mimics: Controversies in the Era of Evidence-Based Medicine Seminar. Shaken Baby Death Review Team (Gouge Inquiry). Ministry of the Attorney General, Province of Ontario. Toronto Ontario, Canada, Sept. 24, 2009.
- 2009 Child Abuse – Nonaccidental Injury (NAI): Controversies in the Era of Evidence-Based Medicine. Controversies in Forensic Science and Medicine: Towards Resolution in the 21st Century. Centre for Forensic Science and Medicine, University of Toronto, Toronto Ontario, Canada, Sept. 25, 2009.
- 2010 Neuroimaging in the Evaluation of pattern and timing of fetal and neonatal brain abnormalities. The 26th Annual Conference on Obstetrics,

- Gynecology, Perinatal Medicine, Neonatology, and the Law. Boston University Continuing Medical Education Course, San Jose del Cabo, Mexico, Jan. 2, 2010 (Program and Website material only).
- 2010 Evidence-based Update: Imaging in Nonaccidental Injury and the Mimics: Blood, Brain, & Bones. National Association of Criminal Defense Attorneys and the Innocence Network (Bureau of Justice Assistance Grant), April 15, 2010, Atlanta GA.
- 2010 Imaging of the Pediatric Head & Neck (Resident & Fellow Lecture), Department of Radiology, University of Arizona Medical Center, Tucson AZ, June 9, 2010.
- 2010 Child abuse and the mimics. Update on issues & controversies in the era of evidence-based medicine. Pediatric Grand Rounds. Department of Pediatrics. University of Arizona Medical Center, Tucson AZ, June 9, 2010.
- 2010 Imaging of fetal and neonatal brain abnormalities. Birth Injury Group. American Association of Justice, Vancouver, BC, Canada, July 11, 2010.
- 2010 Invited Lecturer & Panelist. Child abuse and the mimics. Update on issues & controversies in the era of evidence-based medicine. National Child Abuse DRC Conference, Las Vegas NV, August 26, 2010.
- 2010 Expert Testimony (Baumer Case). Child abuse and the mimics. Update on issues & controversies in the era of evidence-based medicine. Michigan Innocence Project. University of Michigan Law School, Detroit, Michigan September 30, 2010.
- 2010 Child abuse and the mimics. Update on issues & controversies in the era of evidence-based medicine. Neuroscience Grand Rounds, Vancouver General Hospital, BC Children's Hospital, University of British Columbia, Vancouver BC, Canada, October 13, 2010.
- 2010 Pediatric Head & Neck Imaging I, II; Pediatric Spine Imaging (Resident & Fellow Lecture Series), Department of Radiology, Vancouver General Hospital, BC Children's Hospital, University of British Columbia, Vancouver BC, Canada, October 13-14, 2010.
- 2010 Imaging of Pediatric CNS Malformations (Neuroradiology and Pediatric Radiology Fellow Lecture), Department of Radiology, Vancouver General Hospital, BC Children's Hospital, University of British Columbia, Vancouver BC, Canada, October 14, 2010.
- 2011 Neuroimaging in the Evaluation of pattern and timing of fetal and neonatal brain abnormalities (3 lectures). The 27th Annual Conference on Obstetrics, Gynecology, Perinatal Medicine, Neonatology, and the Law. Boston University Continuing Medical Education Course, Maui, Hawaii, January 2-6, 2011.
- 2011 Imaging of the Pediatric Head & Neck; Imaging of Pediatric CNS Malformations; Imaging of Pediatric CNS Tumors. Radiology Board Review Course. Las Vegas NV, January 12, 2011.
- 2011 Imaging of child abuse and the mimics. Issues & controversies in the era of evidence-based medicine. California Public Defenders Association Annual Meeting, Monterey, CA, January 21, 2011.

