

CURRICULUM VITAE

Richard Towbin, M.D., FAAP, FACR, FSIR

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Education: 1965-69 B.S. University of Cincinnati
(Microbiology)

1969-70 Master's Candidate University of Cincinnati
(Microbiology)

1970-74 M.D. University of Cincinnati

Postgraduate Training and Fellowship Appointments:

1974-76 Intern and Resident in Pediatrics, Los Angeles Children's Hospital, Los Angeles, California

1976-79 Radiology Resident, University of Cincinnati, Cincinnati, Ohio

1979-80 Pediatric Radiology Fellow and Chief of Residents and Fellows, Children's Hospital Medical Center, Cincinnati, Ohio

1994 Harvard School of Public Health, Program for Chiefs of Clinical Services.
Program Director: Eoin Trevelyan, D.B.A.

2008 Eller College Business of Medicine in conjunction with The University of Arizona College of Medicine, Program for Division Chiefs
Module 1: Healthcare Economics, Accounting and Finance, March 28-29, 2008

2008 Eller College Business of Medicine in conjunction with The University of Arizona College of Medicine, Program for Division Chiefs
Module 2: Leadership and Change, June 27-28, 2008

2008 Eller College Business of Medicine in conjunction with The University of Arizona College of Medicine, Program for Division Chiefs
Module 3: Leadership and People, September 26-27, 2008

2009 Eller College Business of Medicine in conjunction with The University of Arizona College of Medicine, Program for Division Chiefs
Module 4 : Strategy and Analytical Decision Making, January 9-10, 2009

2009 University of Arizona Eller School of Business, Phoenix Children's Hospital Physician Leadership Program
August 14, 2009

2009 University of Arizona Eller School of Business, Phoenix Children's Hospital Physician Leadership Program, Session 2
October 2, 2009

2009 University of Arizona Eller School of Business, Phoenix Children's Hospital Physician Leadership Program, Session 3
December 11, 2009

Faculty Appointments:

| | |
|------------|--|
| 7/80-8/84 | Assistant Professor of Radiology and Pediatrics, University of Cincinnati College of Medicine |
| 9/84-6/88 | Associate Professor of Radiology and Pediatrics, University of Cincinnati College of Medicine |
| 7/80-6/88 | Staff Radiologist, Department of Radiology Children's Hospital Medical Center, of Radiology, University of Cincinnati College of Medicine |
| 7/80-6/88 | Attending Radiologist, University Hospital, Department of Radiology, University of Cincinnati College of Medicine |
| 1985-1988 | Chief, Section of Neuroradiology, Department of Radiology, Children's Hospital Medical Center, University of Cincinnati College of Medicine |
| 1985-1988 | Chief, Section of Special and Interventional Procedures, Department of Radiology, Children's Hospital Medical Center, University of Cincinnati College of Medicine |
| 1988-1990 | Professor of Radiology and Pediatrics, Wayne State University School of Medicine |
| 1988-1990 | Vice-Chief of Radiology, Children's Hospital of Michigan, Wayne State University School of Medicine |
| | Attending Radiologist, Departments of Radiology, Detroit Medical Center and Harper Grace Hospital |
| 1990-1999 | Professor of Radiology and Pediatrics, Department of Radiology, University of Pittsburgh, School of Medicine |
| 1990-1999 | Radiologist-in-Chief, Department of Radiology, Children's Hospital of Pittsburgh, University of Pittsburgh School of Medicine |
| 1998-1999 | Chief, Division of Pediatric Radiology, Tod's Children's Hospital, Youngstown, Ohio |
| 2000-9/03 | Chairman and Radiologist-in Chief, Department of Pediatric Radiology, The Children's Hospital of Philadelphia, Philadelphia, Pennsylvania |
| 2000-10/03 | Professor of Radiology, University of Pennsylvania |
| 2002-10/03 | Attending Radiologist, Department of Radiology, Hospital of the University of Pennsylvania, Philadelphia |
| 2003-2006 | Chief Executive Officer, InforMD |
| 2005-2006 | Chairman of the Board, InforMD |
| 10/07- | Radiologist-in-Chief, Department of Radiology, Phoenix Children's Hospital, Phoenix, Arizona |
| 2009- | Clinical Professor of Radiology, University of Arizona |

Specialty Certification:

| | |
|------|--|
| 1975 | National Board of Examiners |
| 1980 | American Board of Radiology |
| 1981 | American Board of Pediatrics |
| 1994 | Certificate of Added Qualifications in Pediatric Radiology (CAQ) |
| 2003 | Re-certification; Certificate of Added Qualifications in Pediatric Radiology (CAQ) |

Licensure:

| | |
|-----------|--------------|
| 039615 | Ohio |
| G30309 | California |
| 053161 | Michigan |
| 042915-L | Pennsylvania |
| 37774 | Arizona |
| FT0619417 | DEA |

Awards, Honors and Membership in Honorary Societies:

1979 Exhibit Honorable Mention, “Antrochoanal Polyps.” Radiological Society of North America, Atlanta, GA.

1980 Exhibit Honorable Mention, “The Sinuses in Childhood.” American Roentgen Ray Society, San Francisco, CA.

1983 Honorary Member, Sociedade Paulista de Radiologia.
Certificate of Honor. XIII Jornada Paulista de Radiologia, Sao Paulo, Brazil.
Certificate of Honor. Universidade Federal Do Rio de Janiero, Faculdade de Medicina-Pos-Graduacao Em Radiologia-NA Conferencia “Radiologia Interventionista EM Pediatria.”
Teaching Award, Pediatric House Staff, Children’s Hospital Medical Center, Cincinnati, Ohio
Radiology Specialty Fellow, American Academy of Pediatrics.

1986 Who’s Who in the Midwest, 21st Edition.

1987 Who’s Who of Emerging Leaders in America, 1st and 2nd editions.

1988 Bernadette Nogrady Lecturer. McGill University, Montreal Children’s Hospital.

1989 Community Leaders of America, 14th edition.
International Leaders in Achievement, 2nd edition.
Resident’s Teaching Award, Wayne State University, Radiology Residents.

1994 Honorary Visitor Evaluation of Radiology service and teaching program, Minsk Russia.

1995 The 12th Harvey White Memorial Lecturer. The Children’s Memorial Hospital, Chicago, IL.

1995 Editor’s Recognition Award for Distinction in Reviewing. *Radiology*

1996 Who’s Who in the American Board of Medical Specialists Directory of Board Certified Medical Specialists, 29th edition.
The Best Doctors in America[®]: Northeast Region, 1st edit
Editors Recognition Award with Distinction. *Radiology*.

1997 AGFA Visiting Professor of Radiology Lecturer. Texas Children’s Hospital, Houston, TX
Who’s Who in the American Board of Medical Specialists Directory of Board Certified Medical Specialists, 30th edition.

1997 Fellow American College of Radiology.

2000 Van Alen Chair of Pediatric Radiology

2002 Sociedade Ecuatoriana de Radiologia, honorary member
JVIR (Journal of Vascular and Interventional Radiology) Distinguished Reviewer Award

- Young Investigator Award, Society of Interventional Radiology. Naked Plasmid DNA Delivery to the Isolated Rabbit Liver: An Interventional Radiology Approach to Gene Therapy. Baskin K, Eastman S, Scheule R, Hodges B, Chu QM, **Towbin RB**
- 2003 Caffey Award Paper, Society for Pediatric Radiology
San Francisco, CA May 7-10, 2003
- 2002-03 President, Society for Pediatric Radiology,
Presided over National Meeting, San Francisco, CA May 7-10, 2003
- 2003-04 Chairman of the Board, Society for Pediatric Radiology
- 2003- Treasurer, Society of Interventional Radiology
- 2003- Treasurer, Cardiovascular and Interventional Radiology Research and Education Fund
- Distinguished Service Award, American Board of Radiology
- Certificate of Appreciation, Cardiovascular and Interventional Radiology
- Contemporary Who's Who, The American Biographical Institute
- Imaging Interpretation Panel, Radiologic Society of North America, November 30, 2003
- Special Member Recognition, Radiologic Society of North America
- 2004 Fellow, Society of Interventional Radiology, March 25, 2004
- Kaye RD, Cahill AM, Baskin KM, Kim H, **Towbin RB**. Botox Injection of Salivary Glands in Children with Hypersalivation and Chronic Aspiration: A Pilot Study. 29th Annual Scientific Meeting, Society of Interventional Radiology, Phoenix Arizona, March 25-30, 2004, honorable mention
- 2004 Contemporary Who's Who, The American Biographical Institute
- 2004 Distinguished Committee Service Award, American College of Radiology, August 2004
- 2004 Special Member Recognition, Radiologic Society of North America
JVIR Distinguished Reviewer Award
- 2005 International Directory of Experts and Expertise. The American Biological Institute.
- 2005 Best Doctors
Great Minds of the 21st Century, American Biological Institute, 2nd edition
- 2006 Organizer and Moderator, Pediatric Intervention Categorical Course,
Society for Interventional Radiology, Montreal Canada, March 2006
- 2006 JVIR Distinguished Reviewer Award
Who's Who
Great Minds of the 21st Century
- 2006 Organizer and Moderator, Pediatric Intervention Categorical Course,
The Child in the Interventional Suite, Society for Interventional Radiology, Seattle,
Washington, March 3, 2007.
American Biographical Institute Gold Medal
- 2006 RSNA Special Member Recognition
- 2006 The Society for Pediatric Radiology Certificate of Appreciation for Excellence
- 2007 Who's Who in Executives and Professionals, Global Register
- 2007 Best Doctors in America
- 2008 Who's Who in Executives and Professionals, Global Register
- 2008 Best Doctors in America
- 2009 Moderator, Pitfalls (M&M), The Society for Pediatric Interventional Radiology, 1st
International Meeting, Perils, Pitfalls and the Advancement of Pediatric Interventional
Radiology, October 24, 2009
- 2009 Best Doctors in America

2010 Best Doctors in America
2011 Who's Who in America, 65th Edition

Memberships in Professional and Scientific Societies:

National Societies

American Academy of Pediatrics (Secretary, Pediatric Radiology Section, 1988; Secretary, Executive Committee, 1990; Fellow)
American College of Radiology (Fellow; Member, Committee on Standards 2001-2004)
American Heart Association
American Roentgen Ray Society
American Society of Neuroradiology
American Society of Pediatric Neuroradiology, founding member
Children's Cancer Group
John Caffey Society
Radiological Society of North America
Silverman Society
Society of Interventional Radiology
Society of Chairman of Academic Radiology Departments
Society of Chairmen of Radiology in Children's Hospitals
Society of Gastrointestinal Radiologists
Society for Pediatric Radiology:
Society for Chairman of Radiology Departments
Society of Interventional Radiology
Connective Tissue Oncology Society

International Societies

Sociedade Paulista de Radiologia
Sociedade Ecuatoriana de Radiologia

Regional Societies

Eastern Neuroradiological Society (charter member)
Midwest Society for Pediatric Radiology (Board of Directors)

Local Societies:

Pennsylvania Radiological Society
*Cincinnati Interventional Radiology Society
*Greater Cincinnati Radiological Society
*Michigan Chapter of American Society of Neuroradiology
*Michigan Chapter of the Society of Cardiovascular and Interventional Radiology
*Michigan Radiologic Society
*Ohio State Radiological Society
*Pittsburgh Angiographic & Interventional Society
*Pittsburgh Roentgen Society

Philadelphia Interventional Society

* no longer an active member

National Scientific Committees:

Society for Pediatric Radiology:

Audio Visual Committee, 1983-1984

Nominating Committee, 1991-1992

Pediatric Cardiovascular and Intervention Committee, founder, chair 1992-2001

Program Committee, 1996-1999

Board of Directors, 1997-2004

Bylaws Committee, 1998

Program Committee, 1998-2003

Strategic Planning Committee, 1999-2002

Finance Committee, 99-2002

Meeting Site Selection, 2001-2002

Liason to American Society of Pediatric Neuroradiology, 2001-

Representative to ACR Intersociety Council, Sante Fe, New Mexico, 2001

Representative to ACR Intersociety Council, Banff, Canada, 2002

Publications Committee, 2003

Chairman, Strategic Planning Committee, 2003

Chair, Bylaws Committee, 2003-2004

Chair, Strategic Planning Committee, 2003

Chair, Nominating Committee, 2003-2004

Chairman, Executive Committee, 2003

Second Vice President, 1999-2000

First Vice President, 2000-2001

President-Elect, 2001-2002

President, 2002-2003

Chairman of the Board, 2003-2004

Member, REF Committee, 2003-2005

Member, Corporate Relations Committee, 2004-

Member, Honors Committee, 2004-2005

Radiation Safety Committee, 2005

Auctioneer, 1st annual auction, 2005

Membership Profile Exploration Committee, 2005

Member, Honors Committee, 2005-2006

Pediatric Standards Committee, founder, 2006

Auctioneer at National Meeting, 2006

Chair, Honors Committee, 2007

American Academy of Pediatrics (FAAP)

Radiology Section

Program Committee, 1984-1985 and 1988
Executive Committee 1985

Society of Interventional Radiology (FSIR)

Training Committee, 1988
Education Committee, 1990
Scientific Program Committee, 1992-1994
Program Committee, 1992-1993
Subcommittee to Select Young Investigator's Award, 1993-1994
Standards of Practice Committee, 1993-present
Treasurer, 2002-2006
Chair, Finance Committee, 2002-2006
Operations Committee, 2002-2006
Executive Council, 2002-2006
RSNA/SIR leadership meeting 11/15/03
Leaders in Innovation Award Committee, 2003
Safety Committee, March 2004-
Leaders in Innovation Award Committee, 2004
Research Foundation Nominating Committee, February 2005
Poster Award Committee, 2005 New Orleans meeting
Medical Simulator Task Force, 2005
Leaders in Innovation Award Committee, 2003-2005
Hi IQ task force, 2005
Medical Simulator task force, 2005
Technology Assessment Committee 2005-
Safety and Health Committee, 2005-
Primary Certificate Task Force, 2006
Abstract Reviewer for Annual Meeting, 2006
Founder, Pediatric Standards Sub-Committee, 2006
Public Relations and Marketing Committee, 2006-
Reviewer of Abstracts for 2008 SIR meeting
Founder, Pediatric Standards Committee
Co-chair Pediatric Standards Committee 2007-

Society of Interventional Radiology Research and Education Foundation

Board of Directors, 2002-2006
Treasurer, 2002-2006
Chair, Finance Committee, 2002-2006
CIRREF reorganization task force, 2003-04
Award Committee, 2005
Nominating Committee, 2005
Dr. Ernest J. Ring Academic Development Grant reviewer, 2005, 2006
Capital Campaign Leadership Committee, 2006-

Society of Pediatric Interventional Radiology

Founding Member, 2009 -

American College of Radiology (FACR)

