

**University of Toronto  
Department of Medical Imaging**

**Annual Report  
1999-2000**



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## CHAIR'S REPORT

This past year witnessed several positive developments, most notably in the continued success of our departmental faculty in major research awards competitions, and in large scale medical imaging infrastructure expansion at all of our teaching hospitals. These positive developments were tempered by the problem of continuing faculty manpower shortages. While manpower poses significant problems for us, we may count ourselves lucky in view of the dire shortages facing our colleagues elsewhere in Canada and the United States. There is no immediate solution in sight, but I can foresee an expansion in the number of our training positions, and new federal and provincial policies that will facilitate the recruitment of qualified faculty from outside our borders.

Our departmental teaching awards this year were: Dr. Nasir Jaffer was presented with the Edward L. Lansdown Award for Outstanding Teaching in the Residency Program. Dr. Edna Becker, Dr. Dae-Gyun Chung, Dr. Perry Cooper, Dr. Lisa Ehrlich, Dr. Nasir Jaffer, Dr. Walter Montanera, Dr. Derek Muradali, Dr. Taube Samuels, Dr. William Weiser, and Dr. Tara Williams were recognized for outstanding teaching in the residency program; Dr. Mostafa Atri, Dr. Paul Babyn, Dr. Masoom Haider, Dr. Paul Hamilton, Dr. C.S. Ho, Dr. Andrew Lata, Dr. Martin O'Malley, Dr. Kenneth Sniderman, Dr. Gordon Weisbrod, Dr. Lawrence White, and Dr. Stephanie Wilson were recognized for outstanding teaching in the fellowship program; and Dr. Alan Daneman, Dr. Anthony Hanbidge, Dr. Suzanne Laughlin, Dr. Lyne Noël de Tilly, and Dr. Daniel Rappaport achieved distinction for outstanding teaching in both the residency and fellowship programs.

Again this year, many of our faculty devoted substantial portions of their professional time to major research endeavours. These were: Dr. Andrew Common (Uterine Artery Embolization for Symptomatic Fibroids: Initial Results of a Multicentre Trial), Dr. Richard Farb (Evaluation of Intracerebral Arterial Venous Malformations Using a First Pass Gadodiolamide Enhanced MR Angiographic Technique), Dr. Masanori Ichise (SPECT/PET Imaging of Dopamine Transporters In Healthy Humans and Patients with Parkinson's Disease), Dr. Naeem Merchant (MRA of peripheral vascular disease), Dr. Derek Muradali (Echogenic Ovarian Foci, Phase II: Physical Basis in Normal Ovaries, Clinical Significance in Ovarian Masses), Dr. Marilyn Ranson (Detection of Steroid Induced Changes in Bone Marrow Fat Content and Perfusion Using MRI), Dr. Lawrence White (MR Imaging in the Evaluation of the Post Operative Meniscus), Dr. Tara Williams (Comparison of Total Body Echo-Planar Imaging vs. Conventional Methods in the Staging of Neoplasms Especially Neuroblastoma).

The academic promotions this year were Dr. William Weiser and Dr. Michael Wood to Full Professor effective July 1, 2000, and Dr. Timothy Dowdell and Dr. Marilyn Ranson to Assistant Professor effective December 1, 1999.

We welcomed several new faculty to our department: Dr. Nimu Ganguli (Sunnybrook & Women's College Health Sciences Centre), Dr. Kevin Ibach (University Health Network-Mount Sinai Hospital), Dr. Korosh Khalili (University Health Network-Mount Sinai Hospital), Dr. Matthew Lax (University Health Network-Mount Sinai Hospital), Dr. Dawn Pearce (University Health Network-Mount Sinai Hospital), Dr. Dheeraj Rajan (University Health Network-Mount Sinai Hospital), and Dr. Michael Temple (Hospital for Sick Children).

The reader may notice that the format of this year's report has been changed. No longer are there separate listings of the faculty and their scholarly accomplishments subdivided by affiliated hospital; the faculty are simply listed alphabetically. This year we will upload our entire report to our Web Page at [www.utoronto.ca/imaging/](http://www.utoronto.ca/imaging/) and provide links to each of the affiliated hospitals. This will provide current and readily accessible information about our entire department for anyone with Web access, and provide the Radiologists-in-Chief at each institution with a mechanism for highlighting their departments. These links may be found at [www.utoronto.ca/imaging/hospital.htm](http://www.utoronto.ca/imaging/hospital.htm).

Once again, I am very grateful for the wonderful help of the FitzGerald building office staff. My thanks to Gina Sciortino, administrative officer, and Amy Shea, administrative assistant and departmental secretary.

Walter Kucharczyk  
Professor and Chair

December 14, 2000

## DEPARTMENT OF MEDICAL IMAGING - UNIVERSITY OF TORONTO

Chair ..... Kucharczyk, W.  
Associate Chair ..... Daneman, A.

### **Radiologists-in-Chief**

Hospital for Sick Children ..... Babyn, P.  
Mount Sinai Hospital-University Health Network (Princess Margaret Hospital/  
Toronto General Hospital/Toronto Western Hospital) ..... Bret P.  
St. Michael's Hospital ..... Common, A.  
Sunnybrook & Women's College Health Sciences Centre ..... Shulman, H.S.

### **Program Directors**

Continuing Education ..... Rappaport D.C.  
Fellowship ..... Pugash, R.  
Neuroradiology ..... TerBrugge, K.  
Nuclear Medicine ..... Hendler A.  
PGY1 ..... Asch, M.R.  
Radiology Residency ..... Becker, E.  
Research ..... Wood, M.L.  
Undergraduate ..... Weiser, W.J.  
Undergraduate (Co-Director) ..... Olscamp, G.C.

### **Division Heads**

Abdominal Imaging ..... Hanbidge, A.  
Breast Imaging ..... Samuels, T.  
Cardiothoracic Imaging ..... Herman, S.J.  
Musculoskeletal Imaging ..... White, L.  
Neuroradiology ..... TerBrugge, K.G.  
Pediatric Imaging ..... Manson, D.  
Vascular Imaging ..... Common, A.

### **Department Administrative Staff**

Business Officer ..... Sciortino, G.  
Secretary ..... Shea, A.

## COMMITTEES

### **Executive Committee**

Kucharczyk, W. (Committee Chair)  
Asch, M.  
Babyn, P.  
Becker E.  
Bret, P.  
Common, A.  
Daneman, A.  
Fong, K.  
Hendler, A.  
A. Kumar (Chief Resident - July 1, 1999)  
Olscamp, G.  
Pugash, R.  
Rappaport, D.  
Shulman, H.  
Weiser, W.  
Wood, M.  
Zalev, A.

### **Promotions Committee**

Daneman, A. (Committee Chair)  
Bret, P.  
Shulman, H.  
TerBrugge, K.  
Wilson, S.

### **Undergraduate Teaching Committee**

Weiser, W. (Committee Chair)  
Armstrong, D.  
Hamilton, P.  
Jaffer, N.  
Kachura, J.  
Nugent, P.  
Olscamp, G.  
Salonen, D.

### **Specialty Training Committee**

Becker, E. (Committee Chair)  
Clark, J.  
Glanc, P.  
Hendler, A.



Laughlin, S.  
Muradali, D.  
Noël de Tilly, L.  
Pron, G.  
Shumak, R.  
Kumar, A. (Chief Resident)  
Wu, L. (R4 representative)  
Fruitman, M. (R3 representative)  
Loucks, T. (R2 representative)  
Pugh, J. (R1 representative)  
Singer, S. (PGY1 representative)

## UNIVERSITY OF TORONTO FULLY AFFILIATED HOSPITALS AND INSTITUTES

<b>Hospital for Sick Children</b> .....	555 University Avenue Toronto, Ontario M5G 1X8
<b>Mount Sinai Hospital</b> .....	600 University Avenue Toronto, Ontario M5G 1X5
<b>St. Michael's Hospital</b>	
Bond site .....	30 Bond Street Toronto, Ontario M5B 1W8
Wellesley Central site.....	160 Wellesley Street East Toronto, Ontario M4Y 1J3
<b>Sunnybrook &amp; Women's College Health Sciences Centre</b>	
Sunnybrook Campus.....	2075 Bayview Avenue Toronto, Ontario M4N 3M5
Women's College Campus .....	76 Grenville Street Toronto, Ontario M5S 1B2
<b>University Health Network</b>	
Princess Margaret Hospital.....	610 University Avenue Toronto, Ontario M5G 2M9
Toronto General Hospital.....	200 Elizabeth Street Toronto, Ontario M5G 2C4
Toronto Western Hospital .....	399 Bathurst Street Toronto, Ontario M5T 2S8
<b>Clarke Institute of Psychiatry</b> .....	250 College Street Toronto, Ontario M5T 1B8
<b>Positron Emission Tomography Centre</b> .....	250 College Street Toronto, Ontario M5T 1B8

## DEPARTMENT OF MEDICAL IMAGING FACULTY

Academic Rank as of July 1, 2000

<u>NAME</u>	<u>RANK</u>	<u>DIVISION</u>	<u>HOSPITAL</u>
Alton, D.J.	Assistant Professor	Pediatric Imaging	Hospital for Sick Children
Arenson, A.M.	Assistant Professor	Abdominal Imaging	Sunnybrook & Women's College HSC
Armstrong, D.	Assistant Professor	Neuroradiology	Hospital for Sick Children
Asch, M.R.	Assistant Professor	Vascular Imaging	Mount Sinai Hospital
Ash, J.M.	Associate Professor	Pediatric Imaging	Hospital for Sick Children
Atri, M.	Associate Professor	Abdominal Imaging	University Health Network
Babyn, P.S.	Associate Professor	Pediatric Imaging	Hospital for Sick Children
Becker, E.J.	Associate Professor	Musculoskeletal Imaging	University Health Network
Bell, S.D.	Assistant Professor	Vascular Imaging	Sunnybrook & Women's College HSC
Bird, B.L.	Professor Emeritus		
Blaser, S.	Assistant Professor	Neuroradiology	Hospital for Sick Children
Blend, R.	Associate Professor	Neuroradiology	University Health Network
Bobechko, P.E.	Assistant Professor	Musculoskeletal Imaging	University Health Network
Bret, P.	Professor	Abdominal Imaging	Mount Sinai Hospital
Bukhanov, K.	Assistant Professor	Breast Imaging	Mount Sinai Hospital
Caldwell, C.B.	Assistant Professor	Research	Sunnybrook & Women's College HSC
Chait, P.G.	Assistant Professor	Pediatric Imaging	Hospital for Sick Children
Cheung, G.	Assistant Professor	Neuroradiology	Sunnybrook & Women's College HSC
Christakis, M.	Assistant Professor	Musculoskeletal Imaging	Sunnybrook & Women's College HSC
Chuang, S.H.	Associate Professor	Neuroradiology	Hospital for Sick Children
Chui, M.C.	Assistant Professor	Neuroradiology	St. Michael's Hospital
Chung, D-G.	Lecturer	Abdominal Imaging	St. Michael's Hospital
Clark, J.A.	Assistant Professor	Vascular Imaging	St. Michael's Hospital
Common, A.A.	Assistant Professor	Vascular Imaging	St. Michael's Hospital
Connolly, B.	Assistant Professor	Pediatric Imaging	Hospital for Sick Children
Cooke, G.M.	Assistant Professor	Musculoskeletal Imaging	St. Michael's Hospital
Cooper, P.W.	Assistant Professor	Neuroradiology	Sunnybrook & Women's College HSC
Crawley, A.	Assistant Professor	Research	University Health Network
Damyanovich, A.	Assistant Professor	Research	University Health Network
Daneman, A.	Professor	Pediatric Imaging	Hospital for Sick Children
Deitel, W.	Lecturer	Abdominal Imaging	St. Michael's Hospital
Dowdell, T.R.	Assistant Professor	Musculoskeletal Imaging	St. Michael's Hospital
Ehrlich, L.E.	Associate Professor	Nuclear Medicine	Sunnybrook & Women's College HSC
Farb, R.	Assistant Professor	Neuroradiology	Sunnybrook & Women's College HSC
Fishell, E.	Assistant Professor	Breast Imaging	Sunnybrook & Women's College HSC
Fong, K.	Assistant Professor	Abdominal Imaging	Sunnybrook & Women's College HSC
Gilday, D.L.	Professor	Pediatric Imaging	Hospital for Sick Children
Ginzburg, B.M.	Assistant Professor	Abdominal Imaging	Mount Sinai Hospital
Glanc, P.	Assistant Professor	Abdominal Imaging	Sunnybrook & Women's College HSC
Goldberg, F.	Assistant Professor	Breast Imaging	University Health Network
Goldberg, R.E.	Assistant Professor	Abdominal Imaging	University Health Network
Gray, B.	Assistant Professor	Neuroradiology	St. Michael's Hospital
Greyson, N.D.	Associate Professor	Nuclear Medicine	St. Michael's Hospital
Haider, M.	Assistant Professor	MRI	University Health Network
Hamilton, P.A.	Assistant Professor	Abdominal Imaging	Sunnybrook & Women's College HSC
Hanbidge, A.	Assistant Professor	Abdominal Imaging	University Health Network
Hendler, A.L.	Assistant Professor	Nuclear Medicine	University Health Network
Herman, S.J.	Associate Professor	Cardiothoracic Imaging	University Health Network
Hershkop, M.	Assistant Professor	Nuclear Medicine	University Health Network
Ho, C.S.	Professor	Vascular Imaging	University Health Network
Holmes, R.B.	Professor Emeritus		
Houle, S.	Associate Professor	Nuclear Medicine	Clarke Institute of Psychiatry

Ichise, M.	Associate Professor	Nuclear Medicine	Mount Sinai Hospital
Jaffer, N.M.	Associate Professor	Vascular Imaging	Mount Sinai Hospital
Jong, R.A.	Assistant Professor	Breast Imaging	Mount Sinai Hospital
Kachura, J.	Assistant Professor	Vascular Imaging	University Health Network
Kassel, E.E.	Associate Professor	Neuroradiology	Mount Sinai Hospital
Keller, M.A.	Assistant Professor	Neuroradiology	University Health Network
Khan, A.	Lecturer	Pediatric Imaging	Hospital for Sick Children
Kucharczyk, W.	Professor	Neuroradiology	University Health Network
Lansdown, E.L.	Professor Emeritus	Breast Imaging	Mount Sinai Hospital
Lata, A.C.	Assistant Professor	Cardiothoracic Imaging	St. Michael's Hospital
Laughlin, S.	Lecturer	Pediatric Imaging	Hospital for Sick Children
Leekam, R.N.	Assistant Professor		St. Joseph's Health Centre
MacDonald C.E.	Assistant Professor	Pediatric Imaging	Hospital for Sick Children
Manson, D.E.	Assistant Professor	Pediatric Imaging	Hospital for Sick Children
Marcuzzi, D.W.	Assistant Professor	Vascular Imaging	St. Michael's Hospital
Margolis, M.	Assistant Professor	Abdominal Imaging	Mount Sinai Hospital
McCallum, R.W.	Professor Emeritus		St. Michael's Hospital
Meema, H.E.	Professor Emeritus		
Mehta, M.H.	Assistant Professor		St. Joseph's Health Centre
Merchant, N.	Assistant Professor	Cardiothoracic Imaging	University Health Network
Mikulis, D.	Assistant Professor	Neuroradiology	University Health Network
Minuk, C.F.	Lecturer	Abdominal Imaging	University Health Network
Moes, C.A.F.	Professor Emeritus		
Montanera, W.	Associate Professor	Neuroradiology	University Health Network
Muradali, D.	Assistant Professor	Breast Imaging	University Health Network
Murphy, J.	Assistant Professor	Abdominal Imaging	Sunnybrook & Women's College HSC
Murray, S.Y.	Assistant Professor	Nuclear Medicine	Sunnybrook & Women's College HSC
Noël de Tilly, L.	Assistant Professor	Neuroradiology	St. Michael's Hospital
Nugent, P.	Lecturer	Abdominal Imaging	Sunnybrook & Women's College HSC
Olscamp, G.C.	Associate Professor	Abdominal Imaging	University Health Network
O'Malley, M.	Lecturer	Abdominal Imaging	University Health Network
Peto, R.	Lecturer	Cardiothoracic Imaging	University Health Network
Potts, D.G.	Professor Emeritus		
Pron, G.	Assistant Professor	Research	
Pugash, R.A.	Assistant Professor	Vascular Imaging	St. Michael's Hospital
Ranson, M.	Assistant professor	Pediatric Imaging	Hospital for Sick Children
Rappaport, D.	Assistant Professor	Cardiothoracic Imaging	Mount Sinai Hospital
Reilly, B.J.	Professor Emeritus		
Reilly, R.M.	Associate Professor	Nuclear Medicine	University Health Network
Rosen, I.E.	Assistant Professor	Abdominal Imaging	Sunnybrook & Women's College HSC
Rowlands, J.A.	Professor	Research	Sunnybrook & Women's College HSC
Rubenstein, J.D.	Associate Professor	Musculoskeletal Imaging	Sunnybrook & Women's College HSC
Saibil, E.A.	Assistant Professor	Vascular Imaging	Sunnybrook & Women's College HSC
Salem, S.	Associate Professor	Abdominal Imaging	Mount Sinai Hospital
Salonen, D.C.	Assistant Professor	Musculoskeletal Imaging	University Health Network
Salsberg, B.B.	Lecturer		St. Joseph's Health Centre
Samuels, T.H.	Assistant Professor	Breast Imaging	Sunnybrook & Women's College HSC
Sanders, D.E.	Professor Emeritus		University Health Network
Sarrazin, J.	Assistant Professor	Cardiothoracic Imaging	Sunnybrook & Women's College HSC
Shankar, L.	Assistant Professor		St. Joseph's Health Centre
Shorter, A.M.	Lecturer		Sunnybrook & Women's College HSC
Shuckett, B.	Assistant Professor	Pediatric Imaging	Hospital for Sick Children
Shulman, H.S.	Professor	Cardiothoracic Imaging	Sunnybrook & Women's College HSC
Shumak, R.	Assistant Professor	Breast Imaging	Sunnybrook & Women's College HSC
Simons, M.	Assistant Professor	Vascular Imaging	University Health Network
Sniderman, K.W.	Associate Professor	Vascular Imaging	University Health Network
Stewart, L.	Lecturer	Abdominal Imaging	Mount Sinai Hospital
TerBrugge, K.G.	Professor	Neuroradiology	University Health Network
Thurston, W.	Assistant Professor		St. Joseph's Health Centre
Ting, G.	Lecturer	Abdominal Imaging	Sunnybrook & Women's College HSC
Toi, A.	Associate Professor	Abdominal Imaging	University Health Network
Tomashpolskaya, J.	Lecturer	Abdominal Imaging	Sunnybrook & Women's College HSC

Turchin, R.	Lecturer		St. Joseph's Health Centre
Vaughan-Neil, E.	Lecturer	Nuclear Medicine	Mount Sinai Hospital
Wall, J.	Lecturer	Abdominal Imaging	St. Michael's Hospital
Weisbrod, G.L.	Professor	Cardiothoracic Imaging	University Health Network
Weiser, W.J.	Professor	Cardiothoracic Imaging	St. Michael's Hospital
White, L.	Assistant Professor	Musculoskeletal Imaging	Mount Sinai Hospital
Williams, T.	Lecturer	Pediatric Imaging	Hospital for Sick Children
Willinsky, R.A.	Associate Professor	Neuroradiology	University Health Network
Wilson, C.	Assistant Professor	Breast Imaging	University Health Network
Wilson, S.R.	Professor	Abdominal Imaging	University Health Network
Wood, M.L.	Associate Professor	Research	Sunnybrook & Women's College HSC
Wortzman, G.	Professor Emeritus	Neuroradiology	Mount Sinai Hospital
Wright, B.E.	Assistant Professor	Breast Imaging	Sunnybrook & Women's College HSC
Yaffe, M.J.	Professor	Research	Sunnybrook & Women's College HSC
Yoo, S-J.	Professor	Pediatric Imaging	Hospital for Sick Children
Zalev, A.H.	Assistant Professor	Abdominal Imaging	St. Michael's Hospital
Zelovitzky, J.L.	Assistant Professor	Cardiothoracic Imaging	University Health Network

### **Cross Appointments**

Bronskill, M.J.	Medical Biophysics
Foster, S.	Medical Biophysics
Freedom R.	Pediatrics
Henkelman, R.M.	Medical Biophysics
McLaughlin, P.R.	Medicine
Meindok, H.	Medicine
Noyek, A.M.	Otolaryngology
Pharoah, M.J.	Dentistry
Plewes, D.B.	Medical Biophysics
Trachtenberg, J	Surgery

## GRANTS

Babyn P and Williams T (Primary Investigators). Evaluation of Contrast-Enhanced Sonography with Harmonic Imaging in Experimental Acute Pyelonephritis in Piglets. Society of Pediatric Radiology. \$4,000.00. 1997-1999

Boyd NF (Principal Investigator), Jong RA (Co-applicant), Aitken S, Fishell E, Greyson ND, Koo J, Lickley L, Sidlofsky S, Tritchler D, Wadden N, Yaffe MJ, Martin LFW, Minuk TG, Shaw BH, Tarulli GP, Wycoco D. An explanatory clinical trial of breast cancer prevention. Ontario Ministry of Health (Toronto and Hamilton sites). \$443,444.00. April 1988-March 2005.

Boyd NF (Principal Investigator), Jong RA (Co-applicant), Chiarelli A, Fishell E, Hislop TG, Tritchler DL, Yaffe MJ. The epidemiology of breast tissue at increased risk for cancer: Mammographic features and breast cancer risk. National Cancer Institute of Canada-Canadian Breast Cancer Research Initiative. \$243,398.00. July 1998-June 2000.

Boyd NF (Principal Investigator), Jong RA (Co-investigator). Molecular epidemiology of breast tissue at increased risk for breast cancer. The Susan G. Komen Breast Cancer Foundation. \$245,739.00. 1999-2001.

Boyd NF (Principal Investigator), Jong RA (Co-investigator). Mammographic densities and risk of breast cancer. National Institutes of Health. \$452,776.00. 1999-2002.

Burns P (Principal Investigator), Wilson SR (Co-investigator). Harmonic imaging with ultrasound contrast agents. Medical Research Council. Value \$128,984. July 1998 - June 2000. Renew for MRC grant is in process.

Goss PE (Principal Investigator), Josse R, Bukhanov K, Muradali D (Collaborators). A randomised feasibility study of letrozole in postmenopausal women at increased risk for development of breast cancer as evidenced by high breast density. Novartis. \$433,880.00. Summer 1999-end date unknown.

Goss PE, Thompson L (Principal Investigators), Bukhanov K, Muradali D (Collaborators). A protocol to study the effects of dietary flaxseed on mammographic density. Canadian Breast Cancer Research Initiative. \$218,165.00. April 1, 1998-March 31, 2001.

Gross A, White L. Imaging assessment of reinforcement strut graft incorporation following revision hip arthroplasty Stryker-Howmedica Biotech. \$30,000.00. February 2000-Completion.