- 2011 Invited Participant & Discussant, Pediatric Abusive Head Trauma. Medical, Forensic, and Scientific Advances and Prevention. Third International Conference. Penn State Hershey College of Medicine. San Francisco, CA, July 7-8, 2011.
- 2011 Imaging of child abuse and the mimics. 2nd Biennial International Conference on Brain Injury in Children, SickKids Centre for Brain & Behavior, The Hospital for Sick Children, July 13, 2011, Toronto, Canada.
- 2011 Imaging of child abuse and the mimics. Evidence Based Medicine and Social Investigation (EBMSI) Conference, Vancouver, Canada, August 5, 2011.
- 2011 Child abuse and the mimics: controversies in the era of evidence-based medicine. Cook County Public Defenders' Conference, Oak Brook IL September 8-9, 2011.
- 2011 Findley K, Barnes P, Moran D, Sperling C. Challenging shaken baby syndrome convictions in the light of new medical and scientific research. *Integris Health Law & Medicine Lecture Series*. Innocence Project. Oklahoma City University School of Law, Oklahoma City, OK, Sep. 21, 2011.
- 2011 Invited Speaker. Imaging of the pediatric brain, spine, and head & neck. National Association of Pediatric Nurse Advanced Practitioners (NAPNAP), San Francisco Bay Area Chapter. 2nd Annual Meeting, Stanford University, Stanford CA, October 29, 2011.
- 2011 Invited Speaker. Fetal and neonatal brain imaging. "Perinatal Care: All About The Family" Annual Conference. VMC Foundation, Santa Clara Valley Medical Center, San Jose CA, November 3, 2011.
- 2012 Imaging of child abuse and the mimics. Evidence Based Medicine and Social Investigation (EBMSI) Conference, Vancouver, Canada, August 3, 2012.
- 2012 Invited Lecturer & Panelist. Child abuse and the mimics. Update on issues & controversies in the era of evidence-based medicine. National Child Abuse DRC Conference, Las Vegas NV, September 6, 2012.
- 2012 Invited Speaker. Fetal and neonatal brain imaging. "Perinatal Care: All About The Family" Annual Conference. VMC Foundation, Santa Clara Valley Medical Center, San Jose CA, October 31, 2012.
- 2013 Imaging of child abuse and the mimics. Evidence Based Medicine and Social Investigation (EBMSI) Conference, Vancouver, Canada, August 2, 2013.
- 2013 Invited Lecturer. Child Abuse – Nonaccidental Injury (NAI) - Abusive Head Trauma (AHT) - Issues and Controversies in the Era of Evidence-Based Medicine, An Update. World Congress on Infant Head Trauma. American Forensic Pathology Incorporated. The Center for American and International Law. Plano, Texas, USA, November 15, 2013.
- 2014 Invited Lecturer, NCADRC Conference Child Abuse Mimics Lecture, Las Vegas NV, Oct 17, 2014.
- 2015 Invited Lecturer, CPDA / CCDS Conference Child Abuse Mimics lecture, Monterey CA, Feb 13, 2015.

- 2015 Invited Lecturer, AAJ BTLG Conference, Imaging of Neonatal Encephalopathy Lecture, Palm Desert CA Feb 22, 2015.
- 2015 Invited Lecturer, NACDL Forensic College Conference, Child Abuse Mimics Lecture, New York City, NY, June 8, 2015.
- 2015 Invited Speaker & Panel Discussant, Child Abuse Evidence Conference – New Perspectives Law, Medicine, Psychology, Statistics, University of Michigan - “Child Abuse & Mimics - Medical Imaging Issues and Controversies in the Era of Evidence-Based Medicine”

Teaching Awards:

- 1998 John A. Kirkpatrick Jr. Teaching Award, Pediatric Radiology Fellowship Program, Department of Radiology, Children's Hospital and Harvard Medical School, Boston, MA.
- 2003 Stanford B. Rossiter Senior Faculty of the Year 2002-2003. Outstanding Contributions to Resident Education, Compassionate Patient Care, and Research, Department of Radiology, Stanford University Medical Center.
- 2005 Senior Faculty of the Year 2004-2005 Outstanding Contributions to Resident Education, Compassionate Patient Care, and Research, Department of Radiology, Stanford University Medical Center.
- 2006 Senior Faculty of the Year 2005-2006. Outstanding Contributions to Resident Education, Compassionate Patient Care, and Research, Department of Radiology, Stanford University Medical Center.