Committee on Standards for Pediatric Radiology, 1990
Pediatric Disease V Committee, 1996-1998
Committee on Standards and Accreditation, 1996-2004
Commission on Interventional and Cardiovascular Radiology, 1996-2000
Task Force on revising CAQ case material, 1998
Guidelines and Standards Committee, 1999-present
Federal Regulatory Committee, American College of Radiology, 2003-present

Children's Cancer Study Group

Imaging Committee, 1990-1999
CCG-9922 Study Committee, 1993-1998
Study Committee to Evaluate the pharmacokinetics, toxicity, and feasibility of administration of Ph I/II Carbogen, Nicotinamide, XRT, 1993

Radiological Society of North America

Exhibit Committee, 1990
Case of the Day Series, 1986
Case of the Day Series, 1987
Case of the Day Series, 1988
Case of the Day Series, 1992
SIR-RSNA strategic planning meeting 1/7-8/2004

American Board of Radiology

Certificate of Added Qualifications Development Committee, 1993
Certificate of Added Qualifications Pilot Group
Certificate of Added Qualifications Examiner, 1994-2005
Radiology Board Examiner, 1994-2005
Developmental Group for Pediatric Radiology CAQ, 2000
Certificate of Added Qualifications Recertification Pilot Group, 2003

American Society for Neuroradiology

Executive Committee member, American Society of Pediatric Neuroradiology, 2002-
Abstract reviewer, 43rd annual meeting, 2004

Abstract reviewer, 44th annual meeting, 2005
Abstract reviewer, 48th annual meeting, 2010
American Society of Pediatric Neuroradiology, founding member
American Society of Pediatric Neuroradiology, Board of Directors, 2003-present

Northeastern Society of Neuroradiology

Member 1999-2005

American Medical Association

Member, 2005-present

Local Scientific Committees

Pittsburgh Roentgen Society, Radiologic Practice and Management Committee, 1994

Editorial Positions

| | |
|--------------|--|
| 1986-present | Reviewer, <i>American Journal of Roentgenology</i> |
| 1986-present | Reviewer, <i>Pediatric Radiology</i> |
| 1988-present | Reviewer, <i>Radiology</i> |
| 1990-present | Reviewer, <i>American Journal of Neuroradiology</i> |
| 1990-2000 | Editorial Board Member, <i>Journal of Vascular and Interventional Radiology</i> |
| 1990 | Pediatric Radiology Committee, <i>Radiology</i> |
| 1991-present | Reviewer, <i>Journal of Vascular and Interventional Radiology</i> |
| 1992-1995 | Editorial Board Member, <i>Physician's Quarterly</i> , Children's Hospital of Pittsburgh |
| 1994-present | Reviewer, <i>Journal of Interventional Radiology</i> |
| 1995-present | Reviewer, <i>Pediatrics</i> |
| 1997-present | Editorial Board Member, <i>Pediatric Radiology</i> |
| 1997-present | Editorial Board Member, <i>Pediatric Endosurgery and Innovative Techniques</i> |
| 2000-2004 | Reviewer, Board of Trustees, <i>RSNA Research and Education Foundation</i> |
| 2000-present | Reviewer, <i>Cardiovascular and Interventional Radiology</i> |
| 2006-present | Reviewer, <i>Journal of Pediatric Infectious Diseases</i> |
| 2008 | Reviewer, <i>Journal of Endovascular Therapy</i> |
| 2008 | Editorial Board Member, <i>Journal of Endovascular Therapy</i> |
| 2009-present | Section Editor, <i>Pediatric Intervention, JVIR</i> |

Academic Committees

| | |
|-----------|---|
| 1983 | Ad Hoc Planning Committee, Children's Hospital Medical Center, Cincinnati, Ohio |
| 1984 | Computer System Selection Committee, Children's Hospital Medical Center, Cincinnati, Ohio |
| 1984-1988 | Pediatric Radiology Curriculum Committee, Children's Hospital Medical Center, Cincinnati, Ohio |
| 1985 | Surgical Case Review Committee, Children's Hospital Medical Center, Cincinnati, Ohio |
| 1987 | Meningo-encephalitis Committee, Children's Hospital Medical Center, Cincinnati, Ohio |
| 1988-1990 | Radiology Education Committee, Wayne State University |
| 1989 | Children's Hospital of Michigan Research Review Committee |
| 1990 | Radiology Credentials Committee, Children's Hospital of Michigan |
| 1990 | Pediatric Oncology Group, Children's Hospital of Pittsburgh |
| 1990-1999 | Executive Committee, Children's Hospital of Pittsburgh |
| 1990-1999 | Chairman, Radiation Safety Committee, Children's Hospital of Pittsburgh |
| 1990-1999 | Research Advisory Committee, Children's Hospital of Pittsburgh |
| 1990-1999 | Research Advisory Subcommittee for Project Review, Children's Hospital of Pittsburgh |
| 1990-1999 | ICU Committee, Children's Hospital of Pittsburgh |
| 1990-1999 | Oncology Committee, Children's Hospital of Pittsburgh |
| 1990-1999 | Tissue Committee, Children's Hospital of Pittsburgh |
| 1991-1999 | Joint Medical Staff/Administrative Planning Committee, Children's Hospital of Pittsburgh |
| 1991-1999 | Radiation Safety Committee, University of Pittsburgh Medical Center |
| 1991-1999 | Credentials Committee, Children's Hospital of Pittsburgh |
| 1991-1999 | Peri-operative Committee, Children's Hospital of Pittsburgh |
| 1991-1999 | Medical Leadership Committee, Children's Hospital of Pittsburgh |
| 1992-1999 | Risk Management Committee, Children's Hospital of Pittsburgh |
| 1993-1999 | Radiology Administrative Committee, University of Pittsburgh Medical Center |
| 1993-1999 | Managed Care Committee, Children's Hospital of Pittsburgh |
| 1993-1999 | Peer Review Risk Management Advisory Committee, Children's Hospital of Pittsburgh |
| 1993-1999 | Information Systems Executive Steering Committee, Children's Hospital of Pittsburgh |
| 1994 | JCAHO Survey Preparation Task Force, Children's Hospital of Pittsburgh |
| 1994-1995 | Steering Committee, Vision 2001 Project, Children's Hospital of Pittsburgh |
| 1994-1995 | Co-chairman, Purchased Services Subgroup Committee, Children's Hospital of Pittsburgh |
| 1994 | MR Task Force, University of Pittsburgh Medical Center |
| 1995-1998 | Product Evaluation Committee, Children's Hospital of Pittsburgh |
| 1995-1999 | Radiology Promotions Committee, University of Pittsburgh Medical Center |
| | Combined Clinical Years Task Force on Faculty Teaching Obligation, Development and Evaluation, University of Pittsburgh School of Medicine. |
| 1996 | Oversight Committee, Vision 2001 Project, Children's Hospital of Pittsburgh |

1996-1999 Continuing Medical Education Committee, Children’s Hospital of Pittsburgh
 1996 Task Force on Pediatric Medical/Surgical and Pharmaceutical Products for Premier Initiative, Children’s Hospital of Pittsburgh
 1996 Search Committee, Radiology Business Director, University of Pittsburgh Medical Center
 1996-1998 Physician Directed Design Team, Vision 2001 Project, Children’s Hospital of Pittsburgh
 1996-1997 Physician Program Evaluation Committee, Vision 2001 Project, Children’s Hospital of Pittsburgh
 1997 Task Force on 24-Hour Emergency Room Radiology Coverage, University of Pittsburgh Medical Center
 1997-1998 Decision Support Implementation Committee, Children’s Hospital of Pittsburgh
 1997-1998 CEO Search Committee, Children’s Hospital of Pittsburgh
 1997-1999 Emergency Department Process Improvement Committee, Children’s Hospital of Pittsburgh
 1998-1999 Chairman, Pediatric Contracting Committee, Children’s Hospital of Pittsburgh
 1998-1999 Executive Committee, University Pediatric Associates/Subspecialty Associates for Children, University of Pittsburgh Medical Center/Children’s Hospital of Pittsburgh
 2000-03 Board of Trustees, ad hoc member
 Operations Group, Children’s Hospital of Philadelphia
 CHOP Radiology Executive Committee
 CHOP Radiology Finance Committee
 Sedation Committee
 2001-2003 CHOP Managed Care Committee
 2001-2003 Radiology Department Research Committee
 2002-2003 Stokes Research Advisory Committee, CHOP
 Planning Group for New Hospital Wing
 Planning Group for New Radiology Department
 2001-2003 Research Advisory Executive Committee, Stokes Institute, Children’s Hospital of Philadelphia
 2001-2003 Radiology Departmental Committee on Appointments and Promotions, Hospital of the University of Pennsylvania
 2008- Medicine Committee, Phoenix Children’s Hospital
 2008- Phoenix Children’s Medical Group Committee, Phoenix Children’s Hospital
 2008- Radiology Section Committee, Chairman, Phoenix Children’s Hospital
 2008- Quality Committee, Phoenix Children’s Hospital
 2008- Peer Review Committee, Phoenix Children’s Hospital
 2008- Trauma Committee, Phoenix Children’s Hospital
 2008 Trauma Steering Committee, Phoenix Children’s Hospital
 2009- Image Gently Advisory Board, Phoenix Children’s Hospital
 2009- Compliance Committee, Phoenix Children’s Hospital
 2009- Children’s Neuroscience Institute Advisory Committee, Phoenix Children’s Hospital
 2009- Hospital Based Advisory Committee for Phoenix Children’s Medical Group

2009- Parent Organized Partnership Supporting Infants and Children Learning to Eat
(P.O.P.S.I.C.L.E.) Professional Advisory Committee

Major Teaching and Clinical Responsibilities

1. Responsible for resident and fellow teaching and program development
2. Morning and afternoon conferences
3. Noon lectures
4. Afternoon specialty services lectures, every 2 weeks
5. Grand Rounds
6. Fellow lectures
7. Teaching at affiliated institutions

Other Activities

1. Hobbies: Cycling, Collecting Art
2. Medico-legal consulting 1986-
3. Coach, soccer, 1989-91
4. Craftsman, Wheel potter, 1973-present
5. Summer Arts Festivals, Display and sale, 1974-1980, 1988-1990
6. Founded Pediatric Radiology Art Show to Demonstrate the Creativity of the Members of the Society for Pediatric Radiology Members, 2003
7. Society for Pediatric Radiology 1st Annual Art Show: Entry: 3 small thrown jugs, May 2003
8. Ceramics Show: **Vessels**, Tadu Gallery, Sante Fe, New Mexico, August 2003
9. Founded InforMD, 2003-2006
10. Founded Spectrum PediatRx, 2005
11. Medical Consulting, 2003-
10. Bicycle Club of Philadelphia, 2004-
11. Society for Pediatric Radiology 2nd Annual Art Show: Japanese style vase, May 2-6, 2004
12. Society for Pediatric Radiology 3rd Annual Art Show and auction. Stoneware slip inlay bowls with starry sky glaze [2] and slip inlay vase [1]. May 4-8,2005
13. Ceramics show: Three Japanese style vases. University of the Arts. June-September 2005
14. Society for Pediatric Radiology 4th Annual Art Show and Auction. Stoneware vases
15. Society for Pediatric Radiology 4th Annual Art Show and Auction. Stoneware bowl and vase.

Inventions

1. Neonatal Pigtail Drainage Catheter, Cook Incorporated, 1986
2. Magnet Catheter, Boston Scientific, 1990
3. Over-the-wire Magnet Catheter, Boston Scientific, 1994
4. Button Jejunostomy Tube, Ballard Medical, 1997

Leadership Experience

Children's Hospital of Pittsburgh (1990-1999)
Radiologist-in Chief

| Clinical volume (# cases) | 1989-90 | 99-00 |
|---------------------------|--------------|--------|
| CHP | 62,000 cases | 85,000 |
| Tods | 0 | 21,500 |

Gross Professional Revenue (\$000,000)

| | | |
|-------|-----|-----|
| CHP | 4.5 | 7.7 |
| Tod's | 0 | 1.2 |

Clinical Accomplishments

- Developed a strong SERVICE focus. The department was intimately involved in patient care and consulting with all clinical services. Developed a partnership with the Medicine, Surgery and Pathology departments
- Created a full service Department of Pediatric Radiology that provided all diagnostic imaging and interventional services
- Initiated new full time pediatric radiology services in neuroradiology and interventional radiology. Substantially increase the volume in IR from <1000cases/year to > 3000 cases/year. Also, saw a large increase in the neuroradiology volume
- Established the Pediatric Radiology Department as a premier department in the hospital
- Developed a close working relationship with the University of Pittsburgh Department of Radiology colleagues
- Established a Body Imaging section that was responsible for all imaging modalities by introducing MR and aspects of CT to the Pediatric Radiology faculty
- Developed a highly skilled and clinically active Pediatric Radiology nursing staff that was intimately involved with patient care in the department especially in the areas of sedation and intervention
- Open the first satellite imaging service
- Developed a new clinical program at Tod's Children's Hospital, a community based pediatric care facility. Developed Pediatric Radiology into a center of excellence within the hospital and Northside Medical Center within 2 years. Offered a full service department including body imaging, nuclear medicine, IR and neuroradiology. Developed a Pediatric Radiology nursing service to support the new patient care initiatives. Interestingly, our team was able to build a Pediatric IR service that was larger than those at Cleveland Clinic and Rainbow Babies Hospitals. The case volume grew substantially in 2 years from about 13,000 cases per year to about 21,500. The revenue grew in parallel
- Established an productivity based incentive system for bonuses
- Developed Department of Pediatric Radiology into one of the most economically productive members of the UPMC Department of Radiology

- Growth in modalities

| | | |
|---------------|---|---|
| 1. CT | 1 | 3 |
| 2. MRI | 2 | 4 |
| 3. IR | 1 | 2 |
| 4. US | 5 | 6 |
| 5. Nuclear | 3 | 5 |
| 6. DR | 0 | 5 |
| 7. Fluoro | 2 | 3 |
| 8. Satellites | 3 | 4 |

- Developed the first full service satellite facility with outpatient CT, MRI, Nuclear medicine, US and digital radiography
- Installed teleradiology for primary and secondary reading
- Teleradiology for radiologist on call
- Installed PACS and converted the department to a near filmless radiology department and hospital
- Designed and implemented PACS training for the hospital clinical and research staff
- Enabled campus wide distribution of images via PACS
- Revamped RIS
- Installed voice recognition dictation system
- Managed a billing service. Increased the billing performance substantially while decreasing the unit cost of each bill
- Developed and managed the departmental investment portfolio. Worked with investment professionals to develop a strategy. Grew the portfolio from approximately 1.5M to 5M primarily through addition of new money accumulated from substantial increased profits
- Planned and purchased all new equipment
- Developed lead pediatric nurse position. Nurse manager actively involved in departmental strategic planning and operations and reported to the Chair
- Recruited and trained nurse practitioners
- Recruited and trained nurses to assist in patient care within the department with special focus on sedation and interventional radiology
- Developed a career ladder for departmental nurses and technologists
- Developed an organization chart that involved all aspects of the department creating an enthusiastic, involved and active leadership team. The team was managed by the departmental administrative director