Henkelman RM (Principal Investigator), Jong RA (Consultant). Medical imaging for cancer. National Cancer Institute of Canada. \$C898,803.00 per annum (for 8 investigators).1996-2001.

Ichise M (Principal Investigator), Wilson A, Mozley PD, Lang AE (Co-investigators). SPECT/PET imaging of dopamine transporters in healthy humans and patients with Parkinson's Disease. Nihon Medi-Physics. \$42,600.00/year. July 1, 1998-June 30, 2000.

Jong RA (Principal Investigator). Federal technology transfer program to advance novel breast imaging technologies. Department of Health and Human Services. \$13,000.00. September 30 1997-September 30 1999.

Lilge LD (Principal Investigator), Jong RA (Co-investigator). Optical transillumination spectroscopy of breast tissue to determine cancer risk in pre- and post-menopausal women. United States Army Medical Research and Materiel Command. \$200,000.00. 2000-2002.

Massicotte P (Primary Investigator), Chait P (Co Investigator). Determination of the sensitivity and specificity of ultrasound and linograms vs. venography for the diagnosis of deep venous thrombosis in the upper venous system in symptomatic paediatric patients. Heart and Stroke Foundation. \$64,600.00. 1998-2000.

Massicotte P (Primary Investigator), Chait P, Connolly B (Co Investigator). PROTEKT Trial CL055 - Prophylaxis of Thromboembolism in Kids. Knoll Pharma Inc. 1998 - Ongoing

Merchant N (Co-applicant), Wright G, Webb G (Co-investigators). MR oximetry evaluation of intracardiac shunts. Ontario Heart and Stroke Foundation. \$35,969 per year for two years. July 98-July 2000.

Mikulis D (Principal Investigator), McAndrews MP (Co-investigator). MRI and MRS in the diagnostic evaluation of patients with temporal lobe epilepsy. The Physician Services Incorporated Foundation (97-52). \$42,000.00. January 1999-January 2000.

Mikulis D (Principal Investigator), McAndrews MP (Co-investigator). Development of fMRI paradigms for language localization in children with epilepsy agency. The Hospital For Sick Children Foundation. \$35,320.00. July 1998 to June 2000.

Mikulis D (Principal Investigator), Anastakis D (Co- investigator). fMRI – Mapping brain activity following amputation and peripheral nerve injury. The Workers Compensation Board. \$49,600.00. January 1999-December 2001.

Mikulis D (Principal Investigator). Characterization of adaptive changes in the brain of individuals with cervical spinal cord injury. Associations between fMRI,

electrophysiology and function. Ontario Neurotrauma Foundation (ONBO-99119). \$94,288.00. July 1999-June 2000.

Muradali D. Contrast enhanced sonography of the breast: Can vascular morphology predict malignancy. Canadian Heads of Academic Radiology/Nycomed Research Award. \$12,000.00. June 2000-June 2001.

Reilly RM (Principal Investigator), Sandhu J, Cameron R, Vallis K, Hendler A (Co-investigators). Epidermal growth factor receptor overexpression as a target for Auger electron radiotherapy of breast cancer. Susan G. Komen Breast Cancer Foundation. \$44,873.00 U.S. April 1, 1999-October 31, 1999.

Stewart P (Principal Investigator), Mikulis D (Co-investigator). Functional neuroanatomy. Information Technology Development Fund University of Toronto. \$54,100.00 /year. May 1998-April 2000.

Tritchler DI (Principal Investigator), Jong RA (Co-applicant). Breast density: effect of coffee, caffeine and methylxanthine intake and CYP1A2 activity. National Cancer Institute of Canada/Canadian Breast Cancer Research Initiative. \$62,986.00. 1998-2000.

Tumer TO (Principal Investigator), Jong RA (Consultant). Improved x-ray image detector systems for digital mammography. US Army Grant. \$US 15,000.00/year. 1997-2000.

Vallis K, Hendler A (Principal Investigators), Reilly RM (Co-investigator). A clinical trial of <sup>99m</sup>Tc-egf/r3 monoclonal antibody for imaging human breast cancer. York Medical Inc. \$72,000.00. January 1-December 31, 1999.

Warner E, Plewes DP (Co-principal Investigators), Jong RA (Collaborator). Breast imaging for mutation carriers pilot study. Canadian Breast Cancer Research Initiative. \$293,403.00. 1997- June 30, 2000.

White LM (Principal Investigator), Schweitzer ME (Co-investigator). MR imaging of the post-operative meniscus. RSNA 1999 Seed Grant. \$2,500.00 U.S. November 1998-November 2000.

Willinsky R (Principal Investigator), Wallace MC (Co-investigator). International subarachnoid aneurysm trial (ISAT). MRC Canada. \$32,400.00. July 1, 1998-June 2001.

Wilson S (Principal Investigator), Burns PN (Co-investigator). An open label, nonrandomized, phase II trial to assess lesion characterization of liver pathology with DMP 115. DuPont Pharmaceutical. Value \$100,000.00 USD. July 1999-2001.



Wright G (Principal Investigator), Merchant N, Mickleborough L (Co-investigators). Magnetic resonance imaging for ischemic heart disease. Medical Research Council of Canada. \$225,675.00. October 1, 1999-September 30, 2002.

Yaffe MJ (Principal Investigator), Jong RA (Consultant). Digital stereomammography. Canadian Breast Cancer Research Initiative. \$C68, 997.00. 1996-June 30, 2000.

Yaffe MJ (Principal Investigator), Jong RA (Consultant). Computer-intelligent enhancement and display of digital mammograms. Canadian Breast Cancer Research Initiative. \$102,971.00. 1999-2002.

Zipursky R (Principal Investigator), Mikulis DJ (Co-investigator). MRI study of first episode schizophrenia. MRC Canada (MA 12268). \$110,655.00. January 10, 1997-September 30, 1999.

## **PUBLICATIONS: PEER-REVIEWED PAPERS AND ABSTRACTS**

Al-Alwan I, Navarro O, Daneman D, Daneman A. "Clinical Utility of Adrenal Ultrasonography in the Diagnosis of Congenital Adrenal Hyperplasia". J Pediatr 135:71-75, July 1999.

Alkhani A, Willinsky RA, terBrugge K. Spontaneous resolution of bilateral traumatic carotid cavernous fistulas and development of trans-sellar intercarotid vascular communication: Case report. Surgical Neurology 1999;52:627-629.

Armstrong D, terBrugge K. "Selected Interventional Procedures for Pediatric Head and Neck Vascular Lesions". Neuroimaging Clinical of North America, Vol. 10, no.1, pg. 271-292, February 2000.

Atri M, Reinhold C, Mehio A, Chapman WB, Bret PM. Adenomyosis: US features with histologic correlation in an in-vitro study. Radiology June 2000;215(3):783-90.

Babaian RJ, Toi A, Kamoi K, Troncoso P, Sweet J, Evans R, Johnston D, Chen M. A comparative analysis of sextant and an extended 11-core multisite directed biopsy strategy. Journal of Urology January 2000;163:152-157.

Barron M, Duncan D, Green G, Modrusan D, Connolly B, Chait PG, Saunders F, Greenberg M "Efficacy and safety of radiologically placed gastrostomy tubes in pediatric haematology/oncology patients", Medical and Pediatric Oncology 2000 Mar;34(3): 177-182

Bau A, Atri M. Acute female pelvic pain: Ultrasound evaluation. Semin Ultrasound CT MR February 2000;21:78-93.

Bernstein M, Al-Anazi AR, Kucharczyk W, Manninen P, Bronskill M, Henkelman M. Brain tumour surgery with the Toronto open magnetic resonance imaging system: preliminary results for 36 patients and analysis of advantages, disadvantages, and future prospects. Neurosurgery. 2000 Apr;46(4):900-7; discussion 907-9.

Bernstein MP, Caldwell CB, Antonyshyn OM, Cooper PW, Ehrlich LE. Spatial and temporal registration of CT and SPECT images: development and validation of a technique for in vivo three-dimensional semiquantitative analysis of bone. J Nucl Med. 2000;41(6):1075-81.

Birnbaum B, Wilson SR (Joint Author). Appendicitis at the millennium. Radiology May 2000;215:337-348.

Blaser S. Pediatric Neuroimaging. "Syllabus and CD for 32<sup>nd</sup> International Diagnostic Course in Davos"; Davos, Switzerland, March 25-31, 2000. Editors: GK von Schulthess, ChL Zollikofer; Springer, Berlin 2000.

Blaser, SI, Jay, V., Otsubo, H., Chuang, SC. "Disorders of Cortical Formation: Radiologic/ Pathologic Correlation" May 21-28, 1999 Abstract - ASNR.

Bloom C, Hickey N, Haroun J, Murphy J, Hamilton P, Hanna S. Pancreatic divisum and intestinal nonrotation diagnosed with magnetic resonance imaging: case report. Can Assoc Radiol J. 1999;50(5):310-3.

Bloom C, Langer B, Wilson SR (Joint author). The role of sonography in the detection, characterization and staging of cholangiocarcinoma. Radiographics September-October 1999; 19:1199-1218.

Bonifacio A, Goldberg REA, Patterson BJ, Haider M. Flow-cytometry-enhanced fine-needle aspiration biopsy of the spleen. Can Assoc Radiol J June 2000;51(3):158-62.

Boyd NF, Lockwood GA, Martin LJ, Knight JA, Jong RA, Fishell E, Byng JW, Yaffe MJ, Tritchler DL. Mammographic densities and risk of breast cancer among subjects with a family history of this disease. J Natl Cancer Inst. 1999;18;91(16):1404-8.

Burns PN, Wilson SR (Joint Author), Hope-Simpson. Pulse inversion harmonic imaging of liver blood flow: an improved method for US characterization of focal masses. Investigative Radiology January 2000;35(1):58-71.

Busto UE, Bremner KE, Knight K, terBrugge KG, Sellers EM. Long-term Benzodiazepine therapy does not result in brain abnormalities. Journal of Clinical Psychopharmacology February 2000;20: 2-6.

Caldwell CB, Ehrlich LE. Outpatient treatment of thyroid cancer using high doses of iodine 131. Can Assoc Radiol J. 1999;50(5):331-6.

Chait PG, Baskin KM, Temple MJ and Connolly B. "Pediatric Gastrointestinal Interventions" Pediatric Gastrointestinal Imaging and Intervention". Second Edition. Stringer DA, Babyn PS. B.C. Decker Inc. 2000.

Chan R, Common AA, Marcuzzi, D. Ultrasound-guided renal biopsy: experience using an automated core biopsy system. Can Assoc Radiol J 2000;51(2):107-113.

Cheah HK, Griffin AM, White LM. Musculoskeletal images. Aneurysmal bone cyst of pelvis. Can J Surg 1999;42(6):411-2.

Chen JC, Moriarty JA, Derbyshire JA, Peters RD, Trachtenberg J, Bell SD, Doyle J, Arrelano R, Wright GA, Henkelman RM, Hinks RS, Lok SY, Toi A, Kucharczyk W.

Prostate cancer: MR imaging and thermometry during microwave thermal ablation-initial experience. *Radiology*. 2000 Jan;214(1):290-7.

Chen JC, Moriarty JA, Derbyshire JA, Toi A, et al. Prostate cancer: MR imaging and thermometry during microwave thermal ablation-initial experience. *Radiology* January 2000;214(1):290-297.

Chen JM, Farb R, Hanusaik L, Shipp D, Nedzelski JM. Depth and quality of electrode insertion: a radiologic and pitch scaling assessment of two cochlear implant systems. *Am J Otol*. 1999;20(2):192-7.

Chow EWC, Mikulis DJ, Zipursky RB, Scutt LE, Weksberg R, Bassett AS. Qualitative MRI findings in adults with 22q11 deletion syndrome and schizophrenia. *Biological Psychiatry* 1999;46:1436-1442.

Clark JA, Pugash RA, Isaacson S. Combined retrograde-antegrade ureteral stenting for ureteral fistulae: a single stage procedure without cystoscopy. *J Urol* February 2000; 163 (2):681 (Abstract)

Clark JA, Pugash RA, Pantalone RR. Radiologic peroral gastrostomy. *J Vasc Interv Radiol* 1999; 10(7)L927-932

Clark JA, Robinson GJ, Pugash RA. Fluoroscopically guided retrograde ureteral catheterization. *JVIR suppl*. 2000; 11(2), part 2:227 (Abstract)

Clarke JC, Becker EJ, Salonen DC. Amniotic band syndrome. *Can Assoc Radiol J* 2000;51(2):134-6.

Coche EE, Bret PM, Reinhold C. Dynamic enhancement of upper abdominal organs in normal volunteers with MRI and effects of contrast dose reduction. *Abdom Imaging* November 1999;24(6):604-609.

Cohodarevic T, Mailis A, Montanera W. Syringomyelia: pain, sensory abnormalities and neuroimaging. *Journal of Pain* 2000;1:54-56.

Coleman MM, Peng PW, Regan JM, Chan VW, Hendler AL. Quantitative comparison of leakage under the tourniquet in forearm versus intravenous regional anesthesia. *Anesth Analg* December 1999;89(6):1482-1486.

Cooper AB, Ferguson ND, Hanly PJ, Meade MO, Kachura JR, Granton JT, Slutsky AS, Stewart TE. Long-term follow-up of survivors of acute lung injury: lack of effect of a ventilation strategy to prevent barotrauma. *Crit Care Med* 1999 Dec;27(12):2616-21.

Crivianu-Gaita D, Babyn P, Gilday D, O'Brien B, Charkot E, "User acceptability - a critical success factor for picture archiving and communication system implementation". *J Digit Imaging*. 2000 May;13(2 Suppl 1):13-6

Daneman A. "The Recent Evolution of Pulmonary Imaging in the Fetus and Neonate". *Pediatr Pulmonol Suppl.* 18:61-63, 1999.

Degougeat F, Navarro O, Soares Souza AS, Geary D, Daneman A. "Multiple Unilateral Renal Cysts in Two Children". *Pediatr Radiol* 30:346-348, May 2000.

Deitel WL, Rosen IB, Walfish PG. Relevance of Past Radiation Exposure in Surgical Disease of the Head and Neck. *Mature Medicine Canada*; February 2000, Vol. 3 (1), pg 38-41.

Demani N, Wilson SR(Joint Author). Nongynecologic applications of transvaginal sonography. *Radiographics* October 1999;19:special edition S179-200, quiz S265-266.

Domingo RJ, Reilly RM. Pre-targeted radioimmunotherapy of human colon cancer xenografts in athymic mice using streptavidin-CC49 monoclonal antibody and 90Y-DOTA-biotin. *Nucl Med Commun* January 2000;21(1):89-96.

Downar J, Crawley AP, Mikulis DJ, Davis KD. A multimodal cortical network for the detection of changes in the sensory environment. *Nat Neurosci* March 2000;3(3):277-83.

Durno C, Williams T, Shuckett B, Griffiths AM, Cutz E and Drossmann RTR. "Magnetic resonance imaging to distinguish the type and severity of pediatric inflammatory bowel diseases". *J Pediatr Gastroenterol Nutr* 2000 Feb; 30(2):170-4.

Durno CA, Sherman P, Williams T, Shuckett B, Dupuis A, Griffiths AM. "Magnetic resonance imaging to distinguish the type and severity of pediatric inflammatory bowel diseases": *J Pediatr Gastroenterol Nutr* 30: 170-174, February 2000.

Erami SS, Lang AE, Ichise M. The use of SPECT in the diagnosis of Parkinson's Disease. *Can Assoc Radiol J* June 2000;51:189-196.

Faughnan ME, Lui YW, Wirth JA, Pugash RA, Redelmeier DA, Hyland RH, White RI. Diffuse pulmonary arteriovenous malformations: characterization and prognosis. *Chest* 2000; 117:31-38

Faughnan ME, Mandzia JL, Pugash RA, Clark JA, Graham A, Nanthakumar K, Grande P, Redelmeier DA, Hyland RH. Screening for pulmonary arteriovenous malformation in Hereditary Hemorrhagic Telangiectasia. *Eur Respir J suppl.* 1999 (Abstract)

Faughnan ME, Mandzia JL, Pugash RA, Clark JA, Graham A, Nanthakumar K, Grande P, Redelmeier DA, Hyland RH. Pulmonary arteriovenous malformations: effective screening. *Am J Respir Crit Care Med* 2000; 161(3):A412 (Abstract)

Faughnan ME, Mandzia JL, Pugash RA, Clark JA, Hyland RH. Pulmonary arteriovenous malformation: complications and management. *Am J Respir Crit Care Med* 2000; 161(3):A413 (Abstract)

Finelli A, Babyn P, Lorie GA, Bagli D, Khoury AE, Merguerian PA. "The use of magnetic resonance imaging in the diagnosis and follow-up of pediatric pelvic rhabdomyosarcoma". *J Urol*. 2000 Jun;163(6):1952-3

Fong KW, Ohlsson A, Hannah ME, Grisaru S, Kingdom J, Cohen H, Ryan M, Windrim R, Foster G, Amankwah K. Prediction of perinatal outcome in fetuses suspected to have intrauterine growth restriction: Doppler US study of fetal cerebral, renal, and umbilical arteries. *Radiology*. 1999;213(3):681-9.

Friedman S, Ford-Jones LE, Toi A, Ryan G, Blaser S, Chitayat D. "Congenital Toxoplasmosis: Prenatal Diagnosis, Treatment and Postnatal Outcome". *Prenat Diagn* 1999;19(4):330-333.

Fujita M, Seibyl JP, Verhoeff NP, Ichise M, Baldwin RM, Zoghbi SS, Rajeevan N, Charney DS, Innis RB. Kinetic and equilibrium analyses of [<sup>123</sup>I] epidepride binding to striatal and extrastriatal dopamine D<sub>2</sub> receptors. *Synapse* December 1999;34:290-304.

Ganguli SN, Hamilton P, Hanna S, Morava-Protzner I. Small bowel intussusception secondary to osteogenic sarcoma metastasis: case report. *Can Assoc Radiol J*. 1999; 50(3):170-2.

Ganguli SN, Hershkop M. Bone scintigraphy of Madura foot. *Clin Nucl Med*. 1999;24(4):284-5.

Ganguli SN, Hershkop M. Recanalization of the umbilical vein seen on multiplanar SPECT Technetium-99m tagged erythrocytes. *Clin Nucl Med*. 1999;24(5):352-4.

Garcia P, Genin G, Bret PM, Bonaldi VM, Reinhold C, Atri M. Hepatic CT enhancement: Effect of the rate and volume of contrast medium injection in an animal model. *Abdom Imaging* November 1999;24(6):597-603.

Gatzoulis MA, Munk MD, Merchant N, Van Arsdell GS, McCrindle BW, Webb GD. Isolated congenital absence of the pericardium: Clinical presentation, diagnosis, and management. *Ann Thorac Surg* 2000 Apr;69(4):1209-15.

Gerrand C, Griffin AM, White LM, Rosen IB. Musculoskeletal images. Early bone changes in hyperparathyroidism detected on magnetic resonance imaging. *Can J Surg* 1999;42(5):330.

Gerrand C, Robinson P, Griffiths A. Soft tissue pseudotumours. *Canadian Journal of Surgery* April 2000;43(3):169-170.

Glockner JF, White LM, Sundaram M, McDonald DJ. Unsuspected metastases presenting as solitary soft tissue lesions: A fourteen year review. *Skeletal Radiology* 2000;29(5):270-274.

Goh RH, Sniderman KW, Kalman PG. Long-term follow-up of management of failing in situ saphenous vein bypass grafts using endovascular intervention techniques. *J Vasc Interv Radiol* June 2000;11(6):705-712.

Goyal M, terBrugge K, Farb R. Endovascular retrograde cortical venous approach to disconnect retrograde leptomeningeal venous reflux in a patient with dural AVF. *Interventional Neuroradiology* 1999;5:195-198.

Goyal M, Versnick E, Tuite P, Cyr JS, Kucharczyk W, Montanera W, Willinsky R, Mikulis D. Hypertrophic olivary degeneration: metaanalysis of the temporal evolution of MR findings. *AJNR Am J Neuroradiol*. 2000 Jun-Jul;21(6):1073-7.

Goyal M, Versnick E, Tuite P, Saint Cyr J, Kucharczyk W, Montanera W, Willinsky R, Mikulis DJ. MRI of hypertrophic olivary degeneration: Meta-analysis of the temporal evolution of MRI findings. *AJNR* June/July 2000;21(6):1073-1077.

Goyal M, Willinsky R, Montanera W, terBrugge KG. Spontaneous vertebrovertebral arteriovenous fistulae. Clinical features, angioarchitecture and management of twelve patients. *Interventional Neuroradiology* 1999;5:219-224.

Graveline C, Hwang P, Bone G, Shikolka C, Wade S, Crawley A, Mikulis DJ. Evaluation of gross and fine motor functions in children with hemidecortication: predictors of outcome and timing of surgery. *J Chil Neurol* 1999;14:304-315.

Greer, ML, MacDonald C, Adatia I. "MRI of Uhl's anomaly". *Circulation* 2000 Jun 20;101(24):E230-2.

Griffiths P, Blaser S, Mukonoweshuro W, Armstrong D, Milo-Mason G, Chuang S. "Neurofibromatosis Bright Objects in Children with Neurofibromatosis Type 1: A Proliferative Potential?" *Pediatrics* 1999; 104(4):e49.

Grigoriadis E, Fam AG, Starok M, Ang LC. Skeletal muscle infarction in diabetes mellitus. *J Rheumatol*. 2000;27(4):1063-8. Review.

Hamdy S, Mikulis DJ, Crawley AP, Xue S, Lau H, Henry S, Diamant NE. Cortical activation during human volitional swallowing: An event related fMRI study. *Am J Physiol* 1999;277:219-25.

Hatrick A, Ho CS. Management of problematic biliary calculi. *Journal of Hong Kong College of Radiology* July-September 1999;2:157-169.

Hatrick AG, Ho CS. Percutaneous transhepatic sphincterotomy. Minimally Invasive Therapy & Allied Technologies January 2000;9(1):21-24.

Haus AG, Yaffe MJ. Screen-film and digital mammography. Image quality and radiation dose considerations. Radiol Clin North Am. 2000;38(4):871-98.

Hickey NA, Murphy JP, Bloom C, Hamilton P. Magnetic resonance imaging of endometriosis of the piriform muscle causing sciatica: case report. Can Assoc Radiol J. 1999;50(1):33-6.

Hill MD, Cooper PW, Perry JR. Chasing the dragon--neurological toxicity associated with inhalation of heroin vapour: case report. CMAJ. 2000;162(2):236-8.

Ho CS, Hatrick AG. Innovative catheter fixation using a low profile device. AJR March 2000;3:823-825.

Hofmeister C, Stapf C, Hartmann A, Sciacca RR, Mansmann U, terBrugge K, Lasjaunias P, Mohr JP, Mast H, Meisel J. Demographic, morphological and clinical characteristics of 1289 patients with brain arteriovenous malformation. Stroke June 2000;31(6):1307-10.