Major Curriculum and Educational Programs Developed:

- 1976-1979 Course Director and Conference Leader, Pediatric House Staff Core Lecture Series, Pediatric Radiology, Oklahoma Children's Memorial Hospital
- 1976-1980 Conference Co-leader, Monthly Orthopaedic Radiology-Pathology Conference, Oklahoma Teaching Hospitals
- 1977-1979 Physician Associates Radiology Lecture Series, College of Allied Health, University of Oklahoma
- 1977-1982 Conference Co-Leader, Weekly Pediatric Cardiology and Cardiac Surgery Conference
- 1977-1982 Conference Co-Leader - "Sickle Cell Anemia", Annual Clinical Demonstration for First Year Medical Students, College of Medicine, University of Oklahoma.
- 1977-1982 Pediatric Cardiac Cine-Angiographic case review and consultation weekly with Pediatric, Pediatric Cardiology, Thoracic Surgery Staff, Residents and Fellows
- 1977-1985 Pediatric Grand Rounds, Oklahoma Children's Memorial Hospital.

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- 1977-1986 Attending Physician and Conference Leader, Daily and Weekly Clinical Teaching Rounds, Children's Memorial Hospital, University of Oklahoma College of Medicine; Pediatric Radiology Film and Fluoroscopy Review

- with Radiology, Pediatric, Family Medicine Residents and Medical Students.
- 1977-1986 Pediatric Neuroradiology Case Review and Consultation daily with Neurosurgery, Neurology, Pediatric, and Adolescent Medicine Staff, Residents, Fellows and Medical Students
- 1977-1986 Pediatric Computed Tomography, Conventional Tomography, and Special Procedures case review and consultation daily with Pediatric, Pediatric Surgery, Adolescent Medicine, and Orthopedic Staff, Residents, Fellows and Medical Students
- 1977-1986 Elective Tutorials in Pediatric Neuroradiology and Cardiovascular Radiology for Pediatric, Radiology, Neurosurgery, Neurology and Pediatric Surgery Residents, Fellows, and Students
- 1977-1986 Weekly Diagnostic Radiology Residency Lecture Series, University of Oklahoma College of Medicine
- 1977-1986 Quarterly Radiologic Technology Inservice in Pediatric Neuroradiology and Cardiovascular Radiology Special Procedures
- 1977-1986 Co-Leader, Weekly Neurosurgery/Neurology Grand Rounds, Oklahoma Teaching Hospitals and St. Anthony Hospital, Oklahoma City, Oklahoma
- 1978-1982 Course Lecturer, Annual Department of Radiological Sciences Continuing Medical Education Courses, University of Oklahoma Health Sciences Center
- 1978-1985 Lecturer, Annual Graduate Physics Seminar, College of Allied Health, University of Oklahoma Health Sciences Center
- 1979-1981 Lecturer, Annual Radiology Grand Rounds, Oklahoma Teaching Hospitals
- 1980-1985 Lecturer, Pediatric Surgery Core Lecture Series in Pediatric Radiology, Oklahoma Children's Memorial Hospital
- 1981-1986 Lecturer, Neurology/Pediatric Neuroradiology Lecture Series, Oklahoma Teaching Hospitals
- 1982-1985 Participant, Senior Radiology Resident Pre-Board Examinations, University of Oklahoma College of Medicine
- 1982-1986 Lecturer, Pediatric House Staff Core Lecture Series in Pediatric Radiology, Oklahoma Children's Memorial Hospital
- 1983-1986 Course Developer and Director, Resident Final Examination in Pediatric Radiology, University of Oklahoma College of Medicine
- 1985-1986 Oklahoma Diagnostic Imaging Center Lecture Series, Course Co-Developer and Co-Director
- 1985-1986 Oklahoma Teaching Hospitals Department of Radiological Sciences, Magnetic Resonance Imaging Lecture Series (Course Developer and Director)

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- 1986 "Magnetic Resonance Imaging for the Referring Physician", Continuing Medical Education Seminar, Program Co-Director, Session Moderator,