Research and Teaching

- Created an \$18M endowment for the Department of Pediatric Radiology consisting of 2 chairs and a research and education fund to support scientific and clinical research
- Negotiated numerous research relationships with industry including Siemens, Phillips and subsidiary companies such as ATL, Hologic, etc.
- Created a infrastructure for research including 4 research assistants to assist clinical and science faculty develop and carry out projects, a computer graphic art department, research nurses

- Created a departmental research head and research advisory committee to help develop a strategic plan
- Worked with the division chiefs to create a plan for recruitment of full-time PhD, MD, or MD/PhD research faculty. Full-time faculty to be sustained by grants and endowment support
- Actively recruited staff. In 99-00 had 2 full-time science faculty who primarily supported clinical mission e.g. MR spectroscopy and MR physics. Added 3 additional scientists. Funding increased in < 2 years from about 75K to approximately 350K and rising quickly
- Number and quality of publications increased substantially
- Collaboration with non radiologists significantly increased
- Implemented the Ken Fellows Lectureship
- Developed a Visiting Professor Program inviting ≥ 4 lecturers each year
- Refocused the daily teaching program for residents and fellows. Fellows involved in lecture series
- Fellows required to participate in at least one academic project each year
- Dramatically increased academic funds to faculty and fellows

Administration

- Developed and implemented an incentive based bonus system
- Increased total compensation for the clinical faculty on average over 35%
- Established the first full-time position for a business manager
- Under the Administrative Director developed an administrative leadership group to provide leadership to all aspects of the department
- Created a strategic planning committee
- Created a research advisory and planning group of clinical and science faculty
- Had planning retreats
- Developed a continuous quality improvement group. This group was evolving into a process engineering group
- Developed a departmental Information Systems group
- Developed a Management Council of non physician leaders
- Developed a group of physician and administrative leaders to evaluate and plan the purchase of new equipment
- Managed a billing service. Over 3 years decreased the unit cost significantly while increasing the business performance
- Planned and operated a new satellite with a sophisticated imaging department consisting of CT, MRI, US, Nuclear Medicine, plain radiography
- Established a Lead Pediatric Nurse who reported to the Chair and a Nursing Division with 3 RN practitioners and 22 RNs
- Planned and implemented a modern radiology sedation system
- Operated a Radiology Sedation Unit

PHOENIX CHILDREN'S HOSPITAL (10/2007 – PRESENT)

Radiologist-in-Chief

- 2008: Recruited 7 faculty members
- 2009: Recruited 1 faculty member

- 2010: Recruited 1 faculty member
- Initiated first full time Division of Pediatric Neuroradiology
- Initiated first full time Division of Pediatric Interventional Radiology
- Negotiated a 5-year relationship with Philips Corporation. PCH to become a national show site and premier research site.
- Initiated first Musculoskeletal Radiology focus
- Planned for and supervised installation of state of the art 64 slice CT and PET/CT
- Planned for and supervised installation of a second MRI unit
- Planned for and supervised development and staffing of PCH's first satellite with a full imaging department
- Planned for and supervised development and staffing of PCH's second satellite with imaging department
- Planned imaging department for Avondale satellite to open in 2010
- Hired first Radiology Business manager. Developing a dedicated Radiology business function. Taking responsibility for managing the entire [professional and hospital] business cycle
- Reduced report turn around time from >250 hours to <6 hours
- Developed the first ACGME approved fellowship in Pediatric Radiology
- Developed the first fellowships in Pediatric Neuroradiology and Pediatric Interventional Radiology
- Initiated teaching rounds hospital wide
- Founding member of the multispecialty Vascular Malformation Clinic
- Planning a new 40,000+ square foot Department of Radiology to be within the PCH expansion.
- Awarded Leadership Circle Grant for Image Gently Program Proposal – Fully funded in the amount of \$52, 510. Placed first of five finalists.

Lectures by Invitation

1. The Anatomy and Radiology of an Ankle Effusion. Felson Lecture, Cincinnati, Ohio, 1978.
2. Left Atrial Myxoma. Surgical Grand Rounds. Children's Hospital Medical Center, Cincinnati, Ohio, November, 1980.
3. Tetralogy of Fallot. Surgical Grand Rounds. Children's Hospital Medical Center, Cincinnati, Ohio, January 21, 1981.
4. Total Colonic Aganglionosis. Surgical Grand Rounds. Children's Hospital Medical Center, Cincinnati, Ohio, April 15, 1981.
5. Neuroblastoma. Surgical Grand Rounds. Children's Hospital Medical Center, Cincinnati, Ohio, April 15, 1981.
6. Department of Radiology, University of Cincinnati College of Medicine, Refresher Course - Pediatric Chest - Syllabus and Lecture, Cincinnati, Ohio, May, 1981-1986.
7. Pediatric Chest - Pulmonary Medicine Series. Children's Hospital Medical Center, Cincinnati, Ohio, May 26, 1981.
8. Successful Balloon Dilatation of Esophageal Stricture Secondary to Tracheoesophageal Fistula Repair. Society for Pediatric Radiology, New Orleans, LA - Work in Progress - Research, May, 1982.
9. Arthrosonography in Pigmented Villonodular Synovitis - Annual Meeting of the Society for Pediatric Radiology, New Orleans, LA, May, 1982.

10. Emergency Room Lecture Series, Children's Hospital Medical Center, Cincinnati, Ohio, 1980-1983.
11. Interventional Radiology. Pediatric Grand Rounds. Children's Hospital Medical Center, Cincinnati, Ohio, January 4 & August 30, 1983.
12. Ear Computed Tomography. Audiology Lecture. Children's Hospital Medical Center, Cincinnati, Ohio, January 19, 1983.
13. Arnold-Chiari II Malformation, Neurological Symposium, Good Samaritan Hospital, Cincinnati, Ohio, March 4, 1983.
14. Assorted Fat Pads; Arthrography in Children; Abdominal Masses in Children; Retroperitoneal Masses in Children; The Newborn Brain: US and CT Evaluation; Congenital Brain Anomalies Part I; Congenital Brain Anomalies Part II; Blunt Abdominal Trauma: CT, US and Nuclear Medicine; Interventional Radiology Part I; Interventional Radiology Part II. XIII Jornada Paulista De Radiologia - Sociedade Paulista De Radiologia - Hilton Hotel, Sao Paulo, Brazil, April 21-23, 1983.
15. Interventional Radiology. Part I and II. Universidade Federal Do Rio De Janeiro - Faculdade De Medicina - Pos-Graduacao Em Radiologia - NA Conferencia "Radiologia Intervencionista Em Pediatria," Sao Paulo, Brazil, April 23, 1983.
16. Symposium on Renal and Urologic Diseases in Childhood. Children's Hospital Medical Center, Cincinnati, OH, March 10, 1984.
17. Percutaneous Aspiration, Drainage and Biopsy in Children: A Three Year Experience. Society for Pediatric Radiology, Las Vegas, NV, April 5-8, 1984.
18. CT in the Diagnosis and Management of Postseptal (Orbital) Cellulitis. American Academy of Pediatrics, Chicago, IL, September 14-18, 1984.
19. Postseptal Cellulitis. Pediatric Grand Rounds. Children's Hospital Medical Center, Cincinnati, OH, December 18, 1984.
20. Sinusitis in Children, Intracranial Aspects; Useful and Useless Radiology. American Academy of Pediatrics, Atlanta, GA, April 15-18, 1985.
21. Direct Sagittal Imaging in Children. Society for Pediatric Radiology, Boston, MA, April 19-21, 1985.
22. Sedation of Patients for Radiologic Special Procedures. Annual Post-Graduate Seminar in Anesthesia, Hyatt Regency, Cincinnati, OH, April 28, 1985.
23. Unique Features of CNS Injury in Young Children. Greater Cincinnati Radiological Society, Cincinnati, OH, April 29, 1985.
24. Pediatric Cerebral Abscess. Neurosurgery Grand Rounds, Children's Hospital Medical Center, Cincinnati, OH, August 7, 1985.
25. Pediatric Head Injury. Neurosurgery Grand Rounds, Children's Hospital Medical Center, Cincinnati, OH, October 9, 1985.
26. Symposium on Head trauma. Pediatric Radiology - Emergency Medicine Sections, American Academy of Pediatrics, San Antonio, TX, October 18, 1985.
27. Computed Tomography of the Orbital Mass in Children. Society for Pediatric Radiology, Washington, DC, April 9-13, 1986.
28. Percutaneous Pyeloplasty. Society for Pediatric Radiology. Washington, DC, April 9-13, 1986.
29. Extra-axial CSF Collections of the Posterior Fossa: Differential Considerations. Association of University Radiologists Annual Meeting, Hartford, CT, May 4-9, 1986.

30. Techniques in Pediatric Interventional Radiology and Percutaneous Aspiration Drainage and Biopsies. Radiology Update 1986. Indiana University School of Medicine, Indianapolis, IN, May 7-9, 1986.
31. Benign Extra-axial Fluid Collections of Infancy. Fifth Annual Edward L. Pratt lectures, Children's Hospital Medical Center, Cincinnati, OH, May 23, 1986.
32. Esophageal Replacement in Children: The Role of Interventional Radiology. Surgical Grand Rounds, Children's Hospital Medical Center, Cincinnati, OH, June 18, 1986.
33. Hypothalamic Glioma. Neurosurgery Grand Rounds, Children's Hospital Medical Center, Cincinnati, OH, June 18, 1986.
34. Vascular Malformations: The Role of Embolization. Surgical Grand Rounds, Children's Hospital Medical Center, Cincinnati, OH, July 16, 1986.
35. Extra-axial CSF Collections of the Posterior Fossa: Differential Considerations. National Medical Association Annual Meeting. Radiology Section, New York, NY, July 20-24, 1986.
36. Pediatric Temporal Bone Imaging in the 1980's. Pediatric Otolaryngology Potpourri, Children's Hospital Medical Center, Cincinnati, OH, October 17, 1986.
37. New Frontiers in Radiology: Magnetic Resonance Imaging. Pediatric Grand Rounds, Children's Hospital Medical Center, Cincinnati, OH, October 28, 1986.
38. Long-Term Management of GU Anomalies: the Role of the Pediatrician: A New Approach to an Old Problem - Percutaneous Pyeloplasty. Pediatric Grand Rounds, Children's Hospital Medical Center, Cincinnati, OH, January 20, 1987.
39. New Frontiers in Radiology-Magnetic Resonance Imaging. Perinatal Grand Rounds, Good Samaritan Hospital, Cincinnati, OH, January 21, 1987.
40. Percutaneous Pyeloplasty. Second Frederic N. Silverman Lecture and Pediatric Radiology Symposium, Children's Hospital Medical Center, Cincinnati, OH, January 24, 1987.
41. Department of Radiology, University of Cincinnati College of Medicine - Refresher Course - Congenital Brain Malformations and Posterior Fossa Tumors - Syllabus and Lecture, Cincinnati, OH, May 7, 1987.
42. Non-Vascular Pediatric Interventional Radiology. International Pediatric Radiology Society Meeting, Toronto, Ontario, Canada, May 30-June 4, 1987.
43. Magnetic Resonance Imaging in Congenital Anomalies. Visiting Magnetic Resonance Fellowship Practicum. The Christ Hospital, Cincinnati, OH, October 19-20, 1987.
44. Pediatric Interventional Radiology: Indications, Techniques, and Management. Radiological Society of North America Refresher Course, Chicago, IL, November 29-December 4, 1987.
45. Pediatric Brain Tumors. Department of Family Medicine, University Hospital, Cincinnati, OH, January 15, 1988.
46. Neuroaudiologic Abnormalities in Children with Neurofibromatosis. Eastern Section Radiologic Society Meeting, New York, NY, January 29, 1988.
47. Pediatric Interventional Radiology: Indications, Techniques, and Management. Society of Cardiovascular and Interventional Radiology Refresher Course, Orlando, FL, March 21, 1988.
48. Advanced Imaging of the Pediatric Nervous System. 13th Annual Hilton Head Island Neurosurgical Symposium. Hilton Head Island, SC, August 5, 1988.
49. Imaging Childhood Brain Tumors. Pediatric Grand Rounds, Children's Hospital of Michigan, Detroit, MI, September 23, 1988.
50. Pediatric Update: Unique Aspects of Pediatric Head Trauma. St. Petersburg, FL, October 24-26, 1988.

51. Diagnosis of Injuries of the Child's Cervical Spine. American Academy of Pediatrics Annual Meeting, San Francisco, CA, October 18, 1988.
52. Pediatric Brain Tumors. Neurosurgery Grand Rounds, Children's Hospital of Michigan, Detroit, MI, November 16, 1988.
53. Pediatric Intervention. Refresher Course, Radiological Society of North America, November, 1988.
54. Percutaneous Gastrostomy and Gastroenterostomy: The Antegrade Approach. Radiologic Society of North America, November, 1988.
55. Pediatric Interventional Radiology. The B. Norgrady Lecture: Pediatric Intervention, Percutaneous Aspiration, Drainage and Biopsy, Unique Aspects of CNS Injury in Childhood. Montreal Children's Hospital, Montreal, Quebec, Canada, December 14-16, 1988.
56. Pediatric Intervention, Unique Aspects of CNS Injury in Childhood, Congenital CNS Anomalies. Cardinal Glennon Children's Hospital, St. Louis, MI, January 8-10, 1989.
57. Neurology Grand Rounds. Pediatric Brain Tumors: CT and MRI Correlation.
58. Pediatric Intervention: An Overview. Plenary Session, American Academy of Pediatrics. Orlando, FL, March, 1989.
59. Magnet Catheter for Removal of Magnetic Foreign Bodies. Society for Pediatric Radiology, San Antonio, TX, April 9, 1989.
60. Pediatric Interventional Procedures in the 1980's: A Period of Development, Growth and Acceptance. Metropolitan Detroit Pediatric Society, Detroit, MI, June 14, 1989.
61. Update - MRI. Metropolitan Detroit Pediatric Society, Detroit, MI, June 14, 1989.
62. New Diagnostic and Interventional Techniques in Pediatric Radiology. American Academy of Pediatrics, Chicago, IL, October 22, 1989.
63. A Workshop: Diagnostic Imaging for the Pediatrician. American Academy of Pediatrics, Chicago, IL, October 26, 1989.
64. Interventional Pediatric Nutrition: Helping the At-Risk Patient. Tube Feeding Update, April 26, 1990.
65. (1) Angiographic Interventional Techniques in Children, (2) Non-Angiographic Interventional Techniques in Children, and (3) Unique Patterns of CNS Injury in Young Children. Visiting Professor, The Hospital for Sick Children, Toronto, Ontario, Canada, November 6, 1990.
66. Interventional Radiology in Children - Past, Present, and Future. Combined Pediatric and Surgical Grand Rounds. The Hospital for Sick Children, Toronto, Ontario, Canada, November 7, 1990.
67. Pediatric Interventional Radiology. Pediatric Grand Rounds, Children's Hospital of Pittsburgh, Pittsburgh, PA, November 15, 1990.
68. Real-Time US Guidance During Renal Biopsy: A Different Approach. Radiological Society of North America Annual Meeting, Chicago, Illinois, November 30, 1990.
69. Overview of Intervention. Presentation to Board of Trustees, Children's Hospital of Pittsburgh, Pittsburgh, PA, January 22, 1991.
70. Neuroradiology - New Advances with MRI. Pediatric Grand Rounds, Children's Hospital of Pittsburgh, Pittsburgh, PA, January 24, 1991.
71. Percutaneous Enteric Feeding - A 4-year Pediatric Experience. Presented at the Scientific Session of the Society of Cardiovascular and Interventional Radiology, San Francisco, CA, February 16-21, 1991.
72. Intervention in the Pediatric G.I. Tract. Presented at the Plenary Session of the Society of Cardiovascular and Interventional Radiology, San Francisco, CA, February 16-21, 1991.