Hopper R, Armstrong D, Clarke H. "Straightening of Aberrant Carotid Arteries with Age in Velocardiofacial Syndrome. Case Report". Plastic and Reconstructive Surgery, Vol. 104, No. 6, pg.1744-1747, Nov. 1999.

Hoving E, Blaser S, Kelly E, Rutka JT. "Anatomical and embryological considerations in the repair of a large vertex encephalocele". J. Neurosurg 1999; 90(3):537-541.

Ichise M, Fujita M, Seibyl JP, Verhoeff NP, Baldwin RM, Zoghbi SS, Rajeevan N, Charney DS, Innis RB. Graphical analysis and simplified quantification of striatal and extrastriatal D2 receptor binding with I-123-epidepride SPECT. J Nucl Med November 1999;40:1902-1912.

Islam O, Soboleski D, Symons S, Davidson LK, Ashworth MA, Babyn P, "Development and duration of radiographic signs of bone healing in children". AJR Am J Roentgenol. 2000 Jul;175(1):75-8

Kalman PG, Pope M, Bholra C, Richardson R, Sniderman KW. A practical approach to vascular access for hemodialysis and predictors of success. J Vasc Surg October 1999;30(4):727-733.

Kandel RA, Bell RS, Wunder JS, O'Sullivan B, Catton CN, White LM, Davis AM. Comparison between a 2- and 3-grade system in predicting metastatic-free survival in extremity soft-tissue sarcoma. J Surg Oncol 1999;72(2):77-82.



Kennedy D, Silver MM, Winsor EJ, Toi A, et al. Inverted duplication of the distal short arm of chromosome 3 associated with lobar holoprosencephaly and lumbosacral meningomyelocele. [In Process Citation] American Journal of Medical Genet March 2000;91(3)167-170.

Khalili K. Canadian versus US radiology certification examinations: the 1999 experience. CARJ February 2000;5(1):8-9.

Khan A, Ramchandani P. "Rare Prostatic Lesions". Seminars in Roentgenology, 1999 Oct 34(4): 350-363

Khan A, Williams T, Manson D, Baskin K. "Pediatric Oncology CD-ROM in Body Imaging" Funding/ Support: Sheridan College, The Hospital For Sick Children (Department of Radiology) April 2000

Kirkpatrick AW, Koo J, Zalev AH, Burnstein MJ, Warren RE. Endoscopic perforation of the rectum presenting initially as a change in the voice. CJS August 1999; 42(4):305-306.

Koplewitz BZ, Daneman A, Fracr S, Ein SH, McGuigan MA, Mian M. "Gastric Perforation Attributable to Liquid Nitrogen Ingestion". Pediatrics 105 (1 pt1):121-123, January 2000.

Koplewitz BZ, Manson DE, Ein SH. "Post traumatic torsion of accessory lobe of the liver and the gallbladder". Pediatr Radiol 29:799-802, November 1999.

Kornecki A, Daneman A, Navarro O, Connolly B, Manson D, Alton DJ. "Spontaneous Reduction of Intussusception: Clinical Spectrum, Management and Outcome". Pediatr Radiol 30:58-63, January 2000.

Kucharczyk W. Etiology of congenital growth hormone deficiency. AJNR Am J Neuroradiol. 2000 Jun-Jul;21(6):999-1000.

Kulbarn A, Becker L, Jay V, Armstrong D, Drake J., "Primary cerebellar glioblastomas multiforme in children - report of 4 cases". J Neurosurg. Vol. 90, Mar. 1999.

Kulkarni A, Armstrong D, Drake J. "MR Characteristics of Malignant Spinal Cord Astrocytomas in Children". Can. J. Neurol. Vol. 26. No. 4 - pg. 290-293, November 1999.

Kulkarni A, Chumas P, Drake J, Armstrong D. "The Reliability of the "Absent Cistern Sign" in Assessing LP Shunt Function". Can. J. Neurol. Sci. 1999;26;40-43.

Kulkarni A, Drake J, Armstrong D, Dirks P, "Imaging Correlates of Successful Endoscopic Third Ventriculostomy". J. Neurosurg. Vol. 92, June, 2000

Kulkarni A, Drake J, Armstrong D, Dirks P. Measurement of Ventricular Size: Reliability of the Frontal and Occipital Horn Ratio Compared to Subjective Assessment. *Pediatr Neurosurg* 1999;31:65-70.

Kundu S, Herman SJ, Larhs A, Rappaport DC, Weisbrod GL, Maurer J, Chamberlain D, Winton T. Correlation of chest radiographic findings with biopsy-proven acute lung rejection. *Thorac Imaging* July 1999;14(3):178-184.

Kundu S, Murphy J, Towers M, Leung CS. Computed tomographic demonstration of very-low-density pulmonary nodules in metastatic gastric carcinoma: case report. *Can Assoc Radiol J*. 1999;50(3):198-201.

Kwan CL, Crawley AP, Mikulis DJ, Davis KD. An fMRI study of the anterior cingulate cortex and surrounding medial wall activations evoked by noxious cutaneous heat and cold stimuli. *Pain* April 2000;85(3):359-374.

Lan FL, Wunder JS, Griffin AM, Davis AM, Bell RS, White LM, Ichise M, Cole W. Periprosthetic bone remodelling around a prosthesis for distal femur tumours: Measurement by dual-energy x-ray absorptiometry (DEXA). *J Bone Joint Surg [Br]* January 2000;82-B:120-125.

Lau KY, Sniderman KW, Roebuck DJ. Inferior vena cava filters--percutaneous insertion? *Singapore Med J* January 2000;41(1):41-44.

Lazinski D, Willinsky RA, terBrugge K, Montanera W. Dissecting aneurysms of the posterior cerebral artery: Angioarchitecture and review of the literature. *Neurorad* February 2000;42(2):128-133.

Leibovitch FS, Black SE, Caldwell CB, McIntosh AR, Ehrlich LE, Szalai JP. Brain SPECT imaging and left hemispatial neglect covaried using partial least squares: the Sunnybrook Stroke study. *Hum Brain Mapp*. 1999;7(4):244-53.

Lemyre E, Azouz EM, Teebi AS, Glanc P, Chen MF. Bone dysplasia series. Achondroplasia, hypochondroplasia and thanatophoric dysplasia: review and update. *Can Assoc Radiol J*. 1999;50(3):185-97. Review.

Lobaugh NJ, Caldwell CB, Black SE, Leibovitch FS, Swartz RH. Three brain SPECT region-of-interest templates in elderly people: normative values, hemispheric asymmetries, and a comparison of single- and multihead cameras. *J Nucl Med*. 2000;41(1):45-56.

Mah D, Rawlinson JA, Rowlands JA. Detective quantum efficiency of an amorphous selenium detector to megavoltage radiation. *Phys Med Biol*. 1999;44(5):1369-84.

Manninen PH, Kucharczyk W. A new frontier: magnetic resonance imaging-operating room. *J Neurosurg Anesthesiol*. 2000 Apr;12(2):141-8. Review.

Manson D. "Congenital Abnormalities of the Lung" Contemporary Diagnostic Radiology 23(6):1-6, March 2000.

Mathie AG, Bell SD, Saibil EA, Magissano R, Kucey DS. Safety of outpatient arterial stenting. Can Assoc Radiol J. 1999; 50(4):268-71.

Mathie AG, Bell SD, Saibil EA. Mechanical thromboembolectomy in acute embolic peripheral arterial occlusions with use of the AngioJet Rapid Thrombectomy System. J Vasc Interv Radiol. 1999;10(5):583-90.

Matsubara S, Manzia JL, terBrugge K, Willinsky RA, Montanera W, Faughnan ME. Angiographic and clinical characteristics of patients with cerebral arteriovenous malformations associated with hereditary hemorrhagic telangiectasia. American Journal of Roentgenology June/July 2000;21:1016-1020.

Matsuura N, Zhao W, Huang Z, Rowlands JA. Digital radiology using active matrix readout: amplified pixel detector array for fluoroscopy. Med Phys. 1999;26(5):672-81.

McTavish JD, Zalev AH. Resident's Corner, Answer to Case of the Month. Crohn's disease: an unusual presentation. Can Assoc Radiol J 2000; 51(1):52-55.

McTavish JD, Zalev AH. Resident's Corner, Case of the Month. Can Assoc Radiol J 1999; 50:428-429.

Meade MO, Cook RJ, Guyatt GH, Groll R, Kachura JR, Bedard M, Cook DJ, Slutsky AS, Stewart TE. Interobserver variation in interpreting chest radiographs for the diagnosis of acute respiratory distress syndrome. Am J Respir Crit Care Med 2000 Jan;161(1):85-90.

Midroni G, Noel de Tilly L, Gray B, Vasjar J. MRI of the cauda equina in CIDP: clinical correlations. Journ of Neuro Sci 1999; 36-44.

Miller DM, Furst IM, Sandor GKB, Keller MA. A prospective, blinded comparison of clinical examination and computed tomography in deep neck infections. Laryngoscope November 1999;109:1873-1879.

Mukonoweshuro W, Giffiths PD, Blaser S. "Neurofibromatosis Type 1: The Role of Neuroradiology". Neuropediatrics 1999; 30(3):111-119.

Muradali D, Wilson SR, Burns PN, Shapiro H, Hope-Simpson D (Joint author). A specific sign of pneumoperitoneum on sonography: Enhancement of the peritoneal stripe. AJR November 1999;173(5):1257-1262.

Myles LM, Gupta N, Armstrong D, Rutka JT, "Multiple Extradural Arachnoid Cysts As a Cause of Cord Compression in a Child: Case Report". J Neurosurg (Spine 1):116-120, 1999.

Nam RK, Diamandis EP, Toi A, et al. Serum human glandular kallikrein-2 protease levels predict the presence of prostate cancer among men with elevated prostate-specific antigen. Journal of Clinical Oncology March 2000;18(5):1036-1042.

Navarro O, Nunez-Santos E, Daneman A, Faria P, Daltro P. "Malignant Peripheral Nerve-Sheath Tumour Arising in a Previously Irradiated Neuroblastoma: Report of 2 Cases and a Review of the Literature". Pediatr Radiol 30:176-180, March 2000.

O'Malley ME, Boland GW, Wood BJ, Fernandez-del-Castillo C, Warshaw AL, Mueller PR. Adenocarcinoma of the head of the pancreas: Determination of surgical unresectability with thin-section pancreatic-phase helical CT. AJR December 1999;173:1513-1518.

Oreopoulos G, Mickleborough L, Daniel L, DeSa M, Merchant N, Butany J. Primary pericardial mesothelioma presenting as constrictive pericarditis. Canadian Journal of Cardiology 1999; 15(12):1367-1372.

Otsubo, H, Chuang, SH, Rutka, J T., Snead, III, OC. "Clinical Application of MEG in Children with Epilepsy". 1999 AAN Scientific Program Abstract Submission.

Ovaert C, McCrindle BW, Nykanen D, MacDonald C, Freedom RM, Benson LN. "Balloon angioplasty of native coarctation: clinical outcomes and predictors of success". J Am Coll Cardiol 2000 Mar 15;35(4):988-96.

Pang G, Rowlands JA. Electronic portal imaging with an avalanche-multiplication-based video camera. Med Phys. 2000;27(4):676-84.

Pearce DH, White LM, Wunder JS. Musculoskeletal images. Osteogenic sarcoma in the soft tissues of the hip. Can J Surg February 2000;43(1):12-3.

Pisano ED, Yaffe MJ, Hemminger BM, Hendrick RE, Niklason LT, Maidment AD, Kimme-Smith CM, Feig SA, Sickles EA, Braeuning MP. Current status of full-field digital mammography. Acad Radiol. 2000;7(4):266-80. Review

Probyn LJ, Asch MR. The effect of changes in guidelines for authorship on current radiology publications. Radiology May 2000;215(2):615-616.

Pron G, Common AA, Sniderman K, Bell S, Bennett J, Asch M, Vanderburgh L. Uterine artery embolization for symptomatic fibroids: treatment/complications, recovery and satisfaction of women participating in a multicentre clinical trial. Society of Minimally Invasive Therapeutics, 11<sup>th</sup> Annual Scientific Meeting, September 18, 1999. (Abstract)

Pron G, Common AA, Sniderman K, Bell S, Bennett J, Garvin G, Kozak R, Vanderburgh L, Asch M, Simons M, Kachura J, MocarSKI E, Vilos G. Surgical conversions- post-uterine fibroid embolization: interim results in an Ontario multicentre trial. Society of Obstetricians and Gynaecologists of Canada, Montreal, June 20, 2000. (Abstract)

Pron G, Simons M, Common AA, Sniderman K, Bell S, Bennett J, Vanderburgh L. Uterine artery embolization for symptomatic fibroids: sarcoma, pregnancy, and other reasons for treatment relapse or failure. Society of Minimally Invasive Therapeutics, 11<sup>th</sup> Annual Scientific Meeting, September 18, 1999. (Abstract)

Pron G, Simons M, Sniderman K, Common AA, Bell S, Bennett J, Asch M, Vanderburgh L. Technique preferences and short-term success in a multicentre clinical trial of uterine artery embolization for fibroids. Society of Minimally Invasive Therapeutics, 11<sup>th</sup> Annual Scientific Meeting, September 18, 1999. (Abstract)

Ramos CT, Koplewitz BZ, Babyn PS, Manson D, Ein SH. "What have we learned about traumatic diaphragmatic hernias in children" J Pediatr Surg. 2000 Apr;35(4):601-4.

Ranson M, Hiew C, Babyn PS, "Pediatric Biliary Imaging. Pediatric Gastrointestinal Imaging and Intervention", Eds: Stringer DA and Babyn PS, Second Edition, B.C. Decker, 2000, Pg. 551-610

Rappaport DC, Haider MA, Sternthal E. Spontaneous regression of intermediate-grade non-Hodgkin's lymphoma. AJR 1999;172(1):131-3.

Redekop G, terBrugge K, Willinsky R. Subarachnoid hemorrhage from vertebrobasilar dissecting aneurysm treated with staged bilateral vertebral artery occlusion: The importance of early follow-up angiography: Technical case report. Neurosurgery 1999;45:1258-1263.

Redekop G, Willinsky RA, Montanera W, terBrugge KG, Tymianski M, Wallace MC. Endovascular occlusion of basilar bifurcation aneurysms with electrolytically detachable coils: Clinical considerations, outcome, and angiographic results. Can J Neurol Sci 1999;26:172-181.

Reilly RM, Kiarash R, Cameron RG, Porlier N, Sandhu J, Hill RP, Vallis K, Hendler A, Garipey J. 111 In-labelled EGF is selectively radiotoxic to human breast cancer cells overexpressing EGFR. J Nucl Med March 2000;41(3):429-38.

Reilly RM, Kiarash R, Sandhu J, Lee YW, Cameron RG, Hendler A, Vallis K, Garipey J. A comparison of EGF and MAb 528 labelled with 111 In for imaging human breast cancer. J Nucl Med May 2000;41(5):903-11.

Reinhold C, Tafazoli F, Mehio A, Wang L, Atri M, Siegelman ES, Rohoman L. Uterine adenomyosis: endovaginal US and MR imaging features with histopathologic correlation. Radiographics October 1999;19:147-60.

Rezai A, Lozano A, Crawley AP, Joy MLG, Kwan CL, Davis KD, Dostrovsky J, Tasker R, Mikulis DJ. fMRI and deep brain stimulation: Localization of cortical and sub-cortical activation with implanted thalamic stimulators. J Neurosurg 1999;90:583-590.

Robinson P, White LM, Wunder JS. Musculoskeletal images. Secondary signs of patellofemoral dislocation. Can J Surg April 2000;43(2):88-9,104.

Sheth TN, Ichise M, Kucharczyk W. Brain perfusion imaging in asymptomatic patients receiving cyclosporin. AJNR Am J Neuroradiol. 1999 May;20(5):853-6.

Sheth TN, Lee C, Kucharczyk W, Keystone J. Reactivation of neurocysticercosis: case report. Am J Trop Med Hyg. 1999 Apr;60(4):664-7.

Shuckett B, Hiew C, Williams T, Babyn PS, Whilborg C, Zukotynski KA, Stringer DA. "The Liver". Pediatric Gastrointestinal Imaging and Intervention 2<sup>nd</sup> Edition DA Stringer, PS Babyn, eds. B.C. Decker, Hamilton, 2000.

Shuckett BM, Hiew C, Williams T, Babyn PS, Wihlborg C, Zukotynski KA, Stringer DA. "The Liver: Pediatric Gastrointestinal Imaging and Intervention". Eds: Stringer DA and Babyn PS, Second Edition, B.C. Decker, 2000, Pg. 611-697.

Simons ME, Pron G, Voros M, Vanderburgh LC, Rao PS, Oreopoulos DG. Fluoroscopically-guided manipulation of malfunctioning peritoneal dialysis catheters. Perit Dial Int 1999;19(6):544-549.

Singer SB, Asch M. Metallic stents in the treatment of duodenal obstruction: Technical issues and results. Can Assoc Radiol J April 2000;51(2):121-129.

Stephen DJ, Kreder HJ, Day AC, McKee MD, Schemitsch EH, ElMaraghy A, Hamilton P, McLellan B. Early detection of arterial bleeding in acute pelvic trauma. J Trauma. 1999;47(4):638-42.

Stewart LK, Wilson SR. Transvaginal sonography of the anal sphincter – reliable or not? Am J Roentgenol July 1999;173(1):179-185.

Tello R, Davison BD, O'Malley M, Fenlon H, Thomson KR, Witte DJ, Harewood L. MR imaging of renal masses interpreted on CT to be suspicious. Am J Roentgenol April 2000;174:1017-1022.

terBrugge KG. Neurointerventional procedures in the pediatric age group. Child's Nerv Syst 1999;15:751-754.

Trachtenberg J, Chen J, Kucharczyk W, Toi A, Lancaster C. Microwave thermoablation for localized prostate cancer after failed radiation therapy: Role of neoadjuvant hormonal therapy. Mol Urol 1999;3(3):247-250.

Vines DC, Ichise M. Evaluation of differential magnification during acquisition for brain SPECT. J Nucl Med Tech September 1999;27:198-203.

vonDadelszen P, Chitayat D, Winsor EJ, Cohen H, MacDonald C, Tayl Hornberger LK. “De novo 46XX,t(6;7)(q27;q11;23) associated with severe card manifestations characteristic of supra-valvular aortic stenosis syndrome”. Am J Med Genet 2000 (Feb)90(4):270-5.

Walsh RM, Bath AP, Bance ML, Keller A, Rutka JA. Consequences to hearing during the conservative management of vestibular schwannomas. Laryngoscope February 2000;110:250-254.

Walsh RM, Bath AP, Bance ML, Keller A, Tator CH, Rutka JA. The conservative management of vestibular schwannomas. Clin Otolaryngol 2000;25:28-39.

Walsh RM, Bath AP, Bance ML, Keller A, Tator CH, Rutka JA. The natural history of untreated vestibular schwannomas. Is there a role for conservative management? Rev Laryngol Otol Rhinol 2000;121(1):21-26.

White LM, Kandel R. Osteoid-producing tumours of bone. Seminars in Musculoskeletal Imaging 2000;4(1):25-43.

White LM, Kim JK, Mehta M, Merchant N, Schweitzer ME, Morrison WB, Hutchison CR, Gross AE. Complications of total hip arthroplasty: MR imaging – initial experience. Radiology 2000; 215:254-262.

Wihlborg CE, Babyn PS, Clarke JT. “MRI appearances of hip abnormalities in mucopolipidosis type III”. Pediatr Radiol. 2000 Apr;20(4):262-4

Wihlborg CE, Babyn PS, Schneider R. “The association between Turner’s syndrome and juvenile rheumatoid arthritis”. Pediatr Radiol 29(9):676-681, 1999.

Willinsky R, Goyal M, terBrugge K, Montanera W. Tortuous, engorged pial veins in intracranial dural arteriovenous fistulas: Correlations with presentation, location, and MR findings in 122 patients. Am J Neuroradiol 1999;20:1031-1036.

Willinsky RA. Detachable coils to treat intracranial aneurysms. CMAJ November 1999;161(9):1136.

Wilson SR, Burns PN, Muradali D, Wilson JA, Lai X. Harmonic ultrasound imaging of the liver with microbubble contrast agents: Initial experience showing characterization of hemangioma, hepatocellular carcinoma and metastases. Radiology April 2000;215(1):153-161.

Wittram C, Rappaport DC. Bronchiolitis obliterans after lung transplantation: Appearance on expiratory minimum intensity projection images. Can Assoc Radiol J April 2000;51(2):103-106.

Wright B, Shumak R. Part II. Medical imaging of ductal carcinoma in situ. Curr Probl Cancer. 2000;24(3):112-24.

Zalev AH, Prokipchuk EJ, Jeejeebhoy KN, Gardiner GW, Pron G. Recurrent Crohn's disease in the duodenum and jejunum following extensive small bowel resection and jejunocolonic anastomosis: radiologic findings in twenty-five patients. Abdom Imaging December 1999; 24:538-543.

Zangger P, Kachura JR, Bogoch ER. The Simmen classification of wrist destruction in rheumatoid arthritis: Experience in patients with early disease. J Hand Surg August 1999;24(4):400-404.



## **PUBLICATIONS: NON-PEER-REVIEWED, BOOKS, CHAPTERS**

Babyn PS, Stringer DA, Chapter – “The Spleen. Pediatric Gastrointestinal Imaging and Intervention”, Eds: Stringer DA and Babyn PS, Second Edition, B.C. Decker, 2000, Pg. 731-782.

Ichise M. Neurology cases. In: Takeuchi A, (eds). Nuclear Medicine Q & A: From Fundamentals To Clinical Applications, 1<sup>st</sup> edition. Tokyo: Maruzen Planet, 2000. Chapter 12, pages 102-110.

Johnson DB, Atri M. Hepatic sonography. In: Shirkhoda A, (eds). Variants and pitfalls in body imaging. Philadelphia: Lippincott Williams & Wilkins, 2000. Chapter 10, pages 233-246.

Kiriakopoulos EK, Mikulis DJ. fMRI in neurosurgery. In: Bernstein and Berger, (eds). Neuro-Oncology: The Essentials. New York: Thieme Medical Publishers Inc., 2000. Chapter 8, pages 94-98.

Ranson M, Hiew C, Babyn P. Chapter: “Pediatric Biliary Imaging”. Gastrointestinal Imaging and Intervention. Second Edition. Stringer DA, Babyn PS. B.C. Decker Inc. Hamilton Publishers 2000:551-610.

Shuckett BM, Hiew C, Williams T, Babyn PS, Wihlborg C, Zukotynski K and Stringer DA. Chapter: “The Liver in Pediatric Gastrointestinal Imaging and Intervention”. Second Edition. Stringer DA, Babyn PS. B.C. Decker Inc. Publishers 2000:611-663.