- and Lecturer, Oklahoma Teaching Hospitals and the University of Oklahoma College of Medicine
- 1986-2000 Daily Neuroradiology Case Review and Consultation with Pediatric and Adolescent Medicine, Neurology, Neurosurgery, Radiology, Oncology, Radiation Therapy, Orthopedic, ORL/Head and Neck Surgery, Ophthalmology, Plastic Surgery, Oral Surgery, and Neuropathology Staff, Fellows, Residents, Medical Students, and visitors, Children's Hospital, Boston, MA
- 1986-2000 Weekly Pediatric Neurology-Neuroradiology Rounds with Staff, Fellows, Residents, Medical Students, and visitors, Conference Co-Leader, Children's Hospital, Boston, MA
- 1986-2000 Weekly Pediatric Neurosurgery-Neuroradiology Rounds with Staff, Fellows, Residents, Medical Students, and visitors, Conference Co-Leader, Children's Hospital, Boston, MA
- 1986-2000 Weekly Pediatric Neuroncology-Neuroradiology Rounds with Pediatric Oncology, Radiation Oncology, and Neurosurgery Staff, Fellows, Residents, Medical Students, and visitors (The Children's Hospital and Dana-Farber Cancer Institute), Conference Co-Leader, Children's Hospital, Boston, MA
- 1986-2000 Weekly Longwood Medical Area Neuroradiology Conference with Staff, Fellows, Residents, Medical Students, and visitors (The Children's Hospital, Brigham & Women's Hospital, Beth Israel Hospital, New England Deaconess Hospital, Dana-Farber Cancer Institute), Conference Co-Leader, Children's Hospital, Boston, MA
- 1986-2000 Monthly Pediatric ORL/Head & Neck Radiology Rounds with Staff, Fellows, Residents, Medical Students, and visitors, Conference Co-Leader, Children's Hospital, Boston, MA
- 1986-2000 Monthly Pediatric Radiology Difficult Case Conference (Risk Management and Quality Improvement) with Staff, Fellows, Residents, Medical Students, and visitors, Children's Hospital, Boston, MA
- 1986-2000 Monthly Boston Area Neuroradiology Club Case Conference with Staff, Fellows, Residents, Medical Students, and visitors (Massachusetts General Hospital)
- 1986-2000 Pediatric Neuroradiology Annual Lecture Series, Course Co-Director and Lecturer, for Staff, Fellows, Residents, Medical Students, and visitors.
- 1986-2000 Pediatric Neuroradiology Introductory Lectures for Harvard Medical Students and Rotating Radiology Residents, Radiology, Children's Hospital, Boston, MA
- 1986-1988 Cardiac Radiology Lecture Series, Course Developer and Lecturer, Radiology, Children's Hospital, Boston, MA
- 1986-1990 Magnetic Resonance Imaging Lecture Series, Course Developer, Director, and Lecturer, Radiology, Children's Hospital, Boston, MA

- 2000 Basic Technical and Biological Principles of Magnetic Resonance Imaging Lecture Series, Department of Radiology, Beth Israel Deaconess Medical Center, Boston, MA
- 2000 Pediatric Neuroradiology Resident Pre-Board Review, Department of Radiology, Beth Israel Deaconess Medical Center, Boston, MA
- 2000- Pediatric Neuroradiology Lectures, Neuroradiology Lecture Series, Stanford University Medical Center, Palo Alto, CA.
- 2000- Annual Pediatric Neuroradiology Lecture Series for Neurology Residents & Fellows, Stanford University Medical Center, Palo Alto, CA.
- 2001- Annual Pediatric Neuroradiology Lecture Series for Neurosurgery Residents and Fellows Stanford University Medical Center, Palo Alto, CA.
- 2001- Pediatric Head & Neck Imaging Lecture Series for ORL/Head & Neck Residents and Fellows, Stanford University Medical Center, Palo Alto, CA.
- 2001- Pediatric Neuroradiology Lectures, Pediatric Radiology Lecture Series, Department of Radiology, Stanford University Medical Center, Palo Alto, CA.

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5. Carson J, Barnes P, Tunell W, Smith E, Jolley S. Imperforate anus, the neurologic implication of sacral abnormalities. *Journal of Pediatric Surgery* 1984; 19:838-842.
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13. Pierce S, Barnes P, Loeffler J, McGinn C, Tarbell N. Definitive radiation therapy in the management of symptomatic patients with optic glioma: survival and long-term effects. *Cancer* 1990;69:45-52.
14. Healey EA, Barnes PD, Kupsky WJ, Scott RM, Sallan SE, Black PM, Tarbell NJ. The prognostic significance of postoperative residual tumor in ependymoma. *Neurosurgery* 1991;28:666-671.

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22. Schutzman SA, Barnes PD, Mantello MT, Scott RM. Epidural hematomas in children. *Annals of Emergency Medicine* 1993;22:535-541.
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