73. Pediatric Interventional Radiography. Pediatric Grand Rounds, Mercy Hospital, Mercy Children's Medical Center, Department of Pediatrics, Pittsburgh, PA, March 26, 1991.
74. Pediatric Sedation, Radiology Grand Rounds, University of Pittsburgh, Department of Radiology, April 4, 1991.
75. Percutaneous Feeding Techniques. Presented to medical staff at the Rehabilitation Institute of Pittsburgh, April 24, 1991.
76. Re-Use of Single Access Vials of Contrast. International Pediatric Radiology '91. Stockholm, Sweden, May 27, 1991.
77. Pediatric Intervention: What's New? Rikshospitat, Oslo, Norway, June 2, 1991.
78. Interventional Treatment of Vascular Malformations. Society of Pediatric Dermatology. Williamsburg, VA, June 30, 1991.
79. Update in Pediatric Intervention. Pediatric Grand Rounds, Children's Hospital of Pittsburgh, August 22, 1991.
80. Pediatric Imaging Techniques. CT Symposium for Technicians. Hidden Valley, PA. September 28, 1991.
81. Radiological Evaluation of the Pediatric Airway. Anesthesia International Symposium. Vista Hotel, Pittsburgh, PA. November 22, 1991.
82. Addressed the Board of Directors of the Children's Hospital of Pittsburgh on "The View of Radiology in the Future of CHP" January 21, 1992.
83. Served as Member of the Sanofi-Winthrop CT Advisory Board to discuss current and future applications of CT and contrast media as it pertains to pediatrics, February 19-21, 1992.
84. Developed the Concept of a Pediatric Interventional club for the Society for Pediatric Radiology, April 1992
85. Towbin R, Burrows P, Tonkin I: Pediatric Intervention Workshops. Society of Cardiovascular and Interventional Radiology, Washington, DC, April, 1992. Moderator
86. Histoplasmosis Duboisii Infection: Skeletal Involvement. Medina-Ledesma J, Towbin RB. Presented at the Annual Meeting of the Society for Pediatric Radiology, Orlando, FL, May 17, 1992.
87. What's New in Pediatric Intervention? An update. Towbin R. The Society for Pediatric Radiology, Orlando, FL, May 17, 1992.
88. Pediatric Sedation: What is Really Happening to the Patient? Slovis TL, Reneau D, Sterling L, Tech K, Hersch J, Parks C, Towbin R. The Society for Pediatric Radiology, Orlando, FL, May 14, 1992.
89. The Future of Pediatric Radiology. Administrative and Board of Directors, Children's Hospital of Pittsburgh Retreat at Hidden Valley, PA, July 17, 1992.
90. The Evaluation of Head CT in the Trauma Patient. Trauma Conference - Department of Surgery, Children's Hospital of Pittsburgh, September 1, 1992.
91. Embolotherapy; Central Venous Access; Percutaneous G-tubes or Through Stomach Wall from Inside Out button for mature (>3 mos) tract. Midwest Society for Pediatric Radiology, September 25, 1992.
92. Moderator for Pediatric Papers - Pediatric Intervention; pediatric technique; 10 year experience - Vascular Intervention. Society for Cardiovascular and Interventional Radiology Scientific Program, October 14, 1992.
93. Moderator - Pediatric Intervention/Sedation/MR. Radiological Society of North America Annual Meeting, December 2, 1992.

94. Moderator - Scientific Session - Interventional Radiology in Children. Society for Cardiovascular and Interventional Radiology. New Orleans, LA, February 28, 1993.
95. Plenary Session - Intervention in the Pediatric Population. Society for Cardiovascular and Interventional Radiology. New Orleans, LA, March 4, 1993.
96. Pediatric Sedation and Monitoring. Diagnostic Radiology Course. University of California, San Francisco, CA, March 24, 1993.
97. Pediatric GI and GU Intervention. Diagnostic Radiology Course. University of California, San Francisco, CA, March 24, 1993.
98. Unique Aspects of CNS Trauma in Children: Diagnostic Radiology Course. University of California, San Francisco, CA, March 24, 1993.
99. Gastrointestinal Transplantation and Other Interventions: Present and Future. (Intestinal Transplantation; PTA of GI Strictures; Foreign Body Removal; Vascular Interventions; Future Interventions.) Symposium - Gastrointestinal Imaging: 1993 and Beyond, and a Look at Therapy and Intervention. Society for Pediatric Radiology. Seattle, WA, May 12, 1993.
100. Moderator, Interventional Radiology Club, Society for Pediatric Radiology, Seattle, WA, May 13, 1993
101. Percutaneous Antegrade Gastrostomy. G.I. Symposium. Society for Pediatric Radiology. Seattle, WA, May 12, 1993.
102. Indicators of Suspicious Injuries to the Brain, Bones and Abdomen. Pennsylvania District Attorney's Institute. The Investigation of Child Homicide and Abuse Course. Westmoreland Community College, Greensburg, PA, May 19, 1993 and April 26, 1994.
103. Radiologic Evaluation of Ear, Nose and Throat Diseases. The 18th Annual Symposium - Ear, Nose and Throat Diseases in Children, 1993 Update. Children's Hospital of Pittsburgh, Department of Pediatric Otolaryngology, July 31, 1993.
104. What's Hot and What's Not? A Plenary Session. Society for Cardiovascular and Interventional Radiology. San Diego, CA, March 21, 1994.
105. Abscess Drainage. Moderator. Society for Cardiovascular and Interventional Radiology. San Diego, CA, March 23, 1994.
106. Interventional Radiology Workshop - Moderator. Society for Pediatric Radiology. Colorado Springs, CO, April 30, 1994.
107. Presenter of the 1994 Gold Medal Award of the Society for Pediatric Radiology to Dr. J. Scott Dunbar. Society for Pediatric Radiology. Colorado Springs, CO, April 30, 1994.
108. The Radiologic Management of Foreign Bodies. Clinical Symposium on Pediatric Endoscopy. American Society for Gastrointestinal Endoscopy. New Orleans, LA, May 17, 1994.
109. Percutaneous Drainage, Gastrostomy and Enterostomy. American College of Radiology Categorical Course. New Orleans, LA, September 17, 1994.
110. Pediatric Vascular Procedures. American College of Radiology Categorical Course. New Orleans, LA, September 17, 1994.
111. Interventional Management of Cancer Patients. Pediatric Oncology Seminar for Radiologists. St. Jude's Children's Research Hospital. Memphis, TN, September 30, 1994.
112. Pediatric Radiology Intervention: Current State-of-the-Art. Visiting Professor, Northwestern University, The 12th Harvey White Memorial Lecture, The Children's Memorial Hospital, Chicago, IL, October 5, 1994.
113. Vascular Intervention. Pediatric Grand Rounds, The Children's Memorial Hospital, Chicago, IL, October 5, 1994.

114. Pediatric Intervention: What's Hot and What's Not? The McGaw Medical Center of Northwestern University, Northwestern Memorial Hospital, Department of Radiology, Evanston, IL, October 6, 1994.
115. Practical Pediatric Neuroradiology. Categorical Course, American Academy of Pediatrics, Dallas, TX, October 25, 1994.
116. Vascular Interventional Radiology. Visiting Professor, Surgical Grand Rounds. The Children's Hospital of Philadelphia. Philadelphia, PA, October 27, 1994.
117. Percutaneous Nutrition. Visiting Professor, Department of Radiology. The Children's Hospital of Philadelphia. Philadelphia, PA, October 28, 1994.
118. Onco-Radiology. Visiting Professor, Department of Radiology. The Children's Hospital of Philadelphia. Philadelphia, PA, October 28, 1994.
119. Scientific Session Moderator - Peripheral Embolotherapy. The Society of Cardiovascular and Interventional Radiology, Ft. Lauderdale, FL, March 25-30, 1995.
120. Treatment of Segmental Renal Artery Stenosis in Children. The Society for Pediatric Radiology, Washington, D.C., April 27-30, 1995.
121. Emergency Pediatric Radiology: A Problem-Oriented Approach. Categorical Course, American Roentgen Ray Society, Washington, D.C., April 30-May 5, 1995.
122. Unique Aspects of Pediatric Head Trauma. Visiting Professor, Cleveland Clinic, Cleveland, OH, August 31, 1995.
123. Pediatric Intervention: An Overview. Visiting Professor, Cleveland Clinic, Cleveland, OH, August 31, 1995.
124. Tracheal Stenting in Children. Categorical Course, Midwest Society for Pediatric Radiology, Cleveland, OH, September 15-17, 1995.
125. Percutaneous Transhepatic Portal Vein Hepatocyte Transplant (PTPHT): Work in Progress. Categorical Course, Midwest Society for Pediatric Radiology, Cleveland, OH, September 15-17, 1995.
126. Airway Evaluation. Lecture, ENT Department, Children's Hospital of Pittsburgh, Pittsburgh, PA, September 27, 1995.
127. Interventional Radiology in Children. Pediatric Grand Rounds, Mercy Hospital of Pittsburgh, PA, October 24, 1995.
128. Pediatric Intervention: Head to Toe. Visiting Professor, North Shore University Hospital, Manhasset, NY, October 25, 1995.
129. (1) Neuro-Endocrine Disorders, (2) Resident Teaching Sessions. Visiting Professor, Children's Hospital, Detroit, MI, January 25-26, 1996.
130. (1) Pediatric Interventional Radiology: State-of-the-Art, (2) Unique Radiologic Aspects of Trauma Pediatrics, (3) Nonvascular Interventional Radiology, (4) Resident Teaching Sessions. Visiting Professor, University of Texas Medical Branch at Galveston, Galveston, TX, March 14-15, 1996.
131. Pediatric Interventional Techniques. Lecture, ENT Department, Children's Hospital of Pittsburgh, Pittsburgh, PA, March 28, 1996.
132. (1) Pediatric Interventional Update, Grand Rounds, (2) Pediatric Neurology, Lecture, (3) Vascular Interventional Radiology, Lecture, (4) Resident Teaching Sessions. Visiting Professor, Grand Rounds, Children's Hospital of Wisconsin, Milwaukee, WI, May 1-3, 1996.
133. Interventions in Pediatric Radiology. Radiology Grand Rounds, St. Luke's-Roosevelt Hospital, New York, NY, May 14, 1996.
134. Moderator, Pediatric Intervention Club, Society for Pediatric Radiology, May 1996

135. Pediatric Intervention: State-of-the-Art. Newark Beth Israel Medical Center, Newark, NJ, May 16, 1996.
136. Update: Pediatric Interventional Radiology. The Chesapeake Interventional Radiology Society, Washington DC, September 18-19, 1996.
137. Update on Pediatric Radiology. Pediatric Grand Rounds, Mercy Hospital of Pittsburgh, October 1, 1996.
138. Training Residents from Outside Institutions in Pediatric Radiology. Society for Chairman of Radiology in Children's Hospitals (SCORCH), Chicago, IL., October 3-5, 1996.
139. Useful Interventional Techniques in Children. Pediatric Grand Rounds, Children's Hospital of Pittsburgh, December 12, 1996.
140. Visiting Professor, Emory University, Eggleston Children's Hospital, February 18-19, 1997
141. General Pediatric Radiology. Noon Conference, Emory Hospital, Atlanta, GA, February 18, 1997.
142. Introduction to Pediatric Intervention. Grand Rounds, Emory Hospital, Atlanta, GA, February 19, 1997.
143. General Pediatric Radiology. Noon Conference, Grady Memorial Hospital, Atlanta, GA, February 19, 1997.
144. (1) Pediatric Intervention: What's Hot and What's Not-Noon Conference; (2) Pediatric Intervention: State-of-the-Art-Grand Rounds; (3) Central Venous Access-Noon Conference; (4) The Airways: A Multimodality Look-Grand Rounds. AGFA Visiting Professor, Texas Children's Hospital, Houston, TX, March 3-4, 1997.
145. A Workshop: Embolization Techniques. Society of Cardiovascular and Interventional Radiology, Washington, DC, March 9, 1997.
146. Insertion of Intrathecal Catheters for Baclofen Infusion. Society of Cardiovascular and Interventional Radiology, Washington DC, March 11, 1997.
147. (1) Vascular Interventional Radiology in Children; (2) Pediatric Intervention: State-of-the-Art; (3) Non-Vascular Intervention in Children. Visiting Professor, Children's Hospital Medical Center, Seattle, WA, March 31-April 1, 1997.
148. (1) Pediatric Intervention: What's Hot and What's Not, Radiology Grand Rounds; (2) Pediatric Intervention: State-of-the-Art, Pediatric Grand Rounds; (3) Use of Fat Pads for Evaluation of Joints, Resident Session; (4) The Airway: A Multimodality Look, Resident Session; and (5) Child Abuse, Resident Session. Visiting Professor, British Columbia's Children's Hospital, Vancouver, BC, Canada, April 2-4, 1997.
149. Improving Outcomes with Interventional Radiology Procedures, Plenary Session. American Academy of Pediatrics Spring Session, San Diego, CA, May 11, 1997.
150. Moderator, Interventional Club, Society for Pediatric Radiology, May 16, 1997
151. Vascular Disease in the Pediatric Patient, SPR Course. Society of Pediatric Radiology, St. Louis, MO, May 14, 1997.
152. Chest Intervention. Moderator-Scientific Session. European Society for Pediatric Radiology, Lugano, Switzerland, May 28, 1997.
153. Pediatric Interventional Radiology-Workshop. Society of Cardiovascular and Interventional Radiology, San Francisco, CA, February-March, 1998.
154. Plenary Session-Pediatric Gastrointestinal Interventions. Society of Cardiovascular and Interventional Radiology, San Francisco, CA, February-March 1998.
155. Pediatric Intervention: General Vascular. Association of Vascular and Interventional Radiographers, San Francisco, CA, February-March, 1998.