Williams T, Babyn PS. Chapter: “The Pancreas in Pediatric Gastrointestinal Imaging and Intervention”. Second Edition. Stringer DA, Babyn PS. B.C. Decker Inc. Publishers 2000:699-723

Williams T, Babyn PS, Chapter – “The Pancreas. Pediatric Gastrointestinal Imaging and Intervention”, Eds: Stringer DA and Babyn PS, Second Edition, B.C. Decker, Hamilton 2000, Pg. 699-729.

## **SCIENTIFIC PRESENTATIONS: ORIGINAL PEER-REVIEWED PAPERS, POSTERS AND EXHIBITS**

Asch M. Hepatocellular carcinoma in Canada: etiology, clinical features, treatment and survival. 15<sup>th</sup> Annual Sheila Sherlock Liver Research Day. Toronto, Ontario, Canada. April 6, 2000.

Asch M. Resection of hepatocellular carcinoma without pre-operative liver biopsy: changing medical practice. 15<sup>th</sup> Annual Sheila Sherlock Liver Research Day. Toronto, Ontario, Canada. April 6, 2000.

Atri M, Tiwari P, Tulandi T. Predictors of the outcome of fallopian tube cannulation. American Roentgen Ray Society Meeting. Washington DC, U.S.A. May 2000.

Baskin K, Chait P, Connolly B, "Abscess drainage in children with Crohn's disease and ulcerative colitis", RSNA, Chicago, IL, November 1999

Baskin K, Chait P, Connolly B. "Abscess drainage in children with Crohn's disease and ulcerative colitis". RSNA, Chicago, IL, November 1999

Baskin K, Chait PG, Connolly B, Muraca S. "Lymphoceles in pediatric renal transplant patients: percutaneous ablation or surgical internalization?" CAR, Toronto, Ontario, June 2000

Baskin K, Chait PG, Connolly B, Muraca S. "Fluoroscopically guided esophageal balloon dilatation in epidermolysis bullosa dystrophica". CAR, Toronto, Ontario (June)

Baskin K, Chait PG, Connolly B, Muraca S. "Lymphoceles in pediatric renal transplant patients: percutaneous ablation or surgical internalization?" CAR, Toronto, Ontario (June)

Baskin K, Chait PG, Connolly B, Temple M. "Combined ultrasonographic and fluoroscopic guidance for transjugular liver biopsies in children". CAR, Toronto, Ontario, June 2000

Baskin K, Chait PG, Connolly B, Temple M. "Combined ultrasonographic and fluoroscopic guidance for transjugular liver biopsies in children" CAR, Toronto, Ontario (June)

Benson R, Levine W, Evans W, Haider MA. Scientific Exhibit. Hyperbaric oxygen therapy for soft tissue necrosis of the vagina: A report of 4 cases. Royal College of Physicians and Surgeons Meeting. Montreal, Quebec, Canada. September 25, 1999.

Blaser S, Jay V, Otsubo H. Disorders of Cortical Formation: Radiologic-Pathologic correlation. Radiological Society of North America, Chicago 1999.

Blaser S, Jay V, Otsubo H. Disorders of Cortical Formation: Radiologic-Pathologic correlation. ASNR 37<sup>th</sup> Annual Conference, San Diego, May 1999 (magna cum laude).

Bret P. Biliary imaging: Complementary roles of Ultrasound and MR. The Society of Gastrointestinal Radiologists & The Society of Uroradiology-Abdominal Radiology Postgraduate Course 2000. Kauai, Hawaii, U.S.A. March 12-17, 2000.

Bret P. Impact of health care restructuring on the practice of radiology in Canada. The future of Medical Imaging. Symposium. Partnerships for Medical Vision, The Canadian Association of Radiologists 63<sup>rd</sup> Annual Scientific Meeting. Toronto, Ontario, Canada. June 11-14, 2000.

Bret P. Intégration RIS PACS. 2ème Journée Informatique et Imagerie Médicale: Présent & Avenir. Nancy, France. March 31, 2000.

Bret P. The Future of abdominal imaging: What information to communicate. 11th Annual Meeting & Postgraduate Course of the ESGAR (European Society of Gastrointestinal and Abdominal Radiology). La Grande Motte, near Montpellier, France. June 21-24, 2000.

Bukhanov K. Image guided breast biopsies-options and results. The Surgical Oncology Network Symposium. Toronto, Ontario, Canada. October 29, 1999.

Bukhanov K. New developments in breast imaging. Women's Health Symposium - Women and Breast Cancer. Toronto, Ontario, Canada. March 29, 2000.

Bukhanov K. Optimal pre-operative mammographic evaluation and core biopsy. Controversies in Etiology, Detection and Treatment of Breast Cancer: 2000. Toronto, Ontario, Canada. June 15-16, 2000.

Chait P, Connolly B, Baskin K, Temple M, "Combined ultrasonographic and fluoroscopic guidance for transjugular liver biopsies in children" RSNA, Chicago, IL, November. 1999

Chait P, Connolly B, Baskin K, Temple M, "Deployment of temporary and retrievable vena cava filters in children", RSNA, Chicago, IL, November 1999

Chait P, Connolly B, Baskin K, Temple M. "Combined ultrasonographic and fluoroscopic guidance for transjugular liver biopsies in children". RSNA, Chicago, IL, November. 1999

Chait P, Connolly B, Baskin K, Temple M. “Deployment of temporary and retrievable vena cava filters in children”. RSNA, Chicago, IL, November 1999

Chait P, Geary D, Connolly B, Temple M. “A new technique for the management of severe Takayasu’s disease involving both renal arteries”, CIMIT, Boston, MA, September 1999

Chait P, Geary D, Connolly B, Temple M. “A new technique for the management of severe Takayasu’s disease involving both renal arteries”. CIMIT, Boston, MA, September 1999

Chait P, Nykanen D, Benson, Connolly B, Baskin K. “Transcatheter management of intrahepatic IVC interruption by means of perforation, dilatation and stent placement”, CIMIT, Boston, MA, September 1999

Chait P, Nykanen D, Benson, Connolly B, Baskin K. “Transcatheter management of intrahepatic IVC interruption by means of perforation, dilatation and stent placement” CIMIT, Boston, MA, September 1999

Chait PG, Baskin K, Connolly B, Temple M, Richards H. “Percutaneous cecostomy: A five year follow-up” SPR, Naples, Florida, May 2000

Chait PG, Baskin K, Connolly B, Temple M, Richards H. “Percutaneous cecostomy: A five year follow-up”, Pacific Association of Pediatric Surgeons 33<sup>rd</sup> Annual Meeting, Las Vegas, Nevada, May 2000

Chait PG, Baskin K, Connolly B, Temple M, Richards H, “Percutaneous cecostomy: A five year follow-up”, SPR, Naples, Florida, May 2000

Chait PG, Baskin K, Connolly B, Temple M, Richards H. “Percutaneous cecostomy: A five year follow-up”. Pacific Association of Pediatric Surgeons 33<sup>rd</sup> Annual Meeting, Las Vegas, Nevada, May 2000

Chait PG, Baskin K, Connolly B, Temple MJ, Richards H. “Percutaneous cecostomy: a five year follow-up”, CAR, Toronto, Ontario, June 2000

Chait PG, Baskin K, Connolly B, Temple MJ, Richards H. “Percutaneous cecostomy: a five year follow-up”. CAR, Toronto, Ontario (June)

Chait PG, Connolly B, Baskin K, Mahant S, Vatandoust H, Panayiotou J, Temple M, Bagger G. “A model for horizontal integration: providing vascular access and enterostomy access across the spectrum of pediatric care”, SPR, Naples, Florida, May 2000

Chait PG, Connolly B, Baskin K, Mahant S, Vatandoust H, Panayiotou J, Temple M, Bagger G, “A model for horizontal integration: providing vascular access and

enterostomy access across the spectrum of pediatric care”, Pacific Association of Pediatric Surgeons 33<sup>rd</sup> Annual Meeting, Las Vegas, Nevada, May 2000

Chait PG, Connolly B, Baskin K, Mahant S, Vatandoust H, Panayiotou J, Temple M, Bagger G. “A model for horizontal integration: providing vascular access and enterostomy access across the spectrum of pediatric care”. SPR, Naples, Florida, May 2000

Chait PG, Connolly B, Baskin K, Mahant S, Vatandoust H, Panayiotou J, Temple M, Bagger G. “A model for horizontal integration: providing vascular access and enterostomy access across the spectrum of pediatric care”. Pacific Association of Pediatric Surgeons 33<sup>rd</sup> Annual Meeting, Las Vegas, Nevada, May 2000

Chuang S. 1<sup>st</sup> Chinese Neurology Forum, 2<sup>nd</sup> Symposium of World Association of Chinese Epileptologists (WACE), 12<sup>th</sup> Annual Scientific Meeting of The Hong Kong Neurological Society. Hong Kong, Dec. 4-5.

Chuang S. ASNR Symposium and Annual Meeting. Moderator. Atlanta, Georgia. April 2-8, 2000

Clark JA, Pugash RA. Angiographic demonstration of parabiliary venous system. 63<sup>rd</sup> annual meeting of the Canadian Association of Radiologists, Toronto, Ontario, June 2000

Clark JA, Robinson GJ, Pugash RA. Fluoroscopically guided retrograde ureteral catheterization. 25<sup>th</sup> annual scientific meeting of the Society of Vascular and Interventional Radiologists, San Diego, California, March 28, 2000.

Connolly B, Chait PG, Marcon P, Temple M, Baskin K, Krafchik B. “Fluoroscopically guided esophageal balloon dilatation in epidermolysis bullosa dystrophica” CAR, Toronto, Ontario, June 2000

Connolly B, Chait PG, Temple K, Baskin K. Poster presentation: “Central Venous Access: The Good, The Bad and The Ugly”, CAR, Toronto, Ontario, June 2000

Connolly B, Chait PG, Temple K, Baskin K. Poster presentation: “Central Venous Access: The Good, The Bad and The Ugly”. CAR, Toronto, Ontario (June)

Connolly B, Chait PG, Temple M, Baskin K. “Central Venous Access: The Good, The Bad and The Ugly”. ESPR, Lisbon, Portugal, May 2000

Connolly B, Chait PG, Temple M, Baskin K “Mediastinal seromas secondary to modified Blalock-Taussig shunts – imaging and successful management by percutaneous drainage”

Connolly B, Chait PG, Temple M, Baskin K. “Mediastinal seromas secondary to modified Blalock-Taussig shunts – imaging and successful management by percutaneous drainage”. ESPR, Lisbon, Portugal, May 2000

Connolly B, Chait PG, Temple M, Baskin K. Poster Presentation: “Central Venous Access: The Good, The Bad and The Ugly”, ESPR, Lisbon, Portugal, May 2000

Connolly B, Chait PG, Temple MJ, Baskin K. “Sonographic guidance for lung nodule biopsy – inherent contrast of air!” CAR, Toronto, Ontario, June 2000

Connolly B, Chait PG, Temple MJ, Baskin K. “Sonographic guidance for lung nodule biopsy – inherent contrast of air!” CAR, Toronto, Ontario (June)

Cross JD, Merchant N, Rappaport D. MRI of aneurysms of the thoracic aorta and arch vessels. Canadian Association of Radiology Annual Meeting. Toronto, Ontario, Canada. June, 2000.

Dill-Macky MJ, Wilson SR, Burns PN. Focal liver masses: Patients of enhancement with Levovist® and pulse inversion imaging. SGR Postgraduate Course. Kauai, Hawaii, U.S.A. March 2000. ESPR, Lisbon, Portugal, May 2000

Farb R, Goyal M, Kim J, Derbyshire A, Willinsky R, terBrugge K, Wright G. Novel contrast-enhanced MR angiographic technique to ascertain the level of fistula and arterial feeders in spinal dural AVM-Our early experience. American Society of Neuroradiology Annual Meeting. Atlanta, Georgia, U.S.A. April 2000.

Farb R, McGregor C, Laliberte M, Kim J, Schwartz M, Cheung G, Cooper P, Willinsky R, Wright G. Evaluation of intracerebral arterial venous malformations using a first pass Gadodiolamide enhanced MR angiographic technique: A pilot study. Department of Medical Imaging Annual Research Day, University of Toronto, Toronto, Ontario, Canada. April 12, 2000.

Faughnan ME, Mandzia JL, Pugash RA, Clark JA, Graham A, Nanthakumar K, Grande P, Redelemeier DA, Hyland RH. Pulmonary arteriovenous malformations: effective screening. Annual meeting of American Thoracic Society, May, 2000.

Faughnan ME, Mandzia JL, Pugash RA, Clark JA, Graham A, Nanthakumar K, Grande P, Redelemeier DA, Hyland RH. Screening for pulmonary arteriovenous malformations in Hereditary Hemorrhagic Telangiectasia. Annual meeting of the European Respiratory Society, Madrid, Spain, October 1999

Faughnan ME, Mandzia JL, Pugash RA, Clark JA, Hyland RH. Pulmonary arteriovenous malformation: complications and management. Annual meeting of American Thoracic Society, May 2000.

Foltz WD, Merchant N, Wright GA. Characterizing the myocardial blood oxygen state in vivo using MRI. 45<sup>th</sup> Scientific Meeting of Canadian Organization of Medical Physicists Conference. 1999.

Gervais DA, O'Neill MJ, O'Malley ME, Hahn PF, Mueller PR. Exhibit. Post-Whipple complications: Imaging and image-guided intervention. Radiological Society of North America Annual Meeting. Chicago, Illinois, U.S.A. November-December 1999.

Goyal M, Willinsky RA, Montanera W, terBrugge K. Paravertebral arteriovenous malformations with epidural drainage: Clinical spectrum, imaging features and results of treatment. Eastern Neuroradiology Society. Montreal, Quebec, Canada. August 1999.

Goyal M, Willinsky RA, terBrugge K, Montanera W, Tymianski M. Exhibit. Dural arteriovenous fistula (DAVF) simulating spinal cord tumour on MRI: A report on two cases. 35<sup>th</sup> Meeting of the Canadian Congress of Neurological Sciences. Ottawa, Ontario, Canada. June 13-17, 2000.

Haider MA, Baker ME, Patel NK. Scientific Exhibit. Structured reports in Oncology: A focus on changes over time and meaningful output. Radiology Society of North America '99 InfoRad Session. Chicago, Illinois, U.S.A. November 28-December 3, 1999.

Haider MA, Couture J, Agur AM. Scientific Exhibit. The mesorectum - A critical anatomic concept in rectal cancer surgery: Radiologic-pathologic correlation with MRI. Radiology Society of North America Meeting. Chicago, Illinois, U.S.A. November 28-December 3, 1999.

Hershkop M. Breast Imaging in Nuclear Medicine. Canadian Association of Radiology Annual Meeting. Toronto, Ontario, Canada. June 2000.

Hershkop M. Lymphoscintigraphy 2000. Society of Nuclear Medicine. Toronto, Ontario, Canada. March 2000.

Ichise M, Burger C, Stundzia A, Meyer JH, Verhoeff NPLG, Yonekura Y. Linear regression analysis for SPECT/PET quantification of reversible neuroreceptor binding. 47<sup>th</sup> Society of Nuclear Medicine Annual Meeting. St. Louis, Missouri, U.S.A. June 3-7, 2000.

Jong RA. Imaging of ductal carcinoma-in-situ. Controversies in the Etiology, Detection and Treatment of Breast Cancer: 2000. Toronto, Ontario, Canada. June 15-16, 2000.

Khalili K, Wilson SR, Dill-Mackey M, Burns PN. Focal nodular hyperplasia: Confirmatory diagnosis with microbubble contrast agents? Canadian Association of Radiology Annual Meeting. Toronto, Ontario, Canada. June 2000.

Lax M, White LM, Lobo-Mueller E, Schweitzer ME. MR imaging of local sarcomatous disease in the vicinity of fixation or reconstructive orthopedic hardware. 1999 Scientific Assembly and Annual Meeting of the Radiology Society of North America. Chicago, Illinois, U.S.A. November-December 1999.

Leduc B, Jong RA, Shumak R, Fishell E, Mawdsley G, Yaffe MJ. Using a 3-D visualization system to target microcalcifications with greater accuracy. Fifth International Workshop on Digital Mammography. Toronto, Ontario, Canada. June 11-14, 2000.

Lobo EM, White LM, Becker EJ, Salonen DC. SAPHO syndrome: radiologic spectrum and clinicopathologic correlation. 23<sup>rd</sup> Annual Meeting, Society of Skeletal Radiology, Scottsdale, Arizona, U.S.A. March 2000.

Lum C, Keller MA, Kassel E et al. Excerpta. Recurrent glomus tympanicum-presentation as an unusual eustachian tube mass. American Society of Neuroradiology Annual Meeting. Atlanta, Georgia, U.S.A. April 2000.

Lum C, Keller MA, Kassel E, Blend R. Scientific Exhibit. Imaging of tongue lesions. American Society of Neuroradiology Annual Meeting. Atlanta, Georgia, U.S.A. April 2000.

Mascia L, terBrugge KG, Wallace C, Fedorko L. Poster. Predictive value of transcranial doppler in identification of SAH patients at risk of developing clinical vasospasm. ASITN Annual Meeting. New Orleans, Louisiana, U.S.A. February 6-9, 2000.

McClure MJ, Khalili K, Sarrazin J, Hanbidge A. CT and US features of epiploic appendagitis and segmental omental infarction. Canadian Association of Radiology Annual Meeting. Toronto, Ontario, Canada. June 2000.

McCready DR, Youngson B, Miller N, Bukhanov K, Hanna W, Patterson B, Ichise M, Hershkop M, Coady G, Boxen I. The results of sentinel lymph node biopsy in breast cancer. Royal Canadian College of Surgeons Annual Meeting. Fall 1999.

Merchant N, Martin DR, White LM, Zelovitsky JL. MR imaging of cardiomyopathies: A pictorial review. 1999 Scientific Assembly and 85<sup>th</sup> Annual Meeting of the Radiology Society of North America. Chicago, Illinois, U.S.A. November-December 1999.



Merchant N. MRI features of arrhythmogenic right ventricular dysplasia. Society of Thoracic Radiology Annual Meeting. March 2000.

Mikulis D. Functional imaging of brain tumours. 2<sup>nd</sup> International Symposium of Brain Tumour Pathology. Nagoya, Japan. May 11-13, 2000.

Mikulis D. Imaging of brain tumours: An overview. 2<sup>nd</sup> International Symposium of Brain Tumour Pathology. Nagoya, Japan. May 11-13, 2000.

Muradali D, Causer P, Bukhanov K, Samuels T. Nodular ductal carcinoma in situ: Can it be differentiated from invasive ductal carcinoma on sonography? American Roentgen Ray Society. Washington, DC, U.S.A. May 2000.

Muradali D, Causer P, Bukhanov K, Samuels T. Nodular ductal carcinoma in situ: Can it be differentiated from invasive ductal carcinoma on sonography? Canadian Association of Radiology Annual Meeting. Toronto, Ontario, Canada. June 2000.

Muradali D, Colgan T, Hayeems E, Wilson SR. Echogenic ovarian foci not caused by psammomatous calcifications. Radiology Society of North America Annual Meeting. Chicago, Illinois, U.S.A. November 1999.

Muradali D, Moore L, Samuels T, Bukhanov K. Echogenic breast nodules: clinical significance. Radiology Society of North America Annual Meeting. Chicago, Illinois, U.S.A. November 1999.

O'Malley ME, Harisinghani MG, Boland GW, Wood BJ, Fernandez-del-Castillo C, Mueller PR. Exhibit. Optimization of a helical CT protocol for evaluation of patients with pancreatic cancer. Radiology Society of North America Annual Meeting. Chicago, Illinois, U.S.A. November-December 1999.

Pisano ED, Cole E, Hemminger BM, Muller K, Yaffe MJ, et al. Accuracy of digital mammography vs. screen-film mammography in a diagnostic mammography population. Fifth International Workshop on Digital Mammography. Toronto, Ontario, Canada. June 11-14, 2000.

Pron G, Common A, Sniderman K, Bell S, Bennett J, Garvin G, Kozak R, Vanderburgh L, Asch M, Simons M, Kachura J, Mocarski E, Vilos G. Surgical conversions post-uterine fibroid embolization: interim results in an Ontario multi-centre trial. Society of Obstetricians and Gynecologists of Canada Annual Clinical Meeting. Montreal, Quebec, Canada. June 20, 2000.

Reslan WA, Jarrin J, Hellmann J, Daneman A. "Sonographic Appearance of Vascular Air Embolism in the Brain in Two Patients". 37th Annual Congress of the European Society for Pediatric Radiology and 23rd Post-Graduate Course, Lisbon, Portugal, May 22-26, 2000.

Robinson GJ, Clark JA, Ameli M, Lossing A, Pugash RA. Translumbal aortography is alive and well in the 1990s. Annual meeting of the British Society of Interventional Radiology, November 12, 1999.

Robinson GJ, Clark JA, Pugash RA, Pantalone RR. Radiologic peroral gastrostomy. Annual meeting of the British Society of Interventional Radiology, November 12, 1999.

Simons ME. Uterine artery embolization for symptomatic fibroids: treatment complications, recovery and satisfaction of women participating in a multi-centre clinical trial. 2<sup>nd</sup> International Symposium on Uterine Artery Embolization. SMIT. Boston, Massachusetts, U.S.A. September 18, 1999.

Singer SB, Asch MR, Jaffer N. CD-ROM. IVC filters: An interactive computer based teaching module on available products and their usage. Copyright 2000. Canadian Association of Radiology Annual Meeting. Toronto, Ontario, Canada. June 2000.

Stewart L, McGee J, Wilson SR. Transperineal assessment of perianal inflammatory disease. SGR Postgraduate Course. Kauai, Hawaii, U.S.A. March 2000.

Stewart LK, Wilson SR. Transperineal sonography of perianal inflammatory disease. Canadian Association of Radiology Annual Meeting. Toronto, Ontario, Canada. June 2000.

Su Z, Ballinger JR, Rauth AM, Abrams DN, Reilly RM, Utsunomiya K, Ichise M. Development of a novel class of technetium-99m-amine-dioxime complexes containing 2-nitimidazole as markers of hypoxic cells. 47<sup>th</sup> Society of Nuclear Medicine Annual Meeting. St. Louis, Missouri, U.S.A. June 3-7, 2000.

Sussman MS, Merchant N, Kerr A, Pauly JM, Wright GA. Accurate tracking of coronary artery motion for MR imaging. 45<sup>th</sup> Scientific Meeting of Canadian Organization of Medical Physicists Conference. 1999.

Sussman MS, Robert N, Kerr AB, Pauly JM, Merchant N, Wright GA. Artifact-free MR fluoroscopic coronary image combination with the correlation coefficient technique. 8<sup>th</sup> Scientific Meeting of the International Society for Magnetic Resonance in Medicine. April 2000.