156. Moderator, Interventional Club, Society for Pediatric Radiology, May 7, 1998
157. Workshop: Interventional Techniques: Current Vascular and Nonvascular Techniques. Society of Pediatric Radiology, Tucson, AZ, May 5-10, 1998.
158. Pediatric Angiography - Interventional Club. Society of Pediatric Radiology, Tucson, AZ, May 5-10, 1998.
159. Interventional Radiology. Resident Teaching Sessions. Strong Memorial Hospital, Rochester, NY, May 28, 1998.
160. Pediatric Interventional Radiology. Greater Rochester Angio Club, Rochester, NY, May 28, 1998.
161. Advanced Child Abuse Investigation Course - "Investigating Suspicious Injuries." Pennsylvania District Attorneys Institute. Pittsburgh, PA, August 31, 1998.
162. (1) "Pediatric Intervention: State-of-the-Art. What is Hot and What is Not," (2) "Percutaneous Feeding Techniques," (3) Case Presentations, (4) "Non-Vascular Intervention in Children," and (5) "The Airway: A Multimodality Look." Hospital 12 de Octubre, Madrid Spain, September 21-22, 1998.
163. "Pediatric Intervention: State-of-the-Art. What is Hot and What is Not." XXIV Spanish National Congress of Radiology, Salamanca, Spain, September 24, 1998.
164. (1) "Child Abuse," (2) "Pediatric Intervention." Japan Radiological Society, Tokyo, Japan, October 5-6, 1998.
165. "Vascular Intervention" - Lecture. St. Marianna University Hospital, Tokyo, Japan, October 8, 1998.
166. (1) Scientific Session "Intervention- Body/MRI," (2) Hepatobiliary and Gastrointestinal Intervention in Children." 8th Radiological Symposium, Graz Austria, October 15-16, 1998.
167. Minicourse in Pediatric Neuroradiology: Pediatric Neurovascular Diseases-Neurovascular Anomalies. Presented at the 84th Annual Meeting of the Radiological Society of North America, Chicago, IL, November 29-December 4, 1998.
168. Conscious Sedation Course "Sedation for the Pediatric Patient." Northside Medical Center, Youngstown, OH, December 5, 1998.
169. Vascular Access Device Seminar, "Pediatric Vascular Access," Syracuse NY, December 9, 1998.
170. (1) Child Abuse - Noon Conference; (2) Pediatric Intervention: State-of-the-Art-Grand Rounds; (3) Resident Teaching Sessions. Visiting Professor-Columbia-Presbyterian Medical Center, New York, NY, March 3, 1999.
171. Newer Hepatic Interventions in Children-Interventional Radiology Program, Presented at the 28th Annual Society of Gastrointestinal Radiologists, West Palm Beach, FL, March 26, 1999.
172. (1) Non-Vascular Intervention in Children-Department Conference; (2) Pediatric Intervention: State-of-the-Art-Radiology Grand Rounds; (3) Resident Tutorial; (4) Child Abuse-Department Conference. Visiting Professor, University of Virginia at Charlottesville, VA, April 22-23, 1999.
173. Moderator, Workshop III, Interventional Techniques; Conductor, Workshop III-Angiography Club; Moderator-Sedation Session; Moderator, Intervention Radiology. Society of Pediatric Radiology, Vancouver, British Columbia, Canada, May 14-17, 1999.
174. Development of a Clinical Research Program. Presented at the Annual Society of Chairman of Radiology at Children's Hospitals Meeting, Chicago, IL, October 1-3, 1999.
175. Pediatric Intervention. Pediatric Grand Rounds, Children's Hospital of Pittsburgh, Pittsburgh, PA, August 26, 1999.

176. (1) Pediatric Intervention: State-of-the-Art; (2) Imaging of Endocrine Problems Involving the Central Nervous System. Visiting Professor- Brooke Army Medical Center, Air Force Hospital, and the University of Texas, San Antonio, TX, October 7-8, 1999.
177. Diagnostic and Interventional Radiology Procedures for the Otolaryngologist. ENT Conference, Children's Hospital of Pittsburgh, Pittsburgh, PA, November 4, 1999.
178. Workshop: GI Interventions in Children: Percutaneous Feeding Techniques. The Society of Gastrointestinal Radiologists & The Society of Uroradiology, Hyatt Regency Kauai, Kauai, Hawaii, March 12-17, 2000.
179. Workshop: GI Interventions in Children: Percutaneous Cecostomy. The Society of Gastrointestinal Radiologists & The Society of Uroradiology, Hyatt Regency Kauai, Kauai, Hawaii, March 12-17, 2000.
180. Moderator, Interventional Club, Society for Pediatric Radiology, May 2000
181. Pediatric Sedation. Dartmouth Summit on Pediatric Sedation: A Multidisciplinary Assessment of the State-of-the-Art. Dartmouth-Hitchcock Medical Center, Lebanon, NH, September 9, 2000.
182. Symposium: How to Succeed in Fellowship: Research – Writing Papers. Society for Pediatric Radiology Fellows Symposium. Hyatt Regency O'Hare, Chicago, Illinois, October 20, 21, 2000.
183. Workshop: Embolotherapy: Bench to Bedside. Center for Device Evaluation and Radiological Health (CDRH), FDA & International Society of Cardiovascular Medicine and Science & Society of Cardiovascular and Interventional Radiology & American Society of Interventional and Therapeutic Neuroradiology, FDA, Laurel, Maryland, December 11, 2000.
184. Seminar: Interventional Radiology as a Non-Invasive Alternative to Surgery. Bache Lewis Penrose Society, The Leonard & Madlyn Abramson Pediatric Research Center, The Children's Hospital of Philadelphia, March 15, 2001.
185. Pediatric Intervention: State-of-the-Art. Pediatric Grand Rounds, Andrew N. Schwartz Memorial Lecture, Connecticut Children's Medical Center, March 27, 2001.
186. (1) Pediatric Intervention: State-of-the-Art; (2) The Airway: A Multimodality Look; (3) Unique Aspects of CNS Injury in Young Children. Wayne State University/Detroit Medical Center, April 11, 12, 2001.
187. Changing Behaviors with Salary Incentives. Course presented at the Society of Chairs of Radiology In Children's Hospitals (SCORCH) October 12-13, 2001, Annual Meeting, Regal Knickerbocker Hotel, Chicago, Illinois.
188. Lessons Learned: Pediatric Interventions. Panelist at the Society of Cardiovascular & Interventional Radiology (SCVIR) 27th Annual Scientific Meeting, Baltimore Convention Center, Baltimore, Maryland, April 6-11, 2002.
189. New Horizons: SPR Presidential Address. Society for Pediatric Radiology, December 2, 2002
190. Advances in Pediatric Intervention Radiology. Speaker at Pennsylvania Hospital, Department of Radiology, Philadelphia, Pennsylvania, February 14, 2003.
191. Hepatobiliary Interventions in the Pediatric Population. Speaker at the Abdominal Radiology Course 2003 presented by The Society of Gastrointestinal Radiologists and The Society of Uroradiology, Cancun, Mexico, February 18, 2003.
192. Update on Pediatric IR. Philadelphia Roentgen Ray Society, College of Physicians, Philadelphia, Pennsylvania, March 6, 2003.
193. Pediatric AVMs. Vascular Intervention in Children. The Association of Vascular and Interventional Radiographers', 13th Annual Scientific Meeting, Salt Lake City, Utah, March 30, 2003.

194. Visiting Professor, Children's Memorial Hospital, November 23, 2003
Arterial Stimulation Venous Sampling, Lecture and workshop, Chicago Memorial Hospital
November 23, 2003
195. Visiting Professor, Los Angeles Children's Hospital, January 22-23, 2004.
Pediatric Intervention: Update. Los Angeles Children's Hospital, January 22, 2004
196. Hepatobiliary Interventions in Children. Los Angeles Children's Hospital, January 23, 2004
197. Moderator: Society of Interventional Radiology. Section of Pediatric Intervention, March 27, 2004
198. 2004 Teaching Fellow, Rochester General Hospital October 13, 2004.
 - a. Grand Rounds: Pediatric Intervention: The State of the Art.
 - b. Attending Rounds: Various topics including Pediatric Sedation, Periorbital Cellulitis.
 - c. Miscellaneous topics
 - d. Noon Conference: Interventions of the GI Tract.
199. Visiting Professor, Strong Memorial Hospital Department of Pediatrics, October 14, 2004.
Grand Rounds: Pediatric Intervention: The State of the Art
Resident Rounds: Issues in GI Intervention in the Pediatric Population
Noon Conference: Vascular Intervention in Children
200. First Pediatric Intervention Symposium: Hospital for Sick Children, Toronto Canada, November 5-7, 2004.
New Frontiers: A modular approach to Pediatric Interventional Radiology
201. Pediatric gastrointestinal and genitourinary interventions: A modular approach to the development of new procedures. Society of Gastrointestinal and Genitourinary Radiologists, San Antonio, Texas. February 27-March 4, 2005. Richard Towbin, M.D. and Kevin Baskin, M.D.
202. The true cavo-atrial junction
203. Treatment of Congenital Vascular Lesions in Childhood. 20th Annual Virgin Islands Workshop in Plastic Surgery. January 30-February 3, 2006
204. Interventional fluoroscopy: Safety issues. The need for Quality Control. 3RD Annual Pediatric Radiology ALARA Conference. ALARA Concepts in Pediatric Interventional and Fluoroscopic Imaging. February 11-12, 2006. Orlando Florida
205. Current Practices in Pediatric Interventional Radiology. Moderator, Plenary Session, SIR Annual Meeting, Toronto, Canada, March 3/28-4/4/06.
206. Pediatric Trauma Workshop. Moderator, SIR Annual Meeting, Toronto, Canada, 3/28-4/4/06
207. Scientific Papers; Pediatric Intervention: Co-moderator, 4/03/06
208. Percutaneous Feeding of Children. Workshop, 2nd Joint ESGAR/SGR Meeting, Crete, Greece, June 19-23, 2006
209. Pediatric Categorical Course. SIR Annual Meeting Seattle, Washington, March 1-6, 2007.
Children in the IR Suite: A Modular Approach to Pediatric Interventional Radiology. March 3, 2007
210. Pediatric Categorical Course. SIR Annual Meeting Seattle, Washington, March 1-6, 2007.
Children in the IR Suite: An approach to Sedation. March 3, 2007
211. University of Pittsburgh Medical Center, Resident Board Reviews. April 9-10, 2007

212. Society for Gastrointestinal Radiology. Abdominal Interventions in Children. Naples, Florida, April 19, 2007
213. Pediatric Intervention: Something old, something new, something borrowed, something blue. Grand Rounds, Phoenix Children's Hospital, July, 2008
214. East Valley Pediatric Society: Overview of Pediatric Intervention, July 2008
215. Allegheny Hospital. Pediatric Vascular Intervention, A modular approach to Intervention, Non-vascular PIR, November 2008
216. Allegheny General Hospital. Resident Case Review, November 2008
217. CME Dinner Lecture Series: East Valley – Molly Brannigan's, Pediatric Intervention, what's new at PCH? February, 2009
218. CME Dinner Lecture Series: Phoenix Pediatrics, Gainey Ranch Golf Club. Pediatric Intervention, what's new at PCH? March, 2009
219. Mesa Pediatrics: Pediatric Intervention at PCH, March 2009
220. Pediatric Categorical Course. SIR Annual Meeting, San Diego, CA: Clinical Care and Sedation in Pediatric Intervention, Plenary Session, March 2009
221. State of the art in Pediatric GI and GU intervention. Workshop, SGR Meeting, Maui, Hawaii, March 16-20, 2009
222. CME Dinner Lecture Series: Arrowhead Country Club. Pediatric Intervention, what's new at PCH? March 26, 2009
223. Minimally invasive therapy in children with cancer; Interventional popourri. Caffey Society. Warwick Hotel, Denver, Colorado. June 19-21, 2009.
224. Visiting Professor, University Hospital, Rainbow Babies and Children's Hospital. New Frontiers in Pediatric Interventional Radiology, August 22, 2009
Vascular Intervention in Children, August 23, 2009
225. Case Presentations: (1) Embolization of pulmonary AVM in setting of HHT, (2) Percutaneous aspiration of C1 lesion. 1st International Meeting of the Society for Pediatric Interventional Radiology, October, 2009.
226. Scottsdale Healthcare, Joint Pediatrics Business and Education Meeting: Scope of Pediatric Interventional Radiology, Scottsdale, AZ, November 3, 2009
227. Pediatric Feeding Disturbances Conference, P.O.P.S.I.C.L.E. (Parent Organized Partnerships Supporting Infants and Children Learning to Eat) Presentation: Image Guided Percutaneous Feeding, Phoenix, AZ, January 14, 2010.
228. CAPSTONE, The University of Arizona, College of Medicine – Phoenix. Biological Effects of Radiology on Children, May 4, 2010.
229. The University of Arizona, Tucson, Arizona. Pediatric Intervention, June 16, 2010

Visiting Professorships:

1. Universidade Federal Do Rio De Janiero, Rio De Janiero, Brazil, April 23, 1983.
2. Alberta Children's Hospital, Calgary, Alberta, Canada, September 8-12, 1987.
3. McGill University, The Montreal Children's Hospital, December 14-16, 1988.
4. St. Louis University, Cardinal Glennon Children's Hospital, January 8-10, 1989.
5. LeBonheur Children's Medical Center, Memphis, TN, May 3-4, 1990.
6. Massachusetts General Hospital, Boston, Massachusetts, February 12-14, 1991.
8. Rikshospitat, Oslo, Norway, June 3, 1991.
9. The Children's Memorial Hospital, Chicago, IL, October 5-6, 1994.