Temple M, Chait PG, Connolly B, Baskin K. "Use of a low profile cecostomy catheter for treatment of fecal incontinence in children", ESPR, Lisbon, Portugal, May 2000

Temple M, Chait PG, Connolly B, Baskin K. "Use of a low profile cecostomy catheter for treatment of fecal incontinence in children". ESPR, Lisbon, Portugal, May 2000

terBrugge KG, Manzia JL, Matsubara S, Willinsky RA, Montanera W, Faughnan ME. Exhibit Angiographic and clinical characteristics in patients with cerebral arteriovenous malformations associated with hereditary hemorrhagic telangiectasia. 35<sup>th</sup> Meeting of the Canadian Congress of Neurological Sciences. Ottawa, Ontario, Canada. June 13-17, 2000.

Toi A, Chitayat D, Winsor E, Silver MM, Sirkin W, Blaser S, Johnson JJ. Prenatal diagnosis and prognosis of abnormalities of the corpus callosum. ISUOG. Buenos Aires, Argentina. November 14-18, 1999.

Toi A, Sweet J, Babaian RJ, Chen M. Increased prostate cancer yield using a unique extended biopsy pattern following initial negative biopsy. AIUM. San Francisco, U.S.A. April 2-5, 2000.

Traubici J, Navarro O, Garcia C, Mohanta A, Thorner P, Daneman A. "Neonatal Testicular Torsion". 37th Annual Congress of the European Society for Pediatric Radiology and 23rd Post-Graduate Course, Lisbon, Portugal, May 22-26, 2000.

Utsunomiya K, Ballinger JR, Zhang XG, Su SF, Tsuchida T, Ichise M. Comparison of the kinetics of Tc-99m-sestamibi and Tc-99m-tetrafosmin in a multidrug-resistant tumour cell line. Radiology Society of North America Annual Meeting. Chicago, Illinois, U.S.A. December 2, 1999.

Vines DC, Ivo B, Ichise M. Semi-automated uniform attenuation correction for 99mTc-ECD brain SPECT: comparison between iterative and filtered back projection. 47<sup>th</sup> Society of Nuclear Medicine Annual Meeting. St. Louis, Missouri, U.S.A. June 3-7, 2000.

Walsh RM, Bath AP, Bance ML, Keller A, Tator CH, Rutka JA. Poster. Conservative management of vestibular schwannomas. British Academic Conference in Otolaryngology. Cambridge, UK. July 5-9, 1999.

Webster CA, Merchant N, Kucey DS, Wright GA. Toward an objective measure of image quality for peripheral vascular MRA. 8<sup>th</sup> Scientific Meeting of the International Society for Magnetic Resonance in Medicine. April 2000.

White LM, Kim JK. MR imaging in the vicinity of metal orthopedic hardware. 23<sup>rd</sup> Annual Meeting, Society of Skeletal Radiology. Scottsdale, Arizona, U.S.A. March 2000.

Willinsky R, Goyal M, terBrugge K, Montanera W, Wallace MC, Tymianski M. Embolization of small (<3 cm) brain arteriovenous malformations: Correlation of angiographic results to a proposed angioarchitecture grading system. University of Toronto, Department of Medical Imaging Annual Research Day. Toronto, Ontario, Canada. April 12, 2000.

Willinsky R, Goyal M, terBrugge K, Montanera W. Poster. Embolization of small (less than 3 cm) brain arteriovenous malformations – The Toronto Western Hospital experience (1984-1999). American Society of Neuroradiology Annual Meeting. Atlanta, Georgia, U.S.A. April 2000.

Willinsky RA, Goyal M, terBrugge K, Montanera W. Tortuous, engorged pial veins in intracranial dural arteriovenous fistula: Correlations with presentations, location and MR findings in 122 patients. Eastern Neuroradiology Society. Montreal, Quebec, Canada. August 1999.

Willinsky RA, Goyal M, terBrugge K, Montanera W, Wallace MC, Tymianski M. Embolization of small (<3) brain arteriovenous malformations (AVMs): The Toronto Western Hospital experience (1984-1999). Joint Meeting of the AANS/CNS Section of Cerebrovascular Surgery. New Orleans, Louisiana, U.S.A. February 7, 2000.

Willinsky RA, Goyal M, terBrugge K, Montanera W. Poster. Embolization of small (<3 cm) brain arteriovenous malformations (AVMs): The Toronto Western Hospital experience (1984-1999). 35<sup>th</sup> Meeting of the Canadian Congress of Neurological Sciences. Ottawa, Ontario, Canada. June 13-17, 2000.

Willinsky RA, terBrugge K. Management of a perforation of a ruptured aneurysm during GDC treatment. Working Group in Interventional Neuroradiology. Val D'Isère, France. January 20, 2000.

Wilson SR, Hope Simpson D, Burns PN. Tissue harmonic imaging: A benefit for bile duct evaluation? SGR Postgraduate Course. Kauai, Hawaii, U.S.A. March 2000.

Wilson SR, Khalili K. Hilar biliary obstruction: The utility of Levovist delayed sonography. Canadian Association of Radiology Annual Meeting. Toronto, Ontario, Canada. June 2000.

## **INVITED PRESENTATIONS AND VISITING PROFESSORSHIPS**

Armstrong D. Advanced Pediatric Ultrasound, Second Annual Course. The Michener Institute for Applied Health Sciences, Division of Continuing Education, March 11-12, 2000.

Armstrong D., PB. Kirks, JM Drake, Av Kulkarni. "Observer Reliability of the Frontal and Occipital Horn Ratio Measurement of Ventricular Size". 1999 Congress of Neurological Surgeons, Oct. 30-Nov. 4, 1999, Boston MA.

Armstrong D. "Cranial Imaging Studies of Newborn Asphyxia". The 5<sup>th</sup> Annual Conference on Obstetric Malpractice Lawsuits. The Canadian Institute, February 11, 1999.

Armstrong D. "Imaging of Congenital Malformations of the Spine". University of Toronto Organ Imaging Review Conference, Toronto. September 1999.

Armstrong D. "Traumatic Injury of Spinal Cord: Management Strategies". 3<sup>rd</sup> World Congress on Pediatric Intensive Care. June 24-29, 2000.

Armstrong D. "Shaken Baby Syndrome. Partnerships in Medical Vision/Partenariats en vision medicale" - a medico-scientific meeting hosted by: C.A.M.R.T./C.A.R./C.S.D.M.S. Toronto 2000.

Armstrong D. "Child Abuse in MRI". Partnerships in Medical Vision/Partenariats en vision medicale - a medico-scientific meeting hosted by: C.A.M.R.T./C.A.R./C.S.D.M.S. Toronto 2000.

Asch M. Vascular and non-vascular stenting. General Electric Multi-Modality Seminar. Toronto, Ontario, Canada. October 21, 1999.

Asch M. Live case demonstrations/workshops. Interventional/Vascular Radiology Course. Toronto, Ontario, Canada. November 4-6, 1999.

Asch MR, Kachura JR. Live demonstration. Ovarian vein assessment. Sixth Annual Interventional/Vascular Radiology Course. University of Toronto, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada. November 5, 1999.

Asch M. Vascular and non-vascular stenting. General Electric Multi-Modality Seminar. Vancouver, British Columbia, Canada. November 26, 1999.

Asch M. Local tumour ablative therapies. Surgical Oncology Rounds. Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada. January 24, 2000.

Asch M. Local tumour ablative therapies. Radiology Grand Rounds. Hamilton, Ontario, Canada. February 9, 2000.

Asch M. Local tumour ablative therapies. Radiology Grand Rounds. Kingston, Ontario, Canada. April 3, 2000.

Asch M. Local tumour ablation. Sheila Sherlock Research Day. Toronto, Ontario, Canada. April 5, 2000.

Asch M. Radiofrequency ablation: the local experience. Radiology Research Day. Toronto, Ontario, Canada. April 12, 2000.

Asch M. Local tumour ablation. OSDIN. Toronto, Ontario, Canada. April 15, 2000.

Asch M. Venous access. Canadian Association of Radiologists Meeting. Toronto, Ontario, Canada. June 12, 2000.

Atri M. Transvaginal US guided intervention. University of Toronto Organ Imaging. Toronto, Ontario, Canada. September 1999.

Atri M. Transvaginal US guided intervention. Women's Imaging. University of Toronto, Toronto, Ontario, Canada. April 2000.

Atri M. Sonographic approach to female pelvic pain. Canadian Association of Radiologists Meeting. Toronto, Ontario, Canada. June 2000.

Atri M. Familial ovarian cancer screening. Canadian Association of Radiologists Meeting. Toronto, Ontario, Canada. June 2000.

Blaser S, Jay V, Otsubo H, Chuang S. "Disorders of cortical formation: pathologic correlation". American Society of Neuroradiology, San Diego, California, May 23-28, 1999.

Blaser S. "Pediatric Sensorineural Hearing Loss". Eastern Society of Neuroradiology; Montreal, August 29, 1999.

Blaser S. "Acquired pediatric spinal disorders". Eastern Society of Neuroradiology; Stowe, Vermont, Aug. 27, 2000

Blaser S. "Acquired pediatric spinal disorders". Nordic Course in Pediatric Neuroradiology. 54<sup>th</sup> Congress Scandinavian Radiological Society; Helsinki, May 27-31, 2000.

Blaser S. "Pediatric Neuroimaging". 32<sup>nd</sup> International Diagnostic Course in Davos; Davos, Switzerland, March 25-31, 2000.

Blaser S. "Introduction to Neuroimaging in Children". Pediatric Grand Rounds; Inselspital, Berne, Switzerland, March 24, 2000.

Blaser S. "Labyrinthine Dysplasia". Berne Neuroradiologists and Otolaryngologists Conference. Inselspital, Berne, Switzerland, March 23, 2000.

Bret P. International Imaging Workshops. Cross-sectional Imaging. University of Toronto & University of Lyon, Provence, France. September 27, 1999.

Bret P. PACS How to get there. 14<sup>th</sup> Annual Organ Imaging Review. University of Toronto, Toronto, Ontario, Canada. October 5-6, 1999.

Bret P. PACS is there a business case? 14<sup>th</sup> Annual Organ Imaging Review. University of Toronto, Toronto, Ontario, Canada. October 5-6, 1999.

Bret P. Anatomie d'un PACS pour les radiologistes. Journées Françaises de Radiologie'99. Paris, France. October 28-29, 1999.

Bret P. L'Expérience de Toronto. Journées Françaises de Radiologie'99. Paris, France. October 28-29, 1999.

Bret P. Utilisation des images IRM en réseau. Douzièmes Entretiens Jacques Cartier. Imagerie Médicale: RMN et Marqueurs Nucléaires. Rhône-Alpes, France. December 6, 1999.

Bret P. Practical biliary imaging. Eighteenth Annual Practical Radiology at Whistler. University of British Columbia, Whistler, British Columbia, Canada. February 6, 2000.

Bret P. Visiting Professor. Helical computed tomography. Université Catholique de Louvain, Brussels, Belgium. May 26-27, 2000.

Bret P. Visiting Professor. Present and future of abdominal imaging. Université Catholique de Louvain, Brussels, Belgium. May 26-27, 2000.

Bukhanov K. Breast disease. 1<sup>st</sup> Annual Multi-Modality Seminar. Toronto, Ontario, Canada. September 30, 1999.

Bukhanov K. Digital mammography. XQi/FFDM Advances. Tokyo, Japan. June 2000.

Bukhanov K. Digital mammography. XQi/FFDM Advances. Asaka, Japan. June 2000.

Chait P. "Pediatric Interventional Radiology – Current Uses", Organ Imaging, Toronto, Ontario, October 1999

Chait P. “Lectures on Interventional Radiology (Cecostomy tube insertions)” Brazilian meeting of Pediatric Surgery, Brazil, October 1999

Chait P. Visiting Professor, “Percutaneous cecostomy”, John Hopkins Hospital, January 2000

Chait P. Visiting Professor, “Percutaneous cecostomy”, D.C. Children’s Hospital, January 2000

Chuang S, Snead C, Rutka J. Invited Speaker, Neuro-Imaging in Pediatric Epilepsy. ASPNR Focus Session, May 22-28, 1999, San Diego, CA. ASNR/ASHNR/ASP/ADITN/ASSR 1999 Joint Meeting.

Chuang, S. “Contrast Agents in Radiology; Special Clinical Considerations”, Foundation of Medical Professionals Alliance in Taiwan (FMPAT), Taipei, Taiwan, June 16-17, 1999.

Chuang, SH. Hoechst arion Roussel Keynote Lecture II. "Neuro-Imaging of Epilepsy". 1<sup>st</sup> Chinese Neurology Forum, 2<sup>nd</sup> Symposium of World Association of Chinese Epileptologists (WACE), 12<sup>th</sup> Annual Scientific Meeting of The Hong Kong Neurological Society. Hong Kong, Dec. 4-5, 1999.

Daneman, A. “Spectrum of Appearances, Variations and Pitfalls in Diagnosis”. Current Concepts in Intussusception Reduction”. “GU Imaging in Pediatrics: Sonographic Importance” “Interesting Case Session”. Broome, Australasian Society For Pediatric Imaging Australia, September 1999 Malrotation

Daneman A. “Ultrasound of the thyroid in children”. “Imaging of the postoperative abdomen in children”. “Intussusception controversies related to treatment”. “Complications of therapy in oncology patients”. “Intestinal malrotation”. Latin American Society For Pediatric Radiology (Combined with Chilean Radiological Society) La Serena, Chile, October 9-11, 1999

Daneman A. “Intussusception controversies related to diagnosis and reduction”. “Ultrasound of the thyroid in children and adolescents”. “Imaging of the postoperative abdomen in children”. “Complications of therapy in pediatric oncology patients”. 45th Argentine Congress Of Radiology Buenos Aires, Argentina, October 11-15, 1999

Daneman A. “Malrotation- appearances, techniques and pitfalls in diagnosis”, “Hyperechoic renal pyramids - spectrum related to etiology”. “Imaging of the acute abdomen in children”. “Imaging of acute and chronic renal transplant failure”. “CT and MR of the genitourinary tract in children”. “Imaging of the postoperative abdomen in children”. “Disappearing masses in fetuses, neonates and infants”. Crianca 2000 International Congress Of Pediatric Specialties, Curitiba, Brasil, May 17-20, 2000

Daneman A. 2000 “Disappearing masses in fetuses, neonates and infants”. 37th Congress of The European Society For Pediatric Radiology And 23rd Post-Graduate



Course Lisbon, Portugal, May 22-26,

Daneman A. “Neonatal Abdominal Ultrasound” “Disappearing Masses in Pediatric”

Daneman A. “Adnexal Masses - Neonatal, Adolescent”, Women's Imaging: Advances in Gynaecological Imaging and Transvaginal Ultrasound Continuing Education, Faculty of Medicine, University of Toronto, February 2000.

Daneman A. “Ultrasound of the Head” Neonatal Intensive Care Nurse Practitioners, The Hospital for Sick Children, March 17, 2000.

Daneman A. Pre-examination Review for R4 Radiology Residents, March 22, 2000. Lecture: Abdominal Imaging.

Daneman A. “Is the Upright Abdominal Radiograph of Any Benefit?” Emergency Department Grand Rounds, The Hospital for Sick Children, March 23, 2000.

Khan A, Williams T, Manson D, Baskin K. “Pediatric Oncology CD-ROM in Body Imaging” Funding/ Support: Sheridan College, The Hospital For Sick Children (Department of Radiology) April 2000, SPR and CAR.

Hanbidge A. Sonomorphology of adnexal masses – Is it cancer or is it benign? Organ Imaging Review Course. Toronto, Ontario, Canada. October 1999.

Hanbidge A. Refresher Course. Practical tips in US: Abdomen. The peritoneal space. Annual Meeting of the Radiological Society of North America. Chicago, Illinois, U.S.A. December 1999.

Hanbidge A. Adnexal masses in the adult. Women’s Imaging: Advances in Gynecological Imaging and Transvaginal Ultrasound Course. Toronto, Ontario, Canada. February 2000.

Hanbidge A. Co-presenter, Workshop. Adnexal masses and ovarian cancer screening. Women’s Imaging: Advances in Gynaecological Imaging and Transvaginal Ultrasound Course. Toronto, Ontario, Canada. February 2000.

Hanbidge A. Ultrasound of the pancreas. Michener Institute of Technology. Toronto, Ontario, Canada. February 2000.

Hanbidge A. Ultrasound of the liver. Michener Institute of Technology. Toronto, Ontario, Canada. February 2000.

Hanbidge A. Co-presenter. What’s new in abdominal imaging for the gastroenterologist. Citywide University of Toronto Gastroenterology Rounds. Toronto, Ontario, Canada. June 2000.

Hanbidge A. Ultrasound of pancreatic transplants. Annual Joint Conference CAR, CAMRT, CSDMS. Toronto, Ontario, Canada. June 2000.

Hanbidge A. Co-presenter, CAR Quiz. Annual Joint Conference CAR, CAMRT, CSDMS. Toronto, Ontario, Canada. June 2000.

Herman S. Creation of a software application for the clinical radiologist. Healthcare Information Management System Society 2000. Dallas, Texas, U.S.A. April 9-13, 2000.

Ichise M. Past, present and future of brain SPECT. Functional Brain Imaging Seminar. Gifu, Japan. August 3, 1999.

Ichise M. Neurological applications of dopamine receptor agents. Greater New York and New England Chapters of the Society of Nuclear Medicine Meeting. Philadelphia, Pennsylvania, U.S.A. November 5, 1999.

Ichise M, Devous M Sr, Van Heertum RL. Refresher Course. Perfusion brain imaging. Radiological Society of North America. Chicago, Illinois, U.S.A. December 3, 1999.

Ichise M. Continuing education course. SPECT brain imaging practicum (advanced). 47<sup>th</sup> Society of Nuclear Medicine Annual Meeting. St. Louis, Missouri, U.S.A. June 3-7, 2000.

Jong RA. Breast Imaging. Clinical Imaging for Physics Scientists Course. Department of Medical Biophysics, University of Toronto, Sunnybrook Health Science Centre, Toronto, Ontario, Canada. February 7, 2000.

Kachura JR. Interventional radiology of the thorax. Organ Imaging Review. University of Toronto, Toronto, Ontario, Canada. October 4, 1999.

Kachura JR. Investigation and management of gastrointestinal bleeding. Organ Imaging Review. University of Toronto, Toronto, Ontario, Canada. October 5, 1999.

Kachura JR. Live demonstration. Iliac venous stenting. Sixth Annual Interventional/Vascular Radiology Course. University of Toronto, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada. November 5, 1999.

Kachura JR. Live demonstration. Iliac artery stenting for dissection. Sixth Annual Interventional/Vascular Radiology Course. University of Toronto, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada. November 6, 1999.

Kachura JR. Peripheral vascular disease/lower extremity occlusive disease. Boston Scientific Conquest 2000 Meeting. San Diego, California, U.S.A. January 28-29, 2000.

Kachura JR. Percutaneous transluminal angioplasty - clinical experience. Boston Scientific Conquest 2000 Meeting. San Diego, California, U.S.A. January 28-29, 2000.

Kachura JR. End stage renal disease/hemodialysis access management. Boston Scientific Conquest 2000 Meeting. San Diego, California, U.S.A. January 28-29, 2000.

Kassel E. Visiting Professor. Pathology of the internal auditory canal and cerebellopontine angle cistern. Department of Medical Imaging, University of Alberta, Edmonton, Alberta, Canada. February 24-25,2000.

Kassel E. Visiting Professor. Imaging of central skull base pathology. Department of Medical Imaging, University of Alberta, Edmonton, Alberta, Canada. February 24-25,2000.

Kassel E. Visiting Professor. An approach to sinonasal mass lesions. Department of Medical Imaging, University of Alberta, Edmonton, Alberta, Canada. February 24-25,2000.

Keller A. Skull base imaging. CAMRT Conference 2000. Toronto, Ontario, Canada. June 10, 2000.

MacDonald C. "Spinal Ultrasound", Advanced Pediatric Ultrasound, The Michener Institute, March 2000

Manson D. Course Chairperson. Neuhauser/Kirkpatrick Society Meeting (Northeast Pediatric Radiological Society), Toronto, Ontario, September 1999.

Manson D. Paediatric Medical Update I Plain Film Radiography. "Child Maltreatment", Toronto, Ontario, October 1999.

Manson D. "Chronic or Recurrent Pneumonia in Children". Organ Imaging Review Course, University of Toronto, Toronto, Ontario, October 1999.

Manson D. “Imaging of Pediatric Blunt Thoracic Trauma, Chronic or Recurrent Pneumonia in the Child, and An Approach to Congenital Abnormalities of the Pediatric Chest”. Visiting Professor, McGill University, Montreal, Quebec, February 2000.

Manson D. “Pediatric Chest Ultrasound. Advanced Pediatric Ultrasound”, Second Annual Course, The Michener Institute for Applied Health Sciences, Toronto, Ontario, March 2000.

Manson D. “Pediatric Emergency X-rays”. North York General Hospital Emergency Medicine Update 2000, Toronto, Ontario, June 2000.

Merchant N. MRI of the thoracic aorta. Organ Imaging Review. University of Toronto, Toronto, Ontario, Canada. September 1999.

Merchant N. MR angiography: An introduction. CAR/CAMRT. Toronto, Ontario, Canada. June 2000.

Merchant N. MRA applications in the new millennium. Canadian Association of Radiologist Meeting. Toronto, Ontario, Canada. June 2000.

Merchant N. Mini symposium. Real time radiology. Electronics and beyond. Canadian Association of Radiologist Meeting. Toronto, Ontario, Canada. June 2000.

Montanera W. Visiting Professor. Radiologist role in 2000. Imaging and Intervention of Stroke. Ottawa, Ontario, Canada. January 20 & 21, 2000.

Muradali D. Sonography of the breast. Canadian Association of Radiology, Canadian Association of Medical Radiation Technologists, Canadian Society of Diagnostic Medical Sonographers Combined Conference. Toronto, Ontario, Canada. June 2000.

Muradali D. Ultrasound artifacts: Friend or foe. Canadian Association of Radiology, Canadian Association of Medical Radiation Technologists, Canadian Society of Diagnostic Medical Sonographers Combined Conference. Toronto, Ontario, Canada. June 2000.

Otsubo H, Chuang S, Rutka J, Snead C. “Clinical application of MEG in children with epilepsy”. 51st American Academy of Neurology Annual Meeting , April 17-24 1999, Toronto, Canada.

Rappaport DC. Clinical advantages of multi-slice CT. GE Medical Systems Multi-Modality Seminar. Toronto, Ontario, Canada. October 1, 1999.

Rappaport DC. CT of lung cancer. Organ Imaging Review 1999. University of Toronto, Toronto, Ontario, Canada. October 5, 1999.

Rappaport DC. Clinical advantages of multi-slice CT. GE Medical Systems Multi-Modality Seminar. Vancouver, British Columbia, Canada. October 22, 1999.

Rappaport DC. Why multi-slice CT and recent advances in CT. St. Paul's Hospital, Vancouver, British Columbia, Canada. October 22, 1999.

Rappaport DC. Multi-slice CT and approach to pulmonary embolic disease. Grand River Hospital, Kitchener, Ontario, Canada. January 20, 2000.