10. The Children's Hospital of Philadelphia, Philadelphia, PA, October 27-28, 1994.
11. Cleveland Clinic Foundation, Cleveland, Ohio, August 31, 1995.
12. North Shore University Hospital, Manhasset, NY, October 25, 1995.
13. Children's Hospital, Detroit, MI, January 25-26, 1996.
14. University of Texas Medical Branch, Galveston, TX, March 14-15, 1996.
15. Children's Hospital of Wisconsin, Milwaukee, WI, April 25-26, 1996.
16. St. Luke's-Roosevelt Hospital Center, New York, NY, May 14, 1996.
17. Newark Beth Israel Medical Center, Newark, NY, May 16, 1996.
18. Emory/Grady Memorial Hospital, Atlanta, GA, February 18-19, 1997.
19. Texas Children's Hospital, Houston, TX, March 3-4, 1997.
20. Children's Hospital Medical Center, Seattle, WA, March 31-April 1, 1997.
21. British Columbia's Children's Hospital, Vancouver, BC, Canada, April 2-4, 1997.
22. Strong Memorial Hospital, Rochester, NY, May 28, 1998.
23. Hospital 12 de Octubre, Madrid, Spain, September 21-22, 1998.
24. Marianna University, Tokyo, Japan, October 8, 1998.
25. Columbia-Presbyterian Medical Center, New York, NY, March 3, 1999.
26. University of Virginia, Charlottesville, VA, April 22-23, 1999.
27. Brooke Army Medical Center/Air Force Hospital/University of Texas, San Antonio, TX, October 7-8, 1999.
28. Children's Hospital of Cincinnati, Cincinnati, OH, September 22-23, 2000.
29. Society for Gastrointestinal Radiology Visiting Fellowship Program, Ecuador, 2001
30. Children's Memorial Hospital, Chicago, IL, October 3, 2003
31. Los Angeles Children's Hospital, Los Angeles California, January 22-23, 2004
32. University of Rochester, Rochester General Hospital, Department of Pediatrics, TWIG Teaching Fellowship, October 13, 2004
33. Strong Memorial Hospital, Rochester, New York, October 14, 2004.
34. Children's Hospital of Milwaukee; January 17-18, 2005
35. University of Pittsburgh Medical Center, Radiology Board Review, April 9-10, 2007
36. St. Jude Children's Research Hospital. May 3, 2007. Minimally Invasive Therapies for Children with Cancer.
37. Allegheny General Hospital. Subjects in Pediatric Intervention, Board Review. November 2008
38. Rainbow Babies and Children's Hospital, Cleveland, OH, August, 2009

Organizing Roles in Scientific Meetings:

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|-------------|--|
| 1984-85, 88 | Program Committee, American Academy of Pediatrics, Radiology Section |
| 1992-1994 | Scientific Program Committee, Society of Cardiovascular and Interventional Radiology |
| 1992-1993 | Program Committee, Society of Cardiovascular and Interventional Radiology |
| 1996-2000 | Program Committee, Society of Pediatric Radiology in Naples, FL |
| 1999-2000 | Organizer, Caffey Society Annual Meeting in Pittsburgh, PA |
| 2002-2003 | Society of Pediatric Radiology Annual Meeting in San Francisco, CA, May 2002 |

Publications, Peer Reviewed:

- *Medical Student
- +Fellow, Resident

1. **Towbin R**, Benton C, Martin L: Multilocular cystic dysplasia of half of a horseshoe kidney. *J Ped Surg* 9: 421 1974.
2. Matern W, Jaffe M, **Towbin R**: Unusual complication from a cardiac pacemaker. *J Am Med Assoc* 238 (9):969, 1977.
3. **Towbin R**, Dunbar JS, Bove K: Antrochoanal polyps. *Am J Roentgenol* 132:27-31, 1979.
4. **Towbin R**, Crawford A: Neonatal traumatic proximal femoral epiphysiolysis. *Pediatrics* 63 :456-459, 1979.
5. Singer J, **Towbin R**: Occult fractures in the production of gait disturbances in childhood. *Pediatrics* 64 (2): 192-196, 1979.
6. **Towbin R**, Dunbar JS, Clark R: Teardrop sign: Plain film recognition of ankle effusions. *Am J Roentgenol* 134(5): 985-990, 1980.
7. **Towbin R**, Ballard E, Crawford A: Muscle necrosis simulating recurrent osteosarcoma. *J Bone Joint Surg* 62A: 1024-1026, 1980.
8. Myers JP, Perlstein PH, Light IJ, **Towbin RB**, Dincsoy HP, Dincsoy MY: Tuberculosis in pregnancy with fatal congenital infection. *Pediatrics* 67 (1): 89-94, 1981.
9. **Towbin R**, Schwartz D: Endocardial cushion defect: Embryology, anatomy and angiography. *Am J Roentgenol* 136:157-162, 1981.
10. Kaufman RA, **Towbin R**: Telangiectatic osteosarcoma simulating the appearance of an aneurysmal bone cyst. *Pediatr Radiol* 11:102-104, 1981.
11. Sturm R, Staneck JL, Myers JP, Wilkinson HW, Cottril CM, **Towbin R**: Pediatric legionnaires disease: diagnosis by direct immunofluorescent staining of sputum. *Pediatrics* 68 (4): 539-543, 1981.
12. **Towbin R**, Dunbar JS: Generalized osteoporosis with multiple fractures in an adolescent. *Invest Radiol* 16(3): 171-174, 1981.
13. Strife JL, **Towbin R**, Francis P, Kuhns JP: Retained fetal lung fluid in two neonates with congenital absence of the pulmonary valve and Tetralogy of Fallot. *Radiology* 141 (3): 675-677, 1981.
14. **Towbin R**, Gruppo R: Pulmonary metastases in neuroblastoma. *Am J Roentgenol* 138:75-78, 1982.
15. **Towbin R**, Dunbar JS: The paranasal sinuses in childhood. *Radiographics* 2(2): 253-279, 1982.
16. +Meyer C, Herwig S, Seid A, Cotton R, **Towbin R**: Acute sphenoid sinusitis in children. *Am J Otolaryngol* 3(3): 223-226, 1982.
17. Kaufman RA, **Towbin RB**, Babcock DS, Crawford AH: Arthrosonography in the diagnosis of pigmented villonodular synovitis. *Am J Roentgenol* 139:396-398, 1982.
18. Towbin J, **Towbin R**, Crawford A: Osteochondritis dissecans of the tibial plateau. *J Bone Joint Surg* 64:783-784, 1982.
19. Ross DL, Strife CF, **Towbin R**, Bove KE: Non-absorptive hydrocephalus associated with nephropathic cystinosis. *Neurology* 32: 330-334, 1982.
20. Rennebohm R, **Towbin R**, Crowe W, Levinson JE: Popliteal cyst in juvenile rheumatoid arthritis. *Am J Roentgenol* 140:123-125, 1983.
21. Ball WS, Strife JL, Rosenkrantz J, **Towbin RB**, Noseworthy J: Esophageal stricture in children: treatment by balloon dilatation. *Radiology* 150 (1): 263-264, 1984.
22. Kaufman RA, **Towbin RB**, Babcock DS, Gelfand MJ, Guice K, Oldham K, Noseworthy J: Upper abdominal trauma in children: imaging evaluation. *Am J Roentgenol* 142:449-460, 1984.

23. McLaurin RL, **Towbin RB**, Aron BS: Brain stem gliomas: observation on CT appearance before and after treatment. *Concepts in Pediatr Neurosurg* 5:165-177, 1985 (Karger, Basel).
24. Strife, JL, **Towbin R**, Crawford A: Hip arthrography in children: the infero-medial approach. *Radiology* 152:536, 1984.
25. *Kelly A, **Towbin RB**, Kaufman RA, Crawford A: Spine duplication. *Spine* 10:15-18, 1985.
26. +Pomeranz SJ, Hawkins HH, **Towbin R**, Lisberg WN, Clark RA: Granulocytic sarcoma (chloroma): CT manifestations. *Radiology* 155:167-170, 1985.
27. +Shaul P, Chernausk S, **Towbin R**: Precocious puberty following severe head trauma. *Am J Dis Child* 139:467-469, 1985.
28. Ball JB, **Towbin R**, Staton RE, Cowdrey KE: Direct sagittal computed tomography of the head. *Radiology* 155:822, 1985.
29. +Seidel FG, **Towbin R**, Kaufman RA: Normal pituitary stalk size in children. *Am J Neuroradiol* 1985, 6:733-738, *Am J Roentgenol* 145:1297-1302, 1985.
30. +Cohen RA, **Towbin R**, Myers PA, Kaufman RA: Cranial computed tomography in the abused child with head injury. *Am J Neuroradiol* 1985, 6:883-888, *Am J Roentgenol* 146:97-102, 1986.
31. +Yellin J, **Towbin RB**, Kaufman RA: Stubbed finger osteomyelitis. *J Trauma* 25:808-809, 1985.
32. **Towbin R**, Strife J: Percutaneous aspiration, drainage and biopsies in children. *Radiology* 157: 81-85, 1985.
33. +Rolfes D, **Towbin R**, Bove K: Vascular dysplasia in tuberous sclerosis. *Pediatr Pathol* 3:359-373, 1985.
34. +Daniels S, Price J, **Towbin R**: Non-surgical cure of brain abscess in a neonate. *Child's Nerv Syst* 1: 346-348, 1985.
35. McLaurin RL, **Towbin R**: Tuberous sclerosis: diagnostic and surgical considerations. *Pediatr Neuroscience* 12:43-48, 1986.
36. +Zalzal G, +Shott SR, **Towbin R**, Cotton R: Value of CT scans in the diagnosis of temporal bone diseases in children. *Laryngoscope* 96:27-32, 1986.
37. **Towbin R**, Han BK, Kaufman RA, Burke M: Computed tomography in diagnosis and management of postseptal (orbital) cellulitis. *Radiology* 158: 735-737, 1986.
38. +Bisset GS, **Towbin R**: RSNA pediatric case of the day, focal multi-cystic dysplasia in lower pole renal duplication. *Radiographics* 6:508-511, 1986.
39. +Bisset GS, **Towbin R**: RSNA pediatric case of the day, persistent hyperplastic primary vitreous. *Radiographics* 6(4): 731-733, 1986.
40. McLaurin RL, **Towbin R**: Letter to the editor. *Pediatr Neuroscience* 12:124, 1986.
41. +Bisset GS, **Towbin R**: RSNA pediatric case of the day, multiple duplication cysts. *Radiographics* 6: 917-920, 1986.
42. **Towbin RB**, +Bisset GA: RSNA pediatric case of the day, trilateral retinoblastoma. *Radiographics* 6: 1100-1104, 1986.
43. Wacksman J, +Brewer E, Gelfand MJ, **Towbin R**, Strife J: Low grade pelviureteric junction obstruction with normal diuretic renography. *Brit J Urol* 58:364-367, 1986.
44. Ball WS, **Towbin RB**, Strife J, Spencer R: Interventional genitourinary radiology in children: a review of 61 procedures. *Am J Roentgenol* 147:791-796, 1986.
45. +Stalker HP, Kaufman RA, **Towbin R**: Patterns of liver injury in childhood: CT analysis. *Am J Roentgenol* 147:1199-1205, 1986.
46. +Carolan P, McLaurin R, **Towbin R**, Towbin J, Egelhoff J: Benign subdural extraaxial fluid collections of infancy. *Pediatr Neuroscience* 12(3): 140-144, 1986.

47. +Bisset GS, **Towbin RB**, Strife JL, Gole D: Pediatric Case of the Day, Cervical Aortic Arch. *Radiographics* 7(1): 186-189, 1987.
48. +Egelhoff JC, Ball WS, **Towbin RB**, Seigel RS, Eckel CG: Dural ectasia as a cause of widening of the internal auditory canals in neurofibromatosis. *Pediatr Radiol* 17:7-9, 1987.
49. Hornstein L, Bove KE, **Towbin RB**: Linear nevi, hemihypertrophy, connective tissue hamartomas and unusual neoplasms in children. *J Pediatr* 110(3): 404-408, 1987.
50. **Towbin RB**, Ball WS, Kaufman RA: "Rathke's cleft cyst." Pediatric Case of the Day. *Radiographics* 7(2): 385-388, 1987.
51. Smith B, Myers C III, **Towbin R**: X-ray study of the month: dehiscent jugular bulb. *Ann Otol Rhinol Laryngol* 96(2): 232-233, 1987.
52. +Meservy CJ, **Towbin RB**, McLaurin RL, Myers PA, Ball WS: Radiographic characteristics of skull fractures in child abuse versus accidental injury. *Am J Neuroradiol* 8:455-457, 1987
Am J Roentgenol 149:173-175, 1987.
53. **Towbin RB**, Wacksman J, Ball WS: Percutaneous pyeloplasty in children. *Radiology* 163: 381-384, 1987.
54. Kaufman RA, **Towbin RB**, Ball WS, Oestreich AE: "Mesenchymal Chondrosarcoma." Pediatric Case of the Day. *Radiographics* 7(3):597-599, 1987.
55. **Towbin R**, Ball WS: A new five french pediatric drainage system. *Radiology* 163: 827, 1987.
56. **Towbin RB**, Ball WS, Kaufman RA: Pediatric Case of the Day: Abdominal aortic aneurysm in a patient with tuberous sclerosis. *Radiographics* 7(7): 820-821, 1987.
57. **Towbin RB**, Naidich TP, Ball WS, Ball JB: Direct sagittal CT of the head in children. *Pediatr Neuroscience* 12:300-303, 1987.
58. Kaufman RA, **Towbin RB**, Ball WS: Pediatric Case of the Day: Adrenocortical carcinoma. *Radiographics* 7(5):1021-1024, 1987.
59. Ball WS, **Towbin RB**, Kaufman RA: Pediatric Case of the Day: Orbital varix. *Radiographics* 7(6):1181-1182, 1987.
60. Daniels SR, Loggie J, McEnery PT, **Towbin RB**: The clinical spectrum of juvenile intrinsic renovascular hypertension. *Pediatrics* 80 (5): 698-704, 1987.
61. Bisset GS III, Kaufman RA, **Towbin RB**, Bove KE: Recurrent sacral osteoblastoma: case report. *Skeletal Radiol* 16:666-669, 1987.
62. Ball WS, **Towbin RB**, Kaufman RA: Pediatric Case of the Day: Osteoblastoma of the lateral mass of C6. *Radiographics* 8(1) 191-194, 1988.
63. Strife JL, Ball WS, **Towbin R**, Keller MS, Dillon T: Arterial thrombosis in neonates: use of fibrinolytic therapy. *Radiology* 166 (2): 395-399, 1988.
64. Han BK, **Towbin RB**, Ball WS: Pediatric Case of the Day: Delayed right diaphragmatic hernia following group B streptococcal infection. *Radiographics* 8(2):354-357, 1988.
65. **Towbin RB**, Witte DP, Ball WS, Jr, Han BK: Pediatric Case of the Day: Hemi-megalencephaly. *Radiographics* 8 (3):573-577, 1988.
66. Han BK, **Towbin RB**, Ball WS, Jr: Pediatric Case of the Day: Infected ovarian cyst. *Radiographics* 8:13-17, 1988.
67. Ey EH, Han BK, **Towbin R**, Jaun WK: Body inlet stenosis as a cause of nasal airway obstruction. *Radiology* 168: 477-479, 1988.
68. **Towbin R**, Ball WS, Bisset GS III: Percutaneous gastrostomy in children. *Radiology* 168: 473-476, 1988.