Rappaport DC. Abdominal CT for the chest radiologist. Society of Thoracic Radiologists Annual Meeting. San Diego, California, U.S.A. March 15, 2000.

Rappaport DC. Multi-slice CT. Principles, applications and technique. Winnipeg Health Science Centre, Winnipeg, Manitoba, Canada. April 4, 2000.

Rappaport DC. Multi-slice CT and CT colonography. Update in General Surgery 2000. Toronto, Ontario, Canada. April 28, 2000.

Rappaport DC. State-of-the-art thoracic imaging. Annual Educational Retreat for Pulmonologists. McKellar, Ontario, Canada. June 3, 2000.

Salem S. First trimester ultrasound. Organ Imaging Review. University of Toronto CME Course. Toronto, Ontario, Canada. October 3-7, 1999.

Salem S. First trimester sonography. Women's Imaging: Advances in Gynaecological Imaging and Transvaginal Ultrasound. University of Toronto CME Course. Toronto, Ontario, Canada. February 18-20, 2000.

Salem S, Murphy J. Workshop. Adnexal masses and ovarian cancer screening.

Women's Imaging: Advances in Gynaecological Imaging and Transvaginal Ultrasound. University of Toronto CME Course. Toronto, Ontario, Canada. February 18-20, 2000.

Salem S. The role of ultrasound in the management of thyroid nodular disease. Current Concepts in the Management of Thyroid Nodular Disease and Cancer. University of Toronto CME Course. Toronto, Ontario, Canada. June 1-2, 2000.

Salem S. Medico-Legal Symposium. Can you defend yourself? – A mock trial. Canadian Association of Radiology Annual Meeting. Toronto, Ontario, Canada. June 11, 2000.

Shuckett B. Acute Abdomen in Pediatrics. "Advanced Pediatric Ultrasound", Second Annual Course, Michener Institute for Applied Health Sciences, Toronto, Ontario, March 2000.

terBrugge K. Endovascular management of aneurysms, acute stroke, brain arteriovenous malformations, dural AVFs, and spinal vascular lesions. 1<sup>st</sup> congress South African Interventional Neuroradiology Peer Review Group. Kruger Park, South Africa. September 9-12 1999.

terBrugge K. Pediatric interventional neuroradiology, current status and future perspectives. World Congress of Pediatric Neurosurgery. Martinique. November 27-December 4, 1999.

terBrugge K. Endovascular management small size brain arteriovenous malformations. The Toronto experience. Olivecrona Symposium. Karolinska Institute, Stockholm, Sweden. December 9-10, 1999.

terBrugge K. Brain AVM management, the Toronto experience, 1984-1999. ABC/WIN Course Val d'Isère, France. January 15-20, 2000.

terBrugge K. Imaging for therapeutic decision making. Scientific Symposium on Brain AVM, ASITN Annual Meeting. New Orleans, Louisiana, U.S.A. February 7, 2000.

terBrugge K. Imaging and the role of endovascular treatment of Vein of Galen malformations, pediatric brain AVMs and aneurysms, acute stroke of arterial and venous causes. FLENI Annual Course on Interventional Neuroradiology. Buenos Aires, Argentina. April 25-28, 2000.

terBrugge K. Imaging and endovascular treatment of acute stroke. Canadian Association of Radiology Annual Meeting. Toronto, Ontario, Canada. June 11, 2000.

terBrugge K. Endovascular horizons in cerebrovascular disease. Canadian Congress of Neurological Sciences Annual Meeting. Ottawa, Ontario, Canada. June 13-17, 2000.

terBrugge K. Natural history of intracranial aneurysms. 1<sup>st</sup> Annual Neuroradiology Symposium. Toronto, Ontario, Canada. June 23-24, 2000.

Toi A. 1) The fetal brain and spine. 2) Bring your cases to an expert. 3) Bright echoes in the fetus – What to do. 4) Debate: 3D of the early fetus – diagnostic or dilettante? Obstetrical Ultrasound: From Conception to Delivery. CME University of Saskatchewan, Saskatoon, Saskatchewan. October 22-23, 1999.

Toi, A. The 18-week routine obstetrical scan. Fifth Ultrasound Conference in the Rockies. Banff, Alberta, Canada. April 8, 2000.

Toi, A. The prostate. Fifth Ultrasound Conference in the Rockies. Banff, Alberta, Canada. April 8, 2000.

White L. Osteoid producing tumours of bone. Organ Imaging Review Course. University of Toronto, Toronto, Ontario, Canada. October 1999.

Williams T. “Infantile Multicentric Myofibromatosis” Neuhauser/Kirkpatrick Society Meeting (Northeast Pediatric Radiological Society) September 16, 1999

Williams T. “Abdominal Masses” The Michener Institute for Applied Health Sciences  
March 12, 2000

Williams T. “Evaluation of Contrast-Enhanced Sonography with Harmonic Imaging in Experimental Acute Pyelonephritis in Piglets”. Research Day, Medical Imaging, University of Toronto, Mt. Sinai Hospital, April 12, 2000

Willinsky RA. Variable causes of myelopathies. 14<sup>th</sup> Annual Organ Imaging. University of Toronto, Toronto, Ontario, Canada. October 1999.

Willinsky RA. Decision making regarding feasibility of GDC treatment in patients with aneurysmal subarachnoid hemorrhage. 3<sup>rd</sup> Annual Investigators Meeting of The Interventional Subarachnoid Aneurysm Trial. Oxford, England. November 19, 1999.

Willinsky RA. Carotid-cavernous fistula. Periocular region of the eye – what is important for the general ophthalmologist. Department of Ophthalmology, University of Toronto, Inn on the Park, Toronto, Ontario, Canada. December 3, 1999.

Willinsky RA. Management of pediatric AVMs. Joint Meeting of the AANS/CNS Section and the ASITN. New Orleans, Louisiana, U.S.A. February 8, 2000.

Willinsky RA. Angioarchitecture of spinal arteriovenous malformations. Neurosurgical Rounds. Barrow Neurological Institute, Phoenix, Arizona, U.S.A. May 19, 2000.

Willinsky RA. Decision making and complication avoidance: Aneurysm treatment by GDC. 1<sup>st</sup> Neuro-Radiology Symposium. Toronto, Ontario, Canada. June 23-24, 2000.

Willinsky RA. Presurgical embolization of spinal vascular lesions: Pitfalls. Neuro-Radiology Symposium. Toronto, Ontario, Canada. June 23-24, 2000.

Wilson SR. The acute abdomen of hollow visceral origin. Diagnostic Ultrasound in Obstetrics and Gynecology and Abdomen. Annual Johns Hopkins Ultrasound Conference. Baltimore, Maryland, U.S.A. September 1999.

Wilson SR. Nongynecologic applications of transvaginal sonography. Diagnostic Ultrasound in Obstetrics and Gynecology and Abdomen. Annual Johns Hopkins Ultrasound Conference. Baltimore, Maryland, U.S.A. September 1999.

Wilson SR. Ultrasound contrast agents: their use in the evaluation of focal liver masses. Diagnostic Ultrasound in Obstetrics and Gynecology and Abdomen. Annual Johns Hopkins Ultrasound Conference. Baltimore, Maryland, U.S.A. September 1999.

Wilson SR. Micro bubbles contrast agents for liver mass evaluation: the Toronto experience. Liver Days-Portofino 1999. Portofino-Rapallo, Italy. October 10-13, 1999.

Wilson SR. Up to Date Diagnostic Imaging in Liver Diseases with Practical Tutorials. Liver Days-Portofino 1999. Portofino-Rapallo, Italy. October 10-13, 1999.



Wilson SR. Ultrasound Refresher Course. Liver imaging - ultrasound contrast agents and pulse inversion imaging. Radiological Society of North America. Chicago, Illinois, U.S.A. November 1999.

Wilson SR. The adnexal mass: Is it benign or malignant? Advanced Ultrasound Techniques in Obstetrics and Gynecology, 12<sup>th</sup> Annual Review Course. Phoenix, Arizona, U.S.A. November 11-13, 1999.

Wilson SR. Non-gynecological applications of vaginal sonography. Advanced Ultrasound Techniques in Obstetrics and Gynecology, 12<sup>th</sup> Annual Review Course. Phoenix, Arizona, U.S.A. November 11-13, 1999.

Wilson SR. Right lower quadrant pain: Not always appendicitis. Advanced Ultrasound Techniques in Obstetrics and Gynecology, 12<sup>th</sup> Annual Review Course. Phoenix, Arizona, U.S.A. November 11-13, 1999.

Wilson SR. Biliary sonography: A modern perspective. Diagnostic Imaging Compendium. Vail, Colorado, U.S.A. January 30-February 4, 2000.

Wilson SR. The acute abdomen of hollow visceral origin: Sonographic assessment. Diagnostic Imaging Compendium. Vail, Colorado, U.S.A. January 30-February 4, 2000.

Wilson SR. Liver mass characterization: Sonomorphology and doppler characteristics. Diagnostic Imaging Compendium. Vail, Colorado, U.S.A. January 30-February 4, 2000.

Wilson SR. Adnexal mass: Is it cancer or is it benign? Diagnostic Imaging Compendium. Vail, Colorado, U.S.A. January 30-February 4, 2000.

Wilson SR. Good indications for doppler in gynecologic sonography. Diagnostic Imaging Compendium. Vail, Colorado, U.S.A. January 30-February 4, 2000.

Wilson SR. Enhancement with Levovist and pulse inversion imaging. 18<sup>th</sup> Annual Practical Radiology at Whistler 2000. Whistler, British Columbia, Canada. February 6-11, 2000.

Wilson SR. Biliary imaging: The complementary roles of Ultrasound and MRI. Abdominal Radiology Postgraduate Course 2000. The Society of Gastrointestinal Radiologists & The Society of Uroradiology. Kauai, Hawaii, U.S.A. March 12-17, 2000.

Wilson SR. Pearls and pitfalls in ultrasound interpretation: The bowel. Preliminary Program, AIUM (American Institute of Ultrasound in Medicine). San Francisco, California, U.S.A. April 2-5, 2000.

Wilson SR. Improved liver mass characterization and detection using microbubble contrast agents with pulse inversion imaging. Preliminary Program, AIUM (American Institute of Ultrasound in Medicine). San Francisco, California, U.S.A. April 2-5, 2000.

Wilson SR. The acute abdomen: Sonographic assessment. Northeastern Ohio Ultrasound Society. Garfield Heights, Ohio, U.S.A. May 15, 2000.

Wilson SR. Ultrasound contrast agents: Their impact on liver mass characterization and detection. Northeastern Ohio Ultrasound Society. Garfield Heights, Ohio, U.S.A. May 15, 2000.

Wilson SR. Liver contrast imaging-specificity is the key. The Leading Edge in Diagnostic Ultrasound. Department of Radiology, Thomas Jefferson University Hospital and the Office of Continuing Medical Education, Jefferson Medical College, Atlantic City, New Jersey, U.S.A. May 23-26, 2000.

Wilson SR. Ultrasound contrast agents - their role in the characterization and detection of liver masses. Partnerships in Medical Vision, Canadian Association of Radiology Annual Meeting. Toronto, Ontario, Canada. June 10-14, 2000.

Wilson SR. Non-gynecologic applications of transvaginal ultrasound. Partnerships in Medical Vision, Canadian Association of Radiology Annual Meeting. Toronto, Ontario, Canada. June 10-14, 2000.

## **AWARDS AND SPECIAL RECOGNITION**

Blaser SI, Jay V, Otsubo H, Chuang SC. Magna Cum Laude. Disorders of cortical formation. Scientific Exhibit, American Society of Neuroradiology, 37th Annual Meeting, San Diego, May 1999

## **RESEARCH PROGRAM**

Research is an important mission of the Department of Medical Imaging. The Department supports research through several projects, involving contributions to the salary of a small number of faculty, shared access to certain resources, and an annual forum for highlighting research accomplishments. A synopsis of each of these projects is presented below. Also listed below are research grants held by Department members and the publications and teaching efforts of those faculty who are not listed under one of the affiliated hospitals.

### **Protected Research Time**

Protected Research Time allows a select group of radiologists to devote at least one day each week to a particular research project. This initiative is managed by the Protected Research Time Committee, which was chaired by Dr. Michael Wood and includes Dr. Alan Daneman, Dr. Joel Rubenstein, and Dr. Robert Willinsky as members. The radiologists listed in the table below were awarded Protected Research Time in 1999-2000.

<b>Award Holder</b>	<b>Hospital</b>	<b>Project Title</b>
Dr. Andrew Common	SMH	Uterine Artery Embolization for Symptomatic Fibroids: Initial Results of a Multicentre Trial
Dr. Richard Farb	S&WCHSC	Evaluation of Intracerebral Arterial Venous Malformations Using a First Pass Gadodiamide Enhanced MR Angiographic Technique
Dr. Masanori Ichise	UHN	SPECT/PET Imaging of Dopamine Transporters In Healthy Humans and Patients with Parkinson's Disease
Dr. Naeem Merchant	UHN	MRA of Peripheral Vascular Disease
Dr. Derek Muradali	UHN	Echogenic Ovarian Foci, Phase II: Physical Basis in Normal Ovaries, Clinical Significance in Ovarian Masses
Dr. Marilyn Ranson	HSC	Detection of Steroid Induced Changes in Bone Marrow Fat Content and Perfusion Using MRI
Dr. Lawrence White	UHN	MR Imaging in the Evaluation of the Post Operative Meniscus
Dr. Tara Williams	HSC	Comparison of Total Body Echo-Planar Imaging vs. Conventional Methods in the Staging of Neoplasms Especially Neuroblastoma

HSC: Hospital for Sick Children

S&WCHSC: Sunnybrook and Women's College Health Sciences Centre

UHN: University Health Network

### **Faculty Research Award**

In addition to the Protected Research Time program, the Department provided support

to allow Dr. David Mikulis, Dr. Shi-Joon Yoo, and Dr. Stephanie Wilson to devote 50% of their time to research.

### **RSNA Resident/Fellow Research Award**

The RSNA Research and Education Fund offers an Award annually to recognize and encourage outstanding residents and fellows in radiology research. The Award is for one resident or fellow in each training program in North America who is deemed to have participated meaningfully in research during the previous year. Dr. Mayank Goyal was unanimously selected for the Award.

### **Research Day**

Our Research Day, which was held on April 12, 2000, consisted of presentations from senior residents, the faculty who received Protected Research Time, and other members of the Department. An excerpt from the Program for Research Day is included later in this Report.

### **PET Centre, Centre for Addiction and Mental Health**

The University of Toronto Positron Emission Tomography (PET) Centre is under the direction of Dr. Sylvain Houle. Investigations concentrate on schizophrenia, mood and anxiety disorders, cognitive neuroscience, aging and dementia, movement disorders, and PET methodology. In the realm of psychiatry, ongoing work is directed at elucidating the role of serotonin in schizophrenia and depression. The interaction of the dopamine and serotonin systems is of particular interest for the understanding of the current treatment of schizophrenia and for the development of new antipsychotic therapy. A special focus of interest is the investigation of optimal treatment with typical and atypical antipsychotic medications and the understanding of the brain mechanisms underlying antidepressant drugs.

Collaboration between the Rotman Research Institute, the Department of Psychology at the University of Toronto and the Centre for Addiction and Mental Health has continued in the field of cognitive neuroscience, and particularly memory research.

The PET Methodology Group is actively pursuing the development of new PET radiotracers for the dopamine and serotonin systems. The radioligands will provide new tools for the investigation of these neurotransmitter systems in health and disease. Over the last year, the Centre has developed a new PET radioligand for the serotonin transporter which will allow us to study selective serotonin reuptake inhibitors, one of the main class of drugs used to treat depression.

Construction has started on a new advanced PET tomograph as a result of the CFI and OIT award to the University of Toronto Functional Imaging Research Network. Installation is expected next summer.

### **Imaging/Bioengineering Research, S&WCHSC**

Much of the Department's research occurs under the auspices of Imaging/Bioengineering Research at Sunnybrook and Women's College Health

Sciences Centre. Several faculty in the Department make use of exceptional resources in conducting research involving X-ray, nuclear medicine, magnetic resonance, and ultrasound technology. The success of this research effort is demonstrated by the grants and publications listed below.

### **Faculty**

(Academic Rank as of July 1, 1999)

John A. Rowlands	Professor	Senior Scientist, S&WCHSC
Martin J. Yaffe	Professor	Senior Scientist, S&WCHSC
Sylvain Houle	Associate Professor	Director, PET Centre Centre for Addiction and Mental Health
Michael L. Wood	Associate Professor	Director, Research Program Senior Scientist, S&WCHSC
Curtis B. Caldwell	Assistant Professor	Physicist, S&WCHSC
Gaylene Pron	Assistant Professor	Epidemiologist

S&WCHSC: Sunnybrook and Women's College Health Sciences Centre

## **Grants**

Members of the Department of Medical Imaging (underlined) were investigators on the following grants, identified by the principal investigator, other investigators, project title, sponsor, total amount of grant, and start and end dates of the funding period.

Black SE, Levine BT, Picton TW, Stuss DT, Winocur G, Alain C, Bronskill M, Caldwell C, Craik F, Moscovitch M, Szalai J, Tulving E: Multidisciplinary approach to brain-behaviour relations in aging, dementia, and frontal damage, Medical Research Council Group Grant, \$1,293,630, 1998-2003.

Boyd NF, Yaffe MJ, + 4 other investigators: Mammographic densities and risk of breast cancer in Singaporean Chinese women, Canadian Breast Cancer Research Initiative, \$98,413, 2000–2001.

Boyd NF, Yaffe MJ. A twin study of mammographic densities, Canadian Breast Cancer Research Initiative, \$137,166, 1999-2000.

Boyd NF, Yaffe MJ. An explanatory clinical trial of breast cancer prevention – London, Vancouver, Windsor Sites, Canadian Breast Cancer Research Initiative, \$400,818, 1999-2000.

Boyd NF, Yaffe MJ. An explanatory clinical trial of breast cancer prevention – London, Vancouver, Windsor Sites, Canadian Breast Cancer Research Initiative, \$949,718, 2000–2003.

Boyd NF, Yaffe MJ. An explanatory clinical trial of breast cancer prevention, Ontario Ministry of Health \$437,937, 1999-2000.

Boyd NF, Yaffe MJ. Mammographic densities and risk of breast cancer, National Institutes of Health/National Cancer Institute, US \$336,022, 1999–2002.

Boyd NF, Yaffe MJ. The Effect of Diet on Change in Mammographic Densities at Menopause, American Institute for Cancer Research, US \$113,771, 2000–2002.

Boyd NF, Yaffe MJ. The epidemiology of breast tissue at increased risk of cancer: mammographic features and breast cancer risk, Canadian Breast Cancer Research Initiative, \$243,398, 1998–2000.

Boyd NF, Yaffe MJ. The molecular epidemiology of breast tissue at increased risk of breast cancer, Susan G. Komen Breast Cancer Foundation, US \$245,739, 1999–2002.

Caldwell CB, Ung YC, Mah K. Incorporating gamma camera coincidence images in CT-based radiotherapy planning for lung cancer, Canadian Cancer Society Feasibility Grant, \$34,808, 2000-2001.

DaSilva J, Guttman M, Houle S. PET imaging of hemiparkinsonian patients with D1 agonist R-[11C]SKF 82957, Parkinson Foundation of Canada, \$120,000, 1998-1999.

Henkelman RM, Bronskill MJ, Burns PN, Foster FS, Plewes DB, Rowlands JA, Wright GA, Yaffe MJ. Medical imaging for cancer, National Cancer Institute of Canada – Terry Fox Program Project, \$4,647,735, 1996–2001.

Houle S, Vaccarino F. Depth-Encoded Advanced Research Tomograph, Canada Foundation for Innovation (CFI) \$1,450,000 and Ontario Innovation Trust (OIT) \$1,450,000. [PET component of a larger grant entitled “University of Toronto Functional Imaging Network (FIRN)”, Stuss D (PI) totalling \$10,700,000 from each of CFI and OIT].

Kennedy SH, Houle S. A comparative positron emission tomography study of 5HT2 receptors in patients with major depression (before and after treatment) and in healthy volunteers, Medical Research Council of Canada, \$152,270, 1997-1999.

Kroll R, DeNil L, Houle S. An [15O] H<sub>2</sub>O PET study of brain activity in stuttering: differences from normal speech and changes following treatment, Medical Research Council of Canada, \$626,000, 1997-1999.

Narod S, Yaffe MJ, + 9 other investigators: Mammographic density and risk of hereditary breast cancer, National Institutes of Health/National Cancer Institute, US \$231,628, 1999–2001.

Plewes DB, Wood ML, et al.. The Centre for Research using magnetic resonance at S&WCHSC, Medical Research Council of Canada Multi-user maintenance grant, \$447,945, 1999-2002.

Pritchard K, Plewes DB, Yaffe MJ, + 27 other investigators: Sunnybrook & Women’s College Comprehensive, Multidisciplinary Breast Cancer Research Centre, Canada Foundation for Innovation, \$4,500,000, 2000–2004.

Pritchard K, Plewes DB, Yaffe MJ, + 27 other investigators: Sunnybrook & Women’s College Comprehensive, Multidisciplinary Breast Cancer Research Centre, Ontario Innovation Trust (CFI match), \$4,500,000, 2000–2004.

Rowlands JA, Robert N. Image guided optimization of X-ray cardiac angiography, Medical Research Council of Canada, \$219,891, 1999-2002.

Tritchler DL, Yaffe MJ. Effect of coffee, caffeine and methylxanthines and CYP1A2 activity, Canadian Breast Cancer Research Initiative, \$62,985, 1998-2000.

Tumer TO, Yin S, Yaffe MJ. Improved X-ray image detector systems for digital mammography, US Army Breast Cancer Research Program, US \$336,000, 1997–2000.

Warner E, Plewes DB, Yaffe MJ, + 6 other investigators: The role of magnetic resonance imaging and ultrasound in the surveillance of women at high risk for hereditary breast cancer, Canadian Breast Cancer Research Initiative, \$53,797, 2000–2001.

Warner E, Plewes DB, Yaffe MJ, + 7 other investigators: Pilot study to assess imaging modalities for surveillance of premenopausal women who carry a hereditary breast cancer gene, Canadian Breast Cancer Research Initiative, \$287,920, 1997–2000.

Wood ML, Plewes DB. Development of MR imaging to measure arterial pulse pressure and vessel distension, Medical Research Council of Canada, \$227,563, 2000–2003.

Wood ML. Slice thickness encoding with wavelets in MRI, National Science and Engineering Research Council, \$81,890, 1997–2001.

Yaffe MJ et al.. Ontario Centre of Excellence in Breast Cancer Imaging Research, Ontario R&D Challenge Fund, \$4,351,690, 2000–2004.

Yaffe MJ, Plewes DB. Computer-intelligent enhancement and display of digital mammograms, Canadian Breast Cancer Research Initiative, \$275,301, 1999–2002.

Yaffe MJ, Plewes DB. Digital stereomammography, Canadian Breast Cancer Research Initiative, \$201,046, 1996–2000.

Yaffe MJ, Rowlands JA, Tumer TO, Yin S, Kasap SO. Amorphous selenium detector for digital mammography, National Institutes of Health/National Cancer Institute, US \$1,022,428, 2000–2003.

Yaffe MJ. Breakthrough solid state detector technology for digital mammography, National Medical Testbed, US \$356,205, 1999–2000.



## **Publications**

### ***(a) Peer-Reviewed:***

Bernstein MP, Caldwell CB, Antonyshyn OM, Ma K, Cooper PW, Ehrlich LE. Spatial and temporal registration of CT and SPECT images: Development and validation of a technique for in vivo 3D quantitative analysis of bone. J Nucl Med June 2000; 41: 1075-1081.

Blevis IM, Hunt DC, Rowlands JA. Measurement of X-ray photogeneration in amorphous selenium in the diagnostic imaging range. Journal of Applied Physics August 1999; 85: 7958-7963.

Boyd NF, Lockwood G, Martin L, Knight JA, Jong RA, Fishell E, Byng JW, Yaffe M, Tritchler DL. Mammographic densities and risk of breast cancer among subjects with a family history of this disease. JNCI 1999; 91:1404-1408.

Cabeza R, Anderson ND, Mangels JA, McIntosh AR, Houle S, Tulving E. Age-related changes in regional cerebral blood flow associated with item and temporal-order memory retrieval. Brain and Cognition 1999; 39(1):42-47.

Caldwell CB, Ehrlich LE. Outpatient treatment of thyroid cancer using high doses of Iodine 131. Canadian Association of Radiologists Journal October 1999; 50: 331-336.

Chia YH, Wood ML, Leung W, Plewes DB. Aortic wall motion monitoring by 1-D MRI of perpendicular diameters. J Magn Reson Imag September 1999; 10(5): 833-840.

Cunningham CH, Wood ML. Design of multiband selective RF pulses in MRI. Magn Reson Med. September 1999; 42:577-584.

DaSilva JN, Schwartz RA, Greenwald ER, Lourenco CM, Wilson AA, Houle S. Dopamine D1 agonist R-[11C]SKF 82957: synthesis and in vivo characterization in rats. Nucl Med Biol 1999; 26(5):537-542.

Davis KD, Taub E, Duffner F, Lozano AM, Tasker RR, Houle S, Dostrovsky, JO. Activation of the anterior cingulate cortex by thalamic stimulation in patients with chronic pain: a positron emission tomography study. J Neurosurg 2000; 92(1):64-69.

Haus AG, Yaffe MJ. Screen-film and digital mammography - Image quality and radiation dose considerations. Radiologic Clinics of North America 2000; 38:871-898.

Kasap SO, Rowlands JA. Photoconductor selection for digital flat panel X-ray image detectors based on the dark current. Journal of Vacuum Science and Technology January 2000; A18: 615-620.

Kasap SO, Rowlands JA. Properties of stabilized Se for use in flat panel X-ray imaging detectors, *Journal of Non-crystalline Solids* January 2000; 266-269: 1163-1167.

Knight JA, Martin LJ, Greenberg CV, Lockwood GA, Byng JW, Yaffe MJ, Tritchler DL, Boyd NF. Macronutrient intake and change in mammographic density at menopause: results from a randomised trial. *Cancer Epidemiol Biomarkers Prev.* 1999; 8:123-128.

Lobaugh NJ, Caldwell CB, Black SE, Leibovitch FS, Swartz RH. Three brain SPECT region-of-interest templates in the elderly: Normative values, hemispheric asymmetries, and a comparison of single and multi-head cameras. *J Nucl Med* January 2000; 41: 45-56.

Pang G, Rowlands JA. Electronic portal imaging with an avalanche-multiplication based video camera. *Medical Physics* April 2000; 27: 676-684.

Pisano ED, Yaffe MJ, Hemminger BM, Hendrick RE, Niklason LT, Maidment ADA, Kimme-Smith CM, Feig SA, Sickles EA, Braeuning MP. Current status of full-field digital mammography. *Academic Radiology* 2000; 7:266-280.

Wilson AA, Garcia A, Li J, DaSilva JN, Houle S. Analogues of WAY 100635 as radiotracers for in vivo imaging of 5-HT<sub>1A</sub> receptors. *J Labelled Compd Radiopharm* 1999; 42(7):611-620.

Wilson AA, Ginovart N, Schmidt M, Meyer JH, Threlkeld PG, Houle S. Novel radiotracers for imaging the serotonin transporter by positron emission tomography: synthesis, radiosynthesis, and in vitro and ex vivo evaluation of <sup>11</sup>C-labeled 2-(phenylthio) araalkylamines. *J Med Chem* 2000;43(16): 3103-3110.

Wilson AA, Houle S. Radiosynthesis of carbon-11 labelled N-methyl-2-(arylthio) benzylamines: Potential radiotracers for the serotonin reuptake receptor. *J Labelled Compd Radiopharm* 1999; 42(13):1277-1288

Yin S, Tumer TO, Maeding D, Mainprize JG, Mawdsley GE, Yaffe MJ and Hamilton WJ. Hybrid direct conversion detectors for digital mammography. *IEEE Transactions on Nuclear Science* 1999; 46:2093-2097.

### ***(b) Books or Book Chapters***

Boyd NF, Martin L, Lockwood G, Greenberg C, Tritchler DL, Byng JW, Yaffe M. Dietary fat and breast cancer risk. In: Fentiman IS (ed). Breast Cancer. Oxford: Blackwell Science, 1999, pages 42-55.

Feig SA, Yaffe MJ. Clinical prospects for full-field digital mammography. In: Seminars in Breast Disease 1999. Chapter 2, pages 64-73.

Kasap SO, Rowlands JA. Chalcogenide glasses in imaging In: Punit Boolchand (ed). Insulating and Semiconducting Glasses, World Scientific Press, 2000.

Rowlands JA, Yorkston J. Flat panel detectors for digital radiography. In: Beutel J, Kundel, HL, Van Metter, RL (eds). Medical Imaging. Volume 1 Physics and Psychophysics, Bellingham: SPIE, 2000. Chapter 4, pages 223-328.

Shtern F, Winfield D, et al. Report of the working group on digital mammography, digital displays and workstation design. *Academic Radiology* 1999. 6 (Suppl. 4) Pages S197-218.

Yaffe MJ. Digital mammography. In: Seibert JA, Filipow LJ, Andriole KP (eds). Practical Digital Imaging and PACS. AAPM Medical Physics Monograph No. 25. Madison: Medical Physics Publishing 1999, pages 177-223.

Yaffe MJ. Digital Mammography. In: SPIE Medical Imaging Series, 2000, Vol. 1.

## **Original Scientific Papers**

### **(a) Peer-Reviewed:**

Cunningham CH, Wood ML. Multiband encoding. ISMRM Eighth Scientific Meeting and Exhibition. Denver, Colorado, March 27, 2000.

DaSilva JN, Lourenco CM, Hussey D, Cheung K, Wilson AA, Houle S. In vivo brain mapping of the cAMP-specific phosphodiesterase-4 inhibitor R-[C-11]-rolipram in healthy human subjects. *J Cereb Blood Flow Metab* 1999;19(S1): S344.

DaSilva JN, Schwartz RA, Hussey D, Cheung K, Wilson AA, Houle S. Human PET imaging with the dopamine D1 agonist R-[C-11]-SKF 82957. *J Cereb Blood Flow Metab* 1999;19(S1): S332.

De Nil LF, Kroll RM, Houle S. Searching for the neural basis of stuttering treatment outcome: Recent neuroimaging studies. 7<sup>th</sup> Annual Conference of the International Clinical Phonetics and Linguistics Association. Montreal, Canada, May, 1999.

De Nil LF, Kroll RM, McIntosh AR, Houle S. Neural effects of intensive treatment of stuttering in adults: A PET investigation. Annual Conference of the American Speech-Language-Hearing Association. San Francisco, CA, November, 1999.

De Nil, LF, Kroll, RM, Houle, S. Cerebellar activation in stuttering speakers: observation from recent neuroimaging studies. Annual Conference of the American Speech-Language-Hearing Association. San Francisco, CA, November, 1999.

Hunt DC, Lui B, Rowlands JA. An experimentally validated theoretical model of avalanche multiplication X-ray noise in amorphous selenium. Medical Imaging 2000: Physics of Medical Imaging, Proc. SPIE 2000:3977: 106-116.

Jones C, Kapur S, Zipursky RB, Remington G, Shammi CM, Houle S. Antipsychotic action with low D-2 occupancy: A study of quetiapine. Schizophrenia Research 1999; 36(1-3): 242.

Kroll, RM, De Nil, LF, Houle, S. Towards a scientific understanding of stuttering and treatment: PET scan studies. Annual Conference of the American Speech-Language-Hearing Association. San Francisco, CA, November, 1999.

Lourenco CM, DaSilva JN, Wilson AA, Houle S. Metabolism of the phosphodiesterase-4 inhibitor R-[11C] rolipram in rat plasma and brain. J. Label. Comp. Radiopharm. 1999;42:S663-S665.

Macgowan CK, Wright GA, Stainsby JA, Wood ML. Pulse wave velocity. ISMRM Eighth Scientific Meeting and Exhibition. Denver, Colorado, March 27, 2000.

Meyer JH, Kapur S, Houle S, DaSilva J, Eisfeld B, Brown GM. Prefrontal cortex 5-HT<sub>2</sub> receptors in depression. Biological Psychiatry 1999; 45(8S): 127S.

Pron G, Common A, Sniderman K, Bell S, Bennett S, Bennett J, Asch M, Vanderburgh L. Uterine artery embolization for symptomatic fibroids: treatment, complications, recovery and satisfaction of women participating in a multi-centre clinical trial. Society for Minimally Invasive Therapy, 11<sup>th</sup> Annual Scientific Meeting. Boston, Massachusetts. September 18, 1999.

Pron G, Common A, Sniderman K, Bell S, Bennett J, Garvin G, Kozak R, Vanderburgh L, Asch M, Simons M, Mocarski E, Vilos G. Surgical conversions post uterine artery embolization: interim results in an Ontario multi-centre trial. Society of Obstetricians and Gynecologists of Canada, Annual Clinical Meeting. Montreal, Quebec. June 20, 2000.

Pron G, Common A. Treatment Failures Post Uterine Artery Embolization – A Matter of Biology or Human Factors? Twelfth Annual International Symposium on Endovascular Therapy (ISET), Miami Beach, Florida. January 27, 2000.

Pron G, Common A. Treatment failures post uterine artery embolization – a matter of biology or human factors? Twelfth Annual International Symposium on Endovascular Therapy (ISET). Miami Beach, Florida. January 27, 2000.

Pron G, Simons M, Common A, Sniderman K, Bell S, Bennett J, Vanderburgh L. Uterine artery embolization for symptomatic fibroids: sarcoma, pregnancy and other reasons for treatment relapse or failure. Society for Minimally Invasive Therapy, 11<sup>th</sup> Annual Scientific Meeting. Boston, Massachusetts. September 18, 1999.

Pron G. Multi-centre trials – are they worth the effort? National Conference on Uterine Fibroid Embolization, Society Cardiovascular Interventional Radiology, Virginia. October 23, 1999.

Pron G, Simons M, Sniderman K, Common A, Bell S, Bennett J, Asch M, Vanderburgh L. Technique preferences and short-term success in a multi-centre clinical trial of uterine artery embolization for fibroids. Society for Minimally Invasive Therapy, 11<sup>th</sup> Annual Scientific Meeting. Boston, Massachusetts. September 18, 1999.

Rowlands JA, Ji WG, Zhao W, Lee DL. Direct conversion flat panel X-ray imaging: reduction of noise by presampling filtration. Medical Imaging 2000: Physics of Medical Imaging, Proc. SPIE 2000; 3977: 446-455

Silvestri S, Seeman MV, Negrete JC, Houle S, Shammi CM, Remington GJ. Dopamine D-2 upregulation and 5HT(2) downregulation measured after neuroleptic withdrawal using PET. Schizophrenia Research 1999; 36(1-3): 247.

Silvestri S, Seeman MV, Negrete JC, Houle S, Shammi CM, Remington GJ, et al. Increase in dopamine D-2 receptor binding following long-term treatment with neuroleptics in humans. Schizophrenia Research 2000; 41(1): 237-238.

***(b) Non-Reviewed:***

Bloomquist A, Augustine B, Pawluczyk O, Mawdsley GE, Yaffe MJ. Estimating breast density using a volumetric technique and full-field digital mammograms - preliminary results. 5th International Workshop on Digital Mammography. Toronto, Ontario, June, 2000.

De Nil, LF, Kroll, RM, Houle, S. Searching for neural mechanisms underlying fluency treatment outcome: Recent neuroimaging findings. Oxford University, London, England. July, 1999.

Ford NL, Mainprize JG, Yin S, Tümer T, Gordon EE, Hamilton WJ, Yaffe MJ. Comparison of different detector materials for digital mammography. 5th International Workshop on Digital Mammography. Toronto, Ontario, June, 2000.

Leduc B, Yaffe MJ, Jong RA, Mawdsley GE, Shumak R. Using a 3-D visualization system to target microcalcifications with greater accuracy. 5th International Workshop on Digital Mammography. Toronto, Ontario, June, 2000.

Mainprize JG, Ford NL, Yaffe MJ. Characterizing the performance of solid state detectors for digital mammography. 5th International Workshop on Digital Mammography. Toronto, Ontario, June, 2000.

Pisano ED, Cole EB, Major S, Hemminger BM, Muller KE, Johnston RE, Brown ME, Conant E, Fajardo LL, Feig SA, Yaffe MJ, Williams MB, Niklason LT, Maidment ADA,

Braeuning MP, Rosen E, Soo MS, Walsh R, Williford M, Kopans DB, Chakraborty D, Jong R, Shumak R, Staiger M, Moore RH. Accuracy of digital mammography vs. screen-film mammography in a diagnostic mammography population. 5th International Workshop on Digital Mammography. Toronto, Ontario, June, 2000.

Shen SZ, Mawdsley G, Yaffe M. Digital mammography quality assurance automation. 5th International Workshop on Digital Mammography. Toronto, Ontario, June, 2000.

Shen SZ, Mawdsley G, Yaffe M. Telemammography for breast screening. 5th International Workshop on Digital Mammography. Toronto, Ontario, June, 2000.

Williams MB, Niklason L, Yaffe MJ, Mawdsley G, Maidment ADA, Chakraborty D, Kimme-Smith C. Beam optimization for digital mammography. 5th International Workshop on Digital Mammography. Toronto, Ontario, June, 2000.

Yaffe, MJ. Digital mammography: update course in technical aspects of breast imaging. RSNA. Chicago, December, 1999.

## **Invited Papers and Professorships**

Caldwell CB. Integrating hybrid FDG-PET images in radiotherapy planning. Annual Meeting of the Canadian Society of Nuclear Medicine, Mt. Tremblant, Quebec, April 2000.

Caldwell CB. Integration of PET with CT for radiotherapy guidance. Molecular Imaging: Improve Your Practice Now Meeting, John Hopkins University School of Medicine, Baltimore, Maryland, March 2000.

Houle S. Imaging the 5-HT1A receptors with PET: WAY 100635 and analogues. Meeting organized within the COST Project Serotonin 5-HT1A Receptor Imaging in the Human Brain with PET. Coordination and the Standardization and Dissemination of Methodology, Karolinska Institute, Stockholm, October 1999.

Pron G. Uterine fibroid embolization- the Ontario Multi-Center Trial, progress and directions. Department Radiology Research Seminar. St Joseph's Health Science Center, London, Ontario. November 10, 1999.

Pron G. Pain issues in fibroid embolization for uterine fibroids. Wasser Pain Management Center Rounds, Mount Sinai Hospital, Toronto, Ontario. November 17, 1999.

Pron G. Methodological issues in clinical trials involving competitor health technologies - the case of uterine artery embolization versus surgery. Seminar and Faculty Rounds. Department of Public Health Sciences, University of Toronto, Toronto, Ontario. February 10, 2000.

Pron G. Surgical conversions post uterine fibroid embolization. Department Rounds. Department of Obstetrics and Gynecology. Sunnybrook and Women's Health Science Center. March 17, 2000.

Yaffe MJ. Harold Johns Memorial Symposium. 41<sup>st</sup> Annual Meeting of The American Association of Physicists in Medicine, Nashville, TX July 25, 1999.

Yaffe MJ. The design of full field digital mammography systems. 41<sup>st</sup> Annual Meeting of The American Association of Physicists in Medicine, Nashville, TX July 25, 1999.

Yaffe MJ. Detectors for digital mammography. Imaging 2000, Stockholm, Sweden June 28, 2000.

**Teaching**

Hours of Lectures

<b>Faculty Member</b>	<b>Students</b>	<b>Residents, Fellows, Faculty</b>	<b>Technologists</b>
C.B. Caldwell	0	30	6
S. Houle	20	15	20
G. Pron	12	40	0
J.A. Rowlands	2	2	0
M.L. Wood	3	6	0
M.J. Yaffe	10	38	0



## **Annual Research Day**

Date: Wednesday, April 12, 2000

Location: Sadowski Auditorium, 18th floor of the Mount Sinai Hospital

Starting Time: 1:30 pm with welcome from Dr. Walter Kucharczyk

Residents, Fellows, and Faculty

Moderator: Dr. David Mikulis

1:35	Chris Guest	Normal Appearance of Arachnoid Granulations in the Dural Venous Sinuses on Contrast-Enhanced CT
1:47	Tarang Sheth	Rotational Changes in the Morphology of the Vertebral Artery: Correlation with the Site of Artery Dissection
1:59	Mark Fruitman	Interobserver Agreement in the Diagnosis of Renal Colic using Helical CT
2:11	Korosh Khalili	Focal Nodular Hyperplasia: Confirmatory Diagnosis with Microbubble Contrast Agents?
2:23	Ofer Benjaminov	The Rate of Visualization and Features of the Normal Appendix on Helical CT - Examination Without Intravenous or Bowel Opacification
2:35	Mayank Goyal	Embolization of Small (< 3cm) Brain Arteriovenous Malformations: Correlation of Angiographic Results to a Proposed Angioarchitecture Grading System
2:47	Gaylene Pron	Surgical Conversions Following Post-Uterine Fibroid Embolization - Are We Still OK?
2:59	John Clark	Hereditary Hemorrhagic Telangiectasia: Mesenteric Duplex Ultrasound Screening for Vascular Malformations of the Liver
3:11	Rene Shumak	MRI Surveillance of Women at High Risk for Hereditary Breast Cancer: Preliminary Results
3:23	Murray Asch	Radiofrequency Ablation of Liver Tumours

3:35 Break

Faculty with Protected Time for Research

Moderator: Dr. Michael Wood

4:00	Andrew Common	Interim Results of the Ontario UFE Trial
4:12	Mas Ichise	Differential Diagnosis of Parkinsonism using Dopamine Transporter and D2 Receptor SPECT
4:24	Naeem Merchant	MR Oximetry: Development of Tools for a Functional Measure of Ischemic Heart Disease
4:36	Richard Farb	Evaluation of Intracerebral Arterial Venous Malformations using a First Pass Gadodiamide Enhanced MR Angiographic Technique
4:48	Derek Muradali	Echogenic Ovarian Foci Caused By Cysts: The Physical Basis
5:00	Tara Williams	Comparison of Total Body Echo-Planar Imaging vs. Conventional Methods in the Staging of Neoplasms Especially Neuroblastoma
5:12	Larry White	Prospective Comparison of Conventional MR, Indirect MR-Arthrography and direct MR-Arthrography in the Diagnosis of Recurrent Meniscal Tears
5:24	Stephanie Wilson	Hilar Biliary Obstruction: The Utility of Levovist Delayed Sonography
5:36	David Mikulis	A Simple, Effective Method to Control End Tidal PCO2 for Mapping MRI Cerebrovascular Reactivity
5:48	Shi-Joon Yoo	Gadolinium-Enhanced 3-Dimensional MR Angiography in Children

## **RESIDENT TRAINING PROGRAM**

### **General description**

There were 49 residents in our program in the 1999-2000 year. The five-year program consists of one year of preliminary clinical training (PGY1), followed by four years of training in medical imaging.

### **PGY1**

Clinical training is divided into two blocks, one eight-nine month block at core teaching hospitals and a two-three month block at a community hospital. During 1999-2000, the core teaching hospitals have been Mount Sinai Hospital and St. Michael's Hospital. Community training is principally done at North York General Hospital. The content of the PGY1 program included three months of Medicine (General Medicine, Respiriology, and Neurology); four months of Surgery (General Surgery, Orthopaedics, Urology, Obstetrics and Gynaecology); one month of Paediatrics; one month of Anatomy at the University of Toronto Anatomy Department; and two months of elective choices. In the final month of the PGY1 year, all residents come together for a Radiology Orientation Program, which introduces the trainees to physics, imaging equipment, clinical lectures, program issues and the core hospitals. The PGY1 rotation opportunities are reviewed annually, attempting to make the best of training choices in the clinical services.

### **PGY2**

This is the first year of training in medical imaging. During 1999-2000, a PGY2 trainee spent the entire year at one of the three core teaching Departments (Mount Sinai – University Health Network, Sunnybrook and Women's College Health Sciences Centre or St. Michael's Hospital). There is a graduated increase in responsibility over the course of the year as well as close assessment of progress by one group of educators. In order to prepare residents to take night call (which starts in September), the year begins with a 10 week introductory program covering thoracic, GI, GU, CNS, MSK, CT and nuclear imaging. The remainder of the year consists of one or two month rotations in each of the above organ systems, as well as a one-month rotation in ultrasound.

### **PGY3**

In 1999-2000, residents in this training year divided their rotations into two to nine month blocks at hospitals different from that of their PGY2 training year. This allows the trainee an opportunity to see a different spectrum of pathology and to work with a different group of faculty. Rotations during the PGY3 year have included Breast Imaging, Neuroradiology, Ultrasound, Vascular-Interventional, and Nuclear Medicine as well as additional training in CT, MSK, GI and Chest.

### **PGY 4**

During this year, each resident spent a four-month block in Paediatric Radiology at the

world famous Hospital for Sick Children. The other eight months is at one or two of the core hospitals. This year includes a two-month block of dedicated Angio-Interventional training. The resident also has four to six months of General Radiology rotations. The Armed Forces Institute of Pathology (AFIP) six-week rotation for Radiology-Pathology is scheduled during the General radiology time.

### **PGY5**

The resident is usually allowed to use this year for electives, but this is conditional upon the resident having achieved an acceptable standard of competence in medical imaging. It may be spent concentrating on areas of relative weakness, or on subspecialty areas. Most residents include electives in cardiac imaging and MRI in this final year.

### **Armed Forces Institute of Pathology**

All residents are encouraged to attend the Armed Forces Institute of Pathology in Washington, D.C., where they receive a six-week, intensive, didactic course in pathology correlated to imaging. This generally occurs during the PGY4 year. Some financial support is available. To date, we have been successful in reserving a sufficient number of positions at AFIP to permit all of our residents to attend at some point in their training.