69. **Towbin RB**, Benton C, Ball WS, Han BK: Pediatric Case of the Day: Case Four (A) Dehiscent jugular bulb, (B) Mondini malformation, (C) Aural Atresia. *Radiographics* 8(6): 1221-1226, 1988.
70. Kaufman RA, Ball WS, Han BK, **Towbin RB**: Pediatric Case of the Day: Angiomatous lymphoid hamartoma (Castleman's disease). *Radiographics* 8(5): 997-1000, 1988.
71. Matsumoto J, **Towbin R**, Ball WS, Han B: Cranial chordomas in infancy and childhood: A report of 2 cases and review of the literature. *Pediatr Radiol* 20: 28, 1989.
72. Stalker HP, Han BK, **Towbin R**: Thalamic hyperdensity: a previously unreported sign of Sandhoff's disease. *Am J Neuroradiol* 10(5) Supplement: 82, 1989.
73. Mize W, Ball WS Jr, **Towbin R**, et al: Atypical MR and CT appearance in a Rathke's cleft cyst. *Am J Neuroradiol* 110:583, 1989.
74. **Towbin RB**, Myers C, Thompson R: Percutaneous transnasal sphenoidotomy with sphenoid window. *Am J Neuroradiol* 10:845-847, 1989.
75. Chen P, **Towbin R**: Aggressive fibromatosis of the tongue: MR demonstration. *J Comput Assist Tomogr* 132:343-345, 1989.
76. Pensak ML, Keith RW, Dignan PSJ, Stowens DW, **Towbin RB**, Katbamna B: Neuroradiologic abnormalities in patients with type 1 neurofibromatosis. *Laryngoscope* 99:702-706, 1989.
77. **Towbin RB**: Pediatric interventional procedures in the 1980's: A period of development, growth and acceptance. *Radiology* 170:1081-1090, 1989.
78. **Towbin RB**, Lederman HM, Dunbar JS, Ball WS, Strife JL: Esophageal edema as a predictor of unsuccessful balloon extraction of esophageal foreign body. *Pediatr Radiol* 19:359-360, 1989.
79. Mize W, **Towbin R**, Ball WS, Han BK: Symptomatic Rathke's cleft cyst in children: report of two cases and review of the literature. *Am J Neuroradiol* 10(5): Supplemental 583-584, 1989.
80. Brody AS, Ball WS, **Towbin RB**: Computed arthrography in the evaluation of pediatric joint disorders. *Radiology* 170: 99-102, 1989.
81. Ball WS, Bisset G, **Towbin R**: Percutaneous drainage of chest abscesses in children. *Radiology* 171 (2):431-434, 1989.
82. Amundson GM, **Towbin RB**, Mueller DL, Seagram CGF: Percutaneous transgastric drainage of the lesser sac in children. *Pediatr Radiol* 20:590-593, 1990.
83. Han B, **Towbin R**, DeCourten-Myers G, McLaurin RL, Ball WS: Reversal sign on CT: effect of anoxic/ischemic cerebral injury in children. *Am J Neuroradiol* 10:1191-1198, 1989 (later republished in *Am J Roentgenol* 154:361-368, 1990).
84. **Towbin RB**, Dunbar JS, Rice S: Technical note. Magnetic catheter for removal of magnetic foreign bodies. *Am J Roentgenol* 154:149-150, 1990.
85. **Towbin, RB**: Removal of foreign bodies from the upper gastrointestinal tract of children. *Curr Opin Radiol* 2(6): 904-908, 1990.
86. Becker CJ, **Towbin RB**: Doppler flow monitoring of the dorsal artery of the foot facilitates puncture of the femoral artery in children. *Am J Roentgenol* 155:131, 1990.
87. Aronson DD, Kahn RH, Canady A, Bollinger RO, **Towbin R**: Instability of the cervical spine following decompression in Arnold-Chiari malformation. *J Bone & Bone Surg* 73A(6): 898-906, 1991.
88. Loder RT, Shapiro P, **Towbin RB**, Aronson DD: Aortic anatomy in children with myelomeningocele and congenital lumbar kyphosis. *J Pediatr Orthop* 11:31-35, 1991.
89. Cohen MD, **Towbin R**, Baker S, Davis S, Becker C, Eggleston DE, Kehler M, Smith JA, Cory DA, White SJ: Comparison of iohexol with barium in gastrointestinal studies of infants and children. *Am J Roentgenol* 156(2): 345-350, 1991.

90. Han B, **Towbin R**, DeCourten-Myers G, McLaurin RL, Ball WS: The reversal sign: A pattern of diffuse anoxic/ischemic cerebral injury. *Am J Roentgenol* 154:361-368, 1990 (previously published in *Am J Neuroradiol* 10:1191-1198, 1989).
91. Haller JO, Kleinman PK, Merten DF, Cohen HL, Cohen MD, Hayden PW, Keller M, **Towbin R**, Sane MS: Section on Radiology. Diagnostic Imaging of Child Abuse. *Pediatrics* 87(2): 262-264, 1991.
92. **Towbin R**, Amundson G, Fleischman L, Becker CJ, Chang C: Real-time US guidance of renal biopsy. *J Vasc Interv Radiol* 2:561-562, 1991
93. **Towbin R**, Bender TM, Bowen A, Medina JL, Newman B: Pediatric case of the day. *Radiology* 181: Supplement 316, 1991.
94. Bowen A, Meza M, Ledesma-Medina J, Bender TM, **Towbin RB**: Case of the day: Pediatric case of the day. *Radiographics* 12:393-395, 1992.
95. Newman B, Bowen A, Meza MP, **Towbin RB**: Case of the day: Pediatric case of the day. *Radiographics* 12:606-607, 1992.
96. Kemp SS, **Towbin RB**: Pediatric case of the day, Neurenteric cyst without associated vertebral abnormalities. *Radiographics* 12:1244-1257, 1992.
97. Bender TM, Ledesma-Medina J, **Towbin RB**. Pediatric Case of the Day. Ectopic intra-thyroidal parathyroid adenoma. *Radiographics* 1992; 12: 1035-1037
98. Meza MP, Newman B, Dickman PS, **Towbin RB**. Pediatric Case of the Day. Pulmonary Mesenchymal cystic hamartoma. *Radiographics* 1992; 12: 843-844
99. Newman B, Bowen D, Meza MP, **Towbin RB**. Pediatric Case of the Day. Acute Iron Ingestion. *Radiographics* 1992; 12: 606-608
100. Bowen D, Meza MP, Ledesma-Medina J, Bender TM, **Towbin RB**. Pediatric Case of the Day. Posttransplantation Lymphoproliferative Disorder. *Radiographics* 1992; 12: 393-395
101. Ledesma-Medina J, **Towbin RB**, Newman B. Pediatric Case of the Day. Right ovarian torsion, amputation, and calcification. *Radiographics* 1992; 12: 199-200
102. Albanese C, **Towbin RB**, Ulman I, Lewis J, Smith SD: Percutaneous gastrojejunostomy versus Nissen fundoplication for enteral feeding of the neurologically impaired child with gastroesophageal reflux. *J Pediatr* 123(3): 371, 1993.
103. Slovis TL, Parks C, Reneau D, Becker CJ, Hersch J, Carver CD, Ross RD, Tech K, **Towbin RB**: Pediatric sedation: short-term effects. *Pediatr Radiol* 23:345-348, 1993.
104. **Towbin RB**, Kaye RD, Bron KL: Intervention in the critically ill patient. *Crit Care Clin* 10(2): 437-454, 1994.
105. **Towbin R**, Kaye R, Meza MP, Pollock A, Yaw K, Moreland M: Osteoid Osteoma: percutaneous excision using a CT-guided coaxial technique. *Am J Roentgenol* 164:945-949, 1995.
106. Clark RSB, Orr RA, Atkinson CS, **Towbin R**, Pang D: Retinal hemorrhages associated with spinal cord arteriovenous malformation. *Clin Pediatr* 34(5): 281-283, 1995.
107. Pollack IF, Schor NF, Martinez J, **Towbin R**: Bobble-head doll syndrome and drop attacks in a child with a cystic choroid plexus papilloma of the third ventricle. *J Neurosurg* 83:729-732, 1995.
108. Ellis D, Shapiro R, Scantlebury VP, Simmons R, **Towbin R**: Evaluation and management of bilateral renal artery stenosis in children: A case series and review. *Pediatr Nephrol* 9:259-267, 1995.

109. Pollack IF, Polinko P, Albright AL, **Towbin R**, Fitz C: Mutism and pseudobulbar symptoms after resection of posterior fossa tumors in children: Incidence and pathophysiology. *Neurosurgery*, November 1995; 37(5):885-893, 1995.
110. Mooney MP, Burrows AM, Singhal VK, Losken HW, Smith TD, **Towbin R**, Wigginton W, Siegel MI: Intracranial volume in craniosynostotic rabbits using 3-D CT scans. *J Dent Res* 75:234, 1996
111. Blatt J, Koehler M, **Towbin R**, Albright LA: Good response of glioblastoma in a child with sickle cell anemia supports the therapeutic potential of tumor infarcting agents. *Oncology Reports* 3:875-877, 1996.
112. Cardella JF, Bakal CW, Bertino RE, Burke DR, Drooz A, Haskal Z, Lewis CA, Malloy PC, Merenze SG, Ogleview SB, Sacks D, **Towbin RB**. Quality Improvement guidelines for image guided percutaneous biopsy in adults: Society of Cardiovascular and Interventional Radiology Standards of Practice Committee. *JVIR* 1996 7: 943-946
113. Albright LA, **Towbin RB**, Schultz BL: Long-term outcome after sagittal synostosis operations. *Pediatr Neurosurg* 25:78-82, 1996.
114. Newman B, Meza MP, **Towbin RB**, Del Nido P: Left pulmonary artery sling: Diagnosis and delineation of associated tracheobronchial anomalies with MR. *Pediatr Radiol* 26:661-668, 1996
115. Singhal VK, Mooney MP, Burrows AM, Wigginton W, Losken HW, Smith TD, **Towbin R**, Siegel MI: Age related changes in intracranial volume in rabbits with craniosynostosis. *Plast Reconstr Surg*, 1997 100(5): 1121-1130.
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119. Staged Endovenous Treatment of Deep Venous Thrombosis. Cahill AM, Baskin KM, Raffini L, Rubin JT, Kaye RD, **Towbin RB**. Accepted for presentation to SPR, May 2005, New Orleans.
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121. Jimenez RM, Baskin KM, Cahill AM, Kaye RD, **Towbin RB**. Biometrics of the Superior Vena Cava I adolescents. Accepted for presentation SPR, May 2005, New Orleans.
122. Baskin KM, Cahill AM, Kaye RD, Rubin JT, **Towbin RB**. Chest Ports in Children. Submitted to SPR, May 2005, New Orleans
123. Baskin KM, Cahill AM, Rubin JT, Ruffini L, Kaye RD, **Towbin RB**. Treatment of Venous Compression Syndromes (May-Thurner and Paget-Schrotter) in Children and Young Adults. Submitted to SPR, May 2005, New Orleans
124. Baskin KM, Kaye RD, Cahill AM, Jimenez M, **Towbin RB**. The True Cavoatrial Junction: Implications for Central Venous Access Tip Position. SIR, April 2, 2005, New Orleans.
125. Kaye **RD**, Cahill AM, Baskin KM, Rubin JT, **Towbin RB**. Tunneled hemodialysis catheters in children: technique and outcomes. SIR, April 4, 2005, New Orleans
126. Baskin KM, Hernandez-Pampaloni M, El-Haddad G, Alavi A, **Towbin RB**. PET-CT guided Interventions in Oncology Patients: A Model for Comparison with Conventional Approach Tissue Diagnosis. RSNA November 30, 2005
127. Baskin KM, Hernandez-Pampaloni M, El_Haddad G, Alavi A, Charron M and **Towbin RB**. PET-CT Fusion for Guidance of Percutaneous Biopsy for Oncologic Diagnosis and Treatment. SIR 2006
128. ****Chow S**, Cahill AM, Baskin KM, Beukelman T, Cron RQ, Kaye RD, **Towbin RB**. Benefit of Intra-Articular Corticosteroid Injection Under Fluoroscopic Guidance for Subtalar Arthritis in Juvenile Idiopathic Arthritis. SIR Annual Meeting, Toronto Canada, April 3, 2006.
129. **Towbin, RB**. The Modular Approach to Creativity in Interventional Radiology. The Child in the Interventional Suite, Categorical Course, Society for Interventional Radiology, Seattle, Washington, March 3, 2007.
130. **Towbin, RB**. Sedation of Children in the Interventional Suite. The Child in the Interventional Suite, Categorical Course, Society for Interventional Radiology, Seattle, Washington, March 3, 2007.

[** presented by]

Editorials, Reviews, Chapters:

1. Cotton R, Ballard E, Going J, Myer C, **Towbin R**, Wong K: Pediatric head and neck tumors. In: Comprehensive Management of Head and Neck Tumors. Thawley S, Panje W. (eds). Philadelphia: WB Saunders, 1985.
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3. McLaurin R, **Towbin R**: Post-traumatic hematomas. In: Pediatric Neurosurgery, Surgery of the Developing Nervous System. Vol. 2, New York: Grune & Stratton, 1987.

4. **Towbin R**, Ball WS: Pediatric Interventional Radiology. In: Radiologic Clinics of North America. Bender T, Oh KS. (eds). Chicago: WB Saunders, March 1988:419-440.
5. McLaurin R, **Towbin R**: Diagnosis and treatment of head injuries in infants and children. Julian R. Youmans. (ed). Sacramento, CA.
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10. Kaye RD, Grifka RG, **Towbin RB**: Intervention in the thorax of children. *Rad Clin North Am* 31(3):693-712, 1993.
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12. **Towbin RB**, Charron M, Meza MP: Imaging in pediatric endocrine disorders. In: Clinical Pediatric Endocrinology. Sperling MA. (ed). Philadelphia: WB Saunders Publishers 1996:549-576.
13. Kaye, RD, **Towbin RB**: Interventional procedures in the gastrointestinal tract in children. *Radiol Clin North Am*, July 1996; 34(4):903-917.
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15. **Towbin R**: Percutaneous cecostomy: An editorial. *Radiology* 203:604, 1997.
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18. Mann SS, Naidich TP, **Towbin RB**, Doundoulakis SH: Imaging of postnatal maturation of the skull base. *Neuroimaging Clinics N Amer*, Feb 2000 10(1): 1052-5149.
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Scientific Exhibits, Posters:

1. Endocardial Cushion Defect. Embryology, Anatomy and Angiography. Radiological Society of North America, Chicago, IL, 1978.
2. Antrochoanal Polyps. American Roentgen Ray Society, Toronto, Canada, 1979. Radiological Society of North America, Atlanta, GA, November, 1979.
3. The Teardrop Sign: Plain Film Recognition of Ankle Effusions. Radiological Society of North America, Atlanta, Georgia, November, 1979. American Roentgen Ray Society, Las Vegas, NV, April, 1980.
4. The Sinuses in Childhood.
 - a. American Roentgen Ray Society, San Francisco, California, March, 1981.
 - b. Radiological Society of North America, Chicago, IL, November, 1981.
5. Pediatric Case of the Day. Radiological Society of North America, Washington, DC, November, 1984.
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10. Meltzer CC, Jadali F, Mintun MA, **Towbin RB**, Crumrine PD, Adelson D, Fitz C. Comparison of FDG PET, Spect, and MRI in Pediatric Epilepsy. Poster displayed at the Annual Meeting of the Society of Nuclear Medicine, Colorado, June 1996.
11. Kaye RD, **Towbin RB**, Fitz CR. Gastrostomy insertion in neonates and young infants. European Society for Pediatric Radiology, Lugano, Switzerland, May 1997.
12. Sane SS, Kaye RD, Fitz CR, **Towbin RB**. Safety of percutaneous gastrostomy tube placement in patients with ventriculoperitoneal shunts. European Society for Pediatric Radiology, Lugano, Switzerland, May 27-31, 1997.
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14. **Towbin R**, Gerber DA, Kaye RD, Carr BI, Mazariegos GV, Reyes J, Arcement C. Intrahepatic chemoembolization in children with failed systemic chemotherapy. Poster displayed at the 23rd Annual Meeting of the Society of Cardiovascular and Interventional Radiology, San Francisco, CA, February 28-March 5, 1998.
15. **Towbin RB**, Kaye RD, Bergey EA, Fitz CR, Redd D. Pediatric transvenous liver biopsy. Poster displayed at the Third International Congress of Pediatric Transplantation, Boston, MA, July 10, 1998.
16. Arcement CM, **Towbin RB**, Meza MP, Gerber D, Reyes J, Carr BI. Intrahepatic chemoembolization in unresectable pediatric liver malignancies. Poster displayed at the Third International Congress on Pediatric Transplantation, Boston, MA, July 8-10, 1998.
17. **Towbin R**, Bergey EA, Kaye R. Transhepatic central venous large bore dialysis catheter placement in children. Poster displayed at the Third International Congress on Pediatric Transplantation, Boston, MA, July 10, 1998.
18. Cahill AM, Kaye RD, Fitz CR, **Towbin, RB**. Percutaneous gastrostomy in the neonate: Comparison of the “push-pull” approach with the antegrade method. Poster displayed at the 24th Annual Meeting of the Society of Cardiovascular and Interventional Radiology, Orlando, FL, March 20-25, 1999.
19. Bergey EA, Kaye RD, Redd CDB, Fitz CR, **Towbin RB**. Pediatric Transvenous Liver Biopsy. Poster displayed at the Annual Meeting of the Society of Pediatric Radiology, Vancouver, British Columbia, Canada, May 14-17, 1999.
20. **Towbin RB**, Bergey EA, Kaye RD. Transhepatic Central Venous Large Bore Dialysis Catheter Placement in Children. Poster presented at the Annual Meeting of the Society of Pediatric Radiology, Vancouver, British Columbia, Canada, May 14-17, 1999.
21. Villemagne VL, Tutor CA, Hamilton RL, Crumrine PC, Fitz CR, **Towbin RB**, et al. Presurgical Evaluation of Hemimegalencephaly with PET. Poster and scientific exhibit presented by Towbin RB, at the 43rd Annual Meeting of the Society for Pediatric Radiology, Naples, FL, April 29-May 6, 2000.
22. Glaiberman CB, **Towbin, RB**, Boal DKB. Case Report: Giant mycotic aneurysm of the internal carotid artery in a child: endovascular treatment. *Pediatric Radiology* (2003) 33:211-215.
23. **Towbin R**, Hurh P, Kaye R, Cahill AM, Dormans J. CT-guided resection of osteoid osteoma: the technique of choice. Scientific session presented by Kaye R, at The European Society of Paediatric Radiology 40th Annual Meeting and 27th Postgraduate Course, Genoa, Italy, June 2-6, 2003.
24. **Towbin R.B.**, Hurh P., Kaye R.D., Cahill A.M., Dormans J. CT-Guided Resection of Osteoid Osteoma: The Technique of Choice. Society of Interventional Radiology 28th Annual Scientific Meeting. Salt Lake City, Utah. March 27-April 1, 2003. Poster 274

25. Kaye, RD, **Towbin RB**, Rubin JT, Thornton PS, Stanley CA, Adzick NS. Evaluation of children with congenital hyperinsulinism with arterial stimulation and hepatic venous sampling. Scientific session presented by Kaye R, at The European Society of Paediatric Radiology 40th Annual Meeting and 27th Postgraduate Course, Genoa, Italy, June 2-6, 2003.
26. Cahill AM, Kaye RD, **Towbin, RB**, Fitz CR. Percutaneous mediastinal mass biopsy in children: techniques and outcomes. Scientific session presented by Kaye R, at The European Society of Paediatric Radiology 40th Annual Meeting and 27th Postgraduate Course, Genoa, Italy, June 2-6, 2003.
27. Cahill AM, Baskin KM, Kaye RD, Arabshahi B, DeWitt EM, Cron R, **Towbin RB**. CT Guided Percutaneous Steroid Injection for Treatment of Inflammatory Arthropathy of the Temporomandibular Joint (TMJ) in Children. 29th Annual Scientific Meeting, Society of Interventional Radiology, Phoenix Arizona, March 25-30, 2004
28. Kaye RD, Cahill AM, Baskin KM, Kim H, **Towbin RB**. Botox Injection of Salivary Glands in Children with Hypersalivation and Chronic Aspiration: A Pilot Study. 29th Annual Scientific Meeting, Society of Interventional Radiology, Phoenix Arizona, March 25-30, 2004
29. Baskin K.M., Kaye R.D., Cahill A.M., **Towbin R.B**. Botox injection of salivary glands in children with hypersalivation and chronic aspiration. 29th Society of Interventional Radiology Annual Scientific Meeting. Phoenix, Arizona. March 25-30, 2004. Pg. S232..
30. Baskin K.M., Cahill A.M., Kaye R.D., Rush, J., **Towbin R.B**. Insertion of Indwelling Ports by Interventional Radiology and Surgery: Outcome and Cost Analysis. 30th Society of Interventional Radiology Annual Scientific Meeting. New Orleans, Louisiana, March 31st-April 5th 2005. S92, Abstract No. 263.
31. A.M.Cahill, R.D.Kaye, K.M.Baskin, **R.B.Towbin**. Pediatric Neuroangiography: Technique and Review of Intracranial Pathology with Correlative Imaging. Cardiovascular and Interventional Society of Europe, Annual Scientific Meeting, Rome, Italy, September 2006. Poster No. 258
32. A.M.Cahill, R.D.Kaye, K.M.Baskin, T Beukelman, R Cron, **R.B.Towbin**. Benefit of Intra – Articular Steroid Injection Under Fluoroscopic Guidance For Subtalar Arthritis in Juvenile Idiopathic Arthritis. Cardiovascular and Interventional Society of Europe, Annual Scientific Meeting, Rome, Italy, September 2006. Poster No. 259
33. JH Miller, C. Carballo, T. Walkiewicz, **R. Towbin**, J. Curran. Serial Neonatal Injury Diffusion Changes During Hypothermic Therapy. American Society of Neuroradiology, 48th Annual Meeting and NER Foundation Symposium 2010, Boston, Massachusetts, May 15-20, 2010.

Alternative Media:

1. **Towbin, R**: Today's Breakthroughs: Tomorrow's Cures - Radiology Breakthrough. News video. Ivanhoe Communications, Inc., 1994.
2. **Towbin, R**: "Healthy Parenting: Unblocking the food tube", magazine interview for Prevention June, 1996; 46, 51).
3. **Towbin R**: "Removal of Esophageal Strictures," taped at the Society for Cardiovascular and Interventional Radiologists, Washington, DC, 1997 for Fox News
4. **Towbin R**: "Hepatic Chemoembolization," live radio on-the-air interview at the Radiological Society of North America's Annual Meeting, 1998.

5. Soulen MC, **Towbin R**: “Catheter Embolization Promising Against Colon Cancer Metastatic to the Liver.” *Oncology Times*, June 1999; 83-34.
6. **Towbin, R**: KTAR Phoenix Radio Interview, July, 2008: Culver Family

Numerous other TV, radio and newspaper interviews.

FUNDED RESEARCH

1. Ball W, **Towbin R**, Ryckman F, Daugherty C. Balloon catheter dilatation of focal intestinal ischemic strictures: creating an animal model and evaluation of the efficacy of balloon catheter dilatations of focal ischemic strictures. Funding agency: Children's Hospital Medical Center, Cincinnati, Department of Radiology, grant value: \$5,000.
2. Ball WS, Brody AS, Harris RE, Kaufman RA, **Towbin RB**, Bisset GS, Stowens D. The use of magnetic resonance imaging and T1 and T2 calculations in the evaluation of white matter and bone marrow changes in patients undergoing bone marrow transplantation. Children's Hospital Medical Center, Cincinnati, Clinical Research Center Grant, \$30,000
3. **Towbin RB**, Ball SW, Han BK, Kaufman RA. Phase III protocol contrast-enhanced intracranial computed tomography by intravenous administration: An open non-comparative trial of omnipaque, brand of iohexol (240 and 300 mg/ml) in patients less than 18 years of age: An open non-comparative trial of omnipaque. Children's Hospital Medical Center, Cincinnati, Funded by Sterling-Winthrop Institute.
4. **Towbin R**, Eggleston D, Amundson G, Becker C. Phase III protocol contrast medium examination of the G tract with iohexol in patients less than 18 years of age. Children's Hospital of Michigan. Funded through the Sterling- Winthrop Institute, \$
5. Contrast Enhanced MRI of the CNS in patients between 2-18 years of age by intravenous administration: A randomized double blind comparison of Gadodiamide Injection (GdDPTA BMA) 0.1MMol/KG. Children's Hospital of Pittsburgh, Funded by Sterling-Winthrop Pharmaceuticals.
6. Contrast Enhanced Magnetic Resonance Angiograph of the Head and neck in patients 18 years of age or less: An open label study of Gadodiamide Injection (GdDPTA BMA) 0.1MMOL/KG. Funded through the Sterling- Winthrop Institute, \$
7. Principal investigator: M. Meza, MD; co-investigator: **R. Towbin, MD** Perfluorooctylbromide (PFOB) use with magnetic resonance (MR) as a gastrointestinal (GI) contrast agent for proton imaging in Pediatric subjects. Children's Hospital of Pittsburgh, Funded by Alliance Medical Group.
8. Principal investigator: B. Newman, MD; co-investigator: **R Towbin, MDA** Phase III, randomized, double blind comparison of Iodixanol (Visipaque™, 270mg/ml and 320mg/ml) and Omnipaque® 300 (Iohexol) in pediatric patients requiring computed tomography (CT) scanning of the body. Children's Hospital of Pittsburgh Funded through Sterling- Winthrop Pharmaceuticals.
9. Principal Investigator: **R. Towbin, MDA** Phase III, randomized, blinded comparison of Iodixanol (Visipaque™; 270mg/ml and 320 mg/ml) and Omnipaque® 300 (Iohexol) in pediatric patients requiring computed tomography (CT) scanning of the head. Children's Hospital of Pittsburgh Funded through Sterling- Winthrop Pharmaceuticals.
10. Singhal VK, Mooney MP, Burrows AM, Wigginton W, Losken HW, Smith TD, **Towbin R**, Siegel MI. Age related changes in intracranial volume in craniosynostotic rabbits using 3-d CT scans. Supported by Basic Science Research Grants from Children's Hospital of Pittsburgh, PA, The School of Dental Medicine, the Central Research Development Fund (CRDF), Division of Plastic Surgery- University of Pittsburgh, and the National Institute of Dental Research (NIDR, #D10830).
11. Principal Investigator: Adelson D, co-investigator: Towbin R. Pediatric Traumatic Brain Injury Consortium: Hypothermia; 5/1/2007-4/30/2013; NIH grant, The direct costs for proposed period of support \$11,086,002 and the total costs \$15,444,358

| Name of Trial | Sponsor | Status Active/ Complete | Role Local P.I., Patient Recruiter | Name of National PI and Affiliation | No. Patients Recruited by Candidate | Total No. of Study |
|--|--|-------------------------|---|-------------------------------------|-------------------------------------|--------------------|
| Balloon catheter dilatation of focal intestinal ischemic strictures: creating an animal model and evaluation of the efficacy of balloon catheter dilatations of focal ischemic strictures. | Children's Hospital Medical Center, Department of Radiology, \$5,000 grant | Complete | Ball WS, Towbin RB , Ryckman F, Daugherty C | | | |
| The use of magnetic resonance imaging and T1 and T2 calculations in the evaluation of white matter and bone marrow changes in patients undergoing bone marrow transplantation. | Clinical Research Center - \$30,000 grant | Complete | Ball WS, Brody AS, Harris RE, Kaufman RA, Towbin RB , Bisset GS, Stowens D | | | |
| Phase III protocol contrast-enhanced intracranial computed tomography by intravenous administration: An open non-comparative trial of omnipaque, brand of iohexol (240 and 300 mg/ml) in patients less than 18 years of age. | Funded through the Sterling-Winthrop Institute | Complete | Towbin RB , Ball SW, Han BK, Kaufman RA | | | |
| Phase III protocol contrast medium examination of the G tract with iohexol in patients less than 18 years of age. | Funded through the Sterling- Winthrop Institute | Complete | Towbin R , Eggleston D, Amundson G, Becker C | | | |
| Contrast Enhanced MRI of the CNS in patients between 2-18 years of age by intravenous administration: A randomized double blind comparison of Gadodiamide Injection (GdDPTA BMA) 0.1MMol/KG. | Funded through Sterling-Winthrop Pharmaceuticals | Complete | | | | |
| Contrast Enhanced Magnetic Resonance Angiograph of the Head and neck in patients 18 years of age or less: An open label study of Gadodiamide Injection (GdDPTA BMA) 0.1MMOL/KG. | Funded through Sterling-Winthrop Pharmaceuticals | Complete | | | | |

| Name of Trial | Sponsor | Status Active/ Complete | Role Local P.I., Patient Recruiter | Name of National PI and Affiliation | No. Patients Recruited by Candidate | Total No. of Study |
|---|---|-------------------------|--|-------------------------------------|-------------------------------------|--------------------|
| Perfluorooctylbromide (PFOB) use with magnetic resonance (MR) as a gastrointestinal (GI) contrast agent for proton imaging in Pediatric subjects. | Funded through Alliance | Complete | Principal investigator: M. Meza, MD; co-investigator: R. Towbin, MD | | | |
| A Phase III, randomized, double blind comparison of Iodixanol (Visipaque™, 270mg/mL and 320mg/mL) and Omnipaque® 300 (Iohexol) in pediatric patients requiring computed tomography (CT) scanning of the body. | Funded through Sterling-Winthrop Pharmaceuticals | Complete | Principal investigator: B. Newman, MD; co-investigator: R Towbin, MD | | | |
| A Phase III, randomized, blinded comparison of Iodixanol (Visipaque™; 270mg/mL and 320 mg/mL) and Omnipaque® 300 (Iohexol) in pediatric patients requiring computerd tomography (CT) scanning of the head. | Funded through Sterling-Winthrop Pharmaceuticals | Complete | Principal Investigator: R. Towbin, MD | | | |
| Age related changes in intracranial volume in craniosynostotic rabbits using 3-d CT scans. | Supported by Basic Science Research Grants from Children's Hospital of Pittsburgh, PA, The School of Dental Medicine, the Central Research Development Fund (CRDF), Civision of Plastic Surgery-University of Pittsburgh, and the National Institute of Dental Research (NIDR, #D10830) | Complete | Singhal VK, Mooney MP, Burrows AM, Wigginton W, Losken HW, Smith TD, Towbin R , Siegel MI | | | |