### **Physics Instruction**

All residents must be knowledgeable about the physics of medical imaging. To that end, intensive physics instruction is provided. One week courses are provided for the PGY1 and PGY3 years and there is also a five-day review course in the PGY3 or PGY4 year of training. These courses are organized by Martin Yaffe, Ph.D. (Department of Medical Imaging) and taught by the faculty of our department, the faculty of the Department of Medical Biophysics, and guest speakers.

### **Conferences**

Residents are encouraged to attend imaging conferences, both to be involved in presenting papers or posters and also for the benefit of knowledge and interaction with the imaging community at large. During the PGY3 year, each resident is given the opportunity to attend a major imaging conference with the provision of financial support. The resident is not required to present at the conference to receive this support but does prepare a report following the meeting to highlight what they gained in their attendance. In addition, residents presenting papers or posters at recognized meetings generally receive financial support through affiliations with hospital imaging departments.

### **Seminars and Half-Day Program**

Wednesday afternoons from September to June have been the focus for the academic program. There is a formal two to three hour weekly clinical seminar for PGY1, PGY2 and PGY3 residents. Most seminars are organized around organ systems and imaging

modalities.

As well, there are special sessions for all resident years on non-clinical topics such as ethical and legal issues, practice management and career planning. Speakers from outside the Department add interest to the content of these featured sessions.

A 10 hour review series is provided for PGY5 residents each spring in preparation for the ABR and Royal College examinations.

### **Research**

Residents in Medical Imaging are required to have a good foundation of research methodology and critical appraisal in order to either critically evaluate scientific medical literature or pursue independent research activities. Principles and issues of health technology assessment, quality improvement and clinical audits are also core components of the clinical research curriculum. The department's epidemiologist, Dr. Gaylene Pron, who is responsible for the design and delivery of the course curriculum, organizes workshops, tutorials and lectures on these topics. Instruction in this curriculum is given throughout the Residency Program. In total, residents in Medical Imaging receive over 30 hours of course instruction.

Each resident is required to become involved in a research project beginning no later than the PGY3 year. All residents receive protected time to work on their project. The research is conducted in conjunction with one or more staff persons with a view to presenting the project during the PGY4 or PGY5 years at our Annual Research Day. The residents are encouraged to publish their results and to present them at national or international meetings.

### **Rounds**

Teaching rounds, or small group conferences, are held at each of the core hospitals once or twice a day. University Division rounds are held for the entire department six to eight times annually at a central location.

### **View box Teaching**

Every resident in the PGY2 through to the PGY5 years receives daily teaching from faculty at the view box and in the procedure rooms. Teaching is based on the day's cases, but may be supplemented with related cases from faculty teaching files. The amount of teaching varies from rotation to rotation but on average there are one to two hours of this type of one-to-one teaching daily. This program is widely recognized for the quality of teaching provided to residents. In addition, residents learn to teach others and are expected to teach students and observers in the Department.

### **Journal Club**

This is organized by the residents and is held approximately five times annually.

### **Visiting Professor Program**

This program of six lectures between October and April is organized by the CME

Director of our department and is provided for all imaging specialists including community radiologists. Residents attend the lecture and reception. Visiting Professors from outside Toronto usually present resident teaching sessions at two or three of the teaching hospitals during their visits to Toronto.

### **Organ Imaging Review Course**

This is a week-long, internationally recognized review course. It is given in September or October of each year. It is primarily intended as a CME course for practicing radiologists but also contains a wealth of valuable teaching material for residents. All residents are given some time off clinical services to attend, and can do so at no cost.

### **Program Evaluation**

In addition to that carried out by the Radiologists-in-Chief and the teaching co-ordinators at each hospital, the residents complete an assessment of each rotation, and an annual assessment of the faculty's teaching.

### **Program Supervision**

This is the direct responsibility of the Program Director who is, in turn, responsible to the Departmental Chair and the Departmental Executive Committee. The Program Director is assisted by the Resident Training Committee, which is composed of a representative from each of the teaching hospitals, a PGY1 coordinator responsible for all PGY1 issues, as well as from Nuclear Medicine and the Research Committee. In addition, the University of Toronto Chief Resident in Medical Imaging and a resident representative from each year of training are full members of the committee.

There are Division Heads appointed for Cardiothoracic, Musculoskeletal, Abdominal, Pediatric, Vascular-Interventional, Breast Imaging and Neuroradiology. These Division Heads and the Program Director for Nuclear Medicine are responsible for rotation goals and objectives, suggested reading lists and recommendations regarding the resident lectures and seminars. Division Heads advise the Program Director and Resident Training Committee.

### **Resident Evaluations**

Evaluation consists of the following:

- An in-training evaluation completed following each rotation.
- A summary in-training evaluation at the end of each year of training.
- Results of the American College of Radiology multiple choice in-training examination, taken in the spring of each year.
- Results of a yearly oral examination based on the Royal College format (PGY2-5).
- Results of a written examination in physics following the PGY1 and PGY3 courses.
- A practice OSCE examination in the spring of each year (PGY3-5).

## **Resident Awards**

Outstanding residents are recognized by awards for clinical excellence, teaching and research.

### **1) *Gordon Potts Award:***

This award of a commemorative plaque is made to the outstanding final-year resident, based on a combination of the following academic and personal strengths: Interpersonal skills, willingness to explore new methods and ideas, dedication to patient service and academic activities, intellectual capacity and publications in residency.

1999-2000 winner: Dr. Raymond Chan

### **2) *Resident Teacher-Mentor Award:***

This award will be made to a final year graduating resident, based on a combination of the following strengths and contributions: dedication to teaching, resident advocate and mentor, contribution to Resident Program and commitment to personal continuing educational growth.

1999-2000 winner: Dr. Louis Wu

### **3) *Research Awards:***

Each year a second-year resident is nominated to attend the RSNA/AUR/ARRS program entitled 'Introduction to Research'.

1999-2000 winner: Dr. Godfrey Kim

Each year residents as well as fellows are nominated to receive the RSNA Research Award for Research excellence within the University of Toronto Department of Medical Imaging.

## **Summary**

The University of Toronto training program in Medical Imaging is designed to provide the best possible training in all aspects of imaging. The program is an intensive one, with considerable emphasis on teaching, in addition to exposure to a huge volume of clinical pathology. The university-wide integration and rotational system ensures that each resident will have access to all of the strengths of our departments.

## **NUCLEAR MEDICINE TRAINING PROGRAM**

### **General Description**

Nuclear medicine is a branch of medical practice primarily concerned with the use of unsealed radioactive sources in the study, diagnosis, and treatment of disease. Our program currently provides dual-certification in radiology and nuclear medicine. This is a six year (including PGY1) program with two years of subspecialty training in nuclear medicine (provided that the subspecialty training is taken following the completion of at least 18 months in Diagnostic Radiology, effective June 1, 1998).

The Nuclear Medicine Program provides formal instruction and training for both radiology and nuclear medicine residents. Formal lectures cover various aspects of nuclear medicine including cardiac and oncologic nuclear medicine, functional neuroimaging, radiopharmacy, nuclear physics, and general nuclear medicine. Residents have specific goals, objectives and reading lists during their rotation at one of the teaching hospitals. There are weekly or biweekly teaching rounds for both radiology and nuclear medicine residents at these hospitals. Also, there are city-wide nuclear medicine rounds held every Friday morning at the Hospital for Sick Children. The residents acquire skills by participating in daily clinical work. Didactic instruction is supplemented by teaching files at each hospital. In addition, there are monthly teaching rounds during the academic year at Mount Sinai Hospital. These rounds are given by internationally renowned guest speakers, who also present evening lectures on current topics in nuclear medicine at the Toronto Nuclear Medicine Society Meeting.

The Nuclear Medicine Program is actively involved in clinical and basic science research including functional neuroimaging with SPECT and PET, cardiac, oncologic, and pediatric nuclear medicine, and radiochemistry. Residents are encouraged to participate in these research activities.

### **General Objectives**

The goal of the nuclear medicine resident is to be able to function independently as a medical specialist with the ability to advise on, supervise, perform, and interpret all diagnostic procedures, and to achieve a level of competence in the performance of radiotherapy with unsealed radioactive sources so as to act as a consultant to referring physicians. The resident must acquire excellent communication and technical skills, and the knowledge and professionalism appropriate to a lifetime career in nuclear medicine.

### **Dual Radiology and Nuclear Medicine Residency**

Applicants will be considered from candidates who are already in the Diagnostic Radiology Training Program at the University of Toronto, usually, one slot per year is reserved for the dual certification program.

## **RADIOLOGY SCIENTIST TRAINING PROGRAM**

### **Objectives**

The purpose of the Radiological Scientist Training Program (RSTP) is to provide a small group of radiology residents with the opportunity to develop skills important to the pursuit of independent research. These skills encompass research methodology, publications, grant writing, and presentations. The research training is intended to complement the excellent clinical training for which the Department of Medical Imaging is already recognized.

### **Organization**

The RSTP is a six-year program with two years of research and four years of clinical training. The Royal College of Physicians and Surgeons of Canada will accept one year of research towards fulfilling the requirements of the five year program in diagnostic radiology. The RSTP is able to accommodate as many as two residents per year. The first two years of the RSTP are identical to the regular radiology training program. The difference is in the PGY3 and PGY4 years which, in the RSTP, are entirely devoted to research. Research opportunities are available in many departments relevant to radiology. Under certain circumstances, residents in the RSTP may pursue a M.Sc. or Ph.D. degree. The final two years, PGY5 and PGY6, are designated for clinical training to fulfil the requirements of the Royal College of Physicians and Surgeons of Canada.

### **Eligibility and Application Procedure**

Applications will be considered from candidates already accepted into the regular radiology training program and will occur during the PGY2 training year. A maximum of two places per year will be reserved for residents in the RSTP. Applicants need not have prior experience in research or a special background, but are expected to be self-motivated.

### **Remuneration**

Residents in the RSTP will be remunerated commensurate with residents in the regular radiology training program, up to a maximum of the PGY5 level.

### **Selection of Research Project and Supervisor**

Residents in the RSTP should select a project and a supervisor as soon as possible, and before the PGY3 year. The Director of Research and the Chair of the department can offer assistance with this selection. A supervisor may be selected from various University of Toronto departments, including Medical Imaging, Medical Biophysics, Anatomy, Physiology, Biochemistry, Computer Science, Clinical Epidemiology, or Electrical Engineering, specifically the Institute of Biomedical Engineering. The supervisor must have operating funds to support the research, but is not expected to provide remuneration for the resident. Candidates will be strongly encouraged also to



apply for a fellowship from an agency such as the Medical Research Council, but acceptance into the RSTP will not be conditional upon success in obtaining such a fellowship.

### **Graduate Degrees**

Residents in the RSTP are encouraged to pursue a graduate degree. The procedure depends somewhat on the department in which the research is to be conducted, but requires a separate application to that department and the School of Graduate Studies or Institute of Medical Sciences. Residents are responsible for fulfilling all requirements of the department in which they are registered as graduate students.

### **Clinical Responsibilities**

During the two years of research training, residents in the RSTP will have minimal clinical responsibilities, probably limited to one on-call evening/night per week. In addition, residents in the RSTP are encouraged to maintain contact with clinical activities through attendance at select departmental rounds and teaching sessions. Such attendance will not be compulsory for RSTP residents in the two research years, as it is for residents in the regular training program.

## **OBJECTIVES OF TRAINING & SPECIALTY TRAINING REQUIREMENTS IN DIAGNOSTIC RADIOLOGY**

### **Definition**

Diagnostic Radiology is a branch of medical practice concerned with the use of imaging techniques in the study, diagnosis and treatment of disease.

### **General Objectives**

On completion of the educational program, the graduate physician will be competent to function as a consultant in Diagnostic Radiology. This requires the physician to have the ability to supervise, advise on and perform imaging procedures to such a level of competence, and across a broad range of medical practice, as to function as a consultant to referring family physicians and specialists.

Communication skills, knowledge, and technical skills are the three pillars on which a radiological career is built, and all are dependent on the acquisition of an attitude to the practice of medicine which recognizes both the need to establish a habit of continuous learning and a recognition of the importance of promoting a team approach to the provision of imaging services.

Residents must demonstrate the knowledge, skills and attitudes relating to gender, culture and ethnicity pertinent to Diagnostic Radiology. In addition, all residents must demonstrate an ability to incorporate gender, cultural and ethnic perspectives in research methodology, data presentation and analysis.

### **Specific Objectives**

At the completion of training, residents will have achieved the following competencies so as to function effectively as:

#### ***i) Medical expert/clinical decision-maker***

##### **General Requirements**

- Demonstrate diagnostic and therapeutic skills for ethical and effective patient care.
- Access and apply relevant information to clinical practice so as to have competence in clinical radiological skills.
- Demonstrate effective consultation services with respect to patient care, education and legal options.

##### **Specific Requirements**

- Understand the nature of formation of all types of radiological images, including physical and technical aspects, patient positioning, contrast media.

- Knowledge of the theoretical, practical and legal aspects of radiation protection, including other imaging techniques and their possible harmful effects.
- Knowledge of human anatomy at all ages, both conventional and multi-planar, with emphasis on radiological applications.
- Knowledge of all aspects of clinical radiology, including understanding of disease, appropriate application of imaging to patients, importance of informed consent, complications such as contrast media reactions, and factors affecting interpretation and differential diagnosis.
- Understand the fundamentals of quality assurance in radiology.
- Understand the fundamentals of epidemiology, biostatistics and decision analysis.
- Show competence in manual and procedural skills and in diagnostic and interpretive skills.
- Demonstrate the ability to manage the patient independently during a procedure, in close association with a specialist or other physician who has referred the patient. The radiologist should know when the patient's best interests are served by discontinuing a procedure, or referring the patient to another physician.
- Understand the acceptable and expected results of investigations/and or interventional therapy as well as unacceptable and unexpected results. This must include knowledge of and ability to manage radiological complications effectively.
- Understand the appropriate follow-up care of patients who have received investigations and/or interventional therapy.
- Show understanding of a sound and systematic style of reporting.
- Competence in effective consultation, conduct of clinico-radiological conferences, and the ability to present scholarly material and lead case discussions.

## ***ii) Communicator***

### **General Requirements**

- Establish appropriate therapeutic relationships with patients/families.
- Listen effectively.
- Obtain the appropriate information during consultation with referring physicians in order to be able to make recommendations regarding the most appropriate testing and/or management of patients.
- Discuss appropriate information with patients/families and the health care team, and be able to obtain informed consent for tests and procedures when this is needed.

### **Specific Requirements**

- Have the ability to produce a radiological report which will describe the imaging findings, most likely differential diagnosis, and when indicated, recommend further testing and/or management.

- Understand the importance of communication with referring physicians, including an understanding of when the results of an investigation or procedure should be urgently communicated.
- Communicate effectively with patients and their families and have a compassionate interest in them.
- Recognize the physical and psychological needs of the patient and their families undergoing radiological investigations and/or treatment, including the needs of culture, race and gender.

### **iii) Collaborator**

#### General Requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

#### Specific Requirements

- Have the ability to function as a member of a multi-disciplinary health care team in the optimal practice of radiology.

### **iv) Manager**

#### General Requirements

- Utilize resources effectively to balance patient care, learning needs, and other activities.
- Allocate finite health care resources wisely.
- Work effectively and efficiently in a health care organization.
- Utilize information technology to optimize patient care, life-long learning and other activities.

#### Specific Requirements

- Be competent in conducting or supervising quality assurance including an understanding of safety issues and economic considerations.
- Be competent in computer science as it pertains to the practice of radiology.

### **v) Health Advocate**

#### General Requirements

- Identify the important determinants of health affecting patients.
- Contribute effectively to improve the health of patients and communities.
- Recognize and respond to those issues where advocacy is appropriate.

#### Specific Requirements

- Understand and communicate the benefits and risks of radiological investigation and treatment including population screening.
- Recognize when radiological investigation or treatment would be detrimental to the health of a patient.
- Educate and advise on the use and misuse of radiological imaging.

**vi) Scholar**General Requirements

- Develop, implement and monitor a personal continuing education strategy.
- Critically appraise sources of medical information.
- Facilitate learning of patients, house staff/students and other health professionals.
- Contribute to development of new knowledge.

Specific Requirements

- Competence in evaluation of the medical literature.
- The ability to be an effective teacher of radiology to medical students, residents, technologists and clinical colleagues.
- The ability to conduct a radiology research project, which may include quality assurance.
- Appreciation of the important role that basic and clinical research plays in the critical analysis of current scientific developments related to radiology.

**vii) Professional**General Requirements

- Deliver highest quality care with integrity, honesty and compassion.
- Exhibit appropriate personal and interpersonal professional behaviours.
- Practice medicine ethically consistent with the obligations of a physician respecting the needs of culture, race and gender.

Specific Requirements

- Be able to accurately assess one's own performance, strengths and weaknesses.
- Understand the ethical and medical-legal requirements of radiologists.

**Training in Canada**

The foregoing represents the general and specific objectives that all candidates for the Royal College examinations in Diagnostic Radiology are expected to meet. For those training in Canadian programs, these objectives will be accomplished in a staged manner. Residents in Canadian programs may obtain the document describing this approach from their program directors.

## **SPECIALTY TRAINING REQUIREMENTS IN DIAGNOSTIC RADIOLOGY**

These specialty training requirements apply to those who began training on or after 1 June 1997.

The five years of approved training require, at first, a closely supervised practice, with the opportunity for increasing responsibility in the final years, so that the resident near the end of training can function as a general radiology consultant, requesting help from staff radiologists when necessary. The residency may be followed by one or more years of fellowship training in a subspecialty discipline, as the residence training is not intended to provide a subspecialty level of expertise.

This period must include:

- 1) one year of basic clinical training.

The purpose of this year is to give the resident a degree of independent responsibility for clinical decisions; an opportunity for further development of the skills required in making effective relationships with patients; the consolidation of competence in primary clinical and technical skills across a broad range of medical practice; and an understanding of the nature of the relationship between a referring physician and a clinical radiological consultant.

- 2a) three years of approved resident training in “general diagnostic imaging”, this must include:

Respiratory, cardiovascular, gastro-intestinal and biliary, genitourinary, musculoskeletal, mammography, neurological and pediatric radiology, as well as the following modalities: fluoroscopy, ultrasound, CT and MR imaging.

Because of the varying training programs in the recognized university training centres, these 36 months may be allocated as block periods of at least three months or their equivalents.

- 2b) one year of approved residency that may consist of one to twelve month periods in any of the following, as long as these are appropriately integrated by the Residency Training Committee.

- further training in diagnostic radiology
- diagnostic ultrasound
- CT
- MR
- nuclear medicine
- cardiac and/or vascular radiology
- interventional radiology
- neuroradiology

- pediatric radiology
- pathology or other clinical specialty relevant to the practice of radiology (for up to three months)
- a full-time research project, relevant to diagnostic imaging, and acceptable to the program director and the Credentials Committee.

**NOTE:** In view of the amount and variety of radiology to be covered and the skills required at the time of the final examination, it will seldom be appropriate to spend the entire 12 months of the fifth year in any one of these areas.

## **RESIDENT RESEARCH PROGRAM**

While training in clinical radiology remains the main focus of the residency, research is considered to be of paramount importance as well. It is essential that residents gain experience in as many aspects of research as possible, including searching the literature, data analysis and manuscript preparation. A resident cannot know if he/she would enjoy an academic career without firsthand experience. The feeling of satisfaction that accompanies completion of a project, and contribution of information to the medical/scientific literature, can only be appreciated if personally experienced.

The Research Program consists of three aspects; a seminar series, resident support, and a formal presentation day.

### **Seminar Series**

Residents in Medical Imaging are required to have a good foundation of research methodology and critical appraisal in order to either critically evaluate scientific medical literature or pursue independent research activities. Principles and issues of health technology assessment, quality improvement and clinical audits are also core components of the clinical research curriculum. Workshops, tutorials, and lectures on these topics are organized by the department's epidemiologist who is responsible for the design and delivery of the course curriculum. Attendance at these sessions is compulsory and instruction of this curriculum is given throughout the Residency Program. In total, residents in Medical Imaging receive over 30 hours of course instruction: PGY1 - full-day workshop on critical appraisal; PGY2 - two, 2-hour workshop sessions on computerized literature searches; PGY3 - six, 2-hour lectures/tutorials on research methodology; PGY4 - four, 2-hour lectures/tutorials on technology assessment, quality assurance and clinical audits. audits.

### **Support**

Department faculty are asked to submit research topics from which residents may choose a project, which he or she finds interesting. The residents are given the opportunity to create their own topic or to choose one from this faculty-generated list. Residents are freed from clinical responsibilities two full days per month for one year for their work. Generally the 12-month period corresponds to a calendar year. Each resident presents a short, informal outline of the intended project to the Resident Research Committee in November of their PGY3 year so that project feasibility can be assessed before too much time has been devoted to it. Helpful suggestions are offered by Committee Members. Data collection for the project begins in January of the PGY3 year and extends to December of the same year. During June, the residents present an interim report, again informal, to the Committee, to confirm that data collection has begun and is progressing satisfactorily. In November/December the residents present a third informal discussion for assessment of project status and to determine if an abstract can be generated for submission to a national/international meeting. It is at this time that the Committee determines if the project is satisfactory. Incomplete studies may be



considered satisfactory depending on the circumstances described by the resident. Finally, the study is presented formally in the following Spring at the Annual Research Day.

### **Presentation Day**

Our 12<sup>th</sup> annual Department of Medical Imaging Research Day held at the Sadowski Auditorium, 18<sup>th</sup> Floor of the Mount Sinai Hospital on April 12, 2000 was the venue for six excellent resident and fellow research presentations. Support for the event was provided by Nycomed Amersham (Canada) Inc. The presentations included:

1.	Chris Guest (resident)	Normal Appearance of Arachnoid Granulations in the Dural Venous Sinuses on Contrast-Enhanced CT
2.	Tarang Sheth (resident)	Rotational Changes in the Morphology of the Vertebral Artery: Correlation with the Site of Artery Dissection
3.	Mark Fruitman (resident)	Inter-observer Agreement in the Diagnosis of Renal Colic using Helical CT
4.	Korosh Khalili (fellow)	Focal Nodular Hyperplasia: Confirmatory Diagnosis with Microbubble Contrast Agents?
5.	Ofer Benjaminov (fellow)	The Rate of Visualization and Features of the Normal Appendix on Helical CT - Examination Without Intravenous or Bowel Opacification
6.	Mayank Goyal (fellow)	Embolization of Small (< 3cm) Brain Arteriovenous Malformations: Correlation of Angiographic Results to a Proposed Angioarchitecture Grading System

While presentation at this meeting is an end unto itself, many of the projects have since been presented at national and international meetings and have been published in peer-reviewed journals. Since the research program was instituted, 56 of the resident's projects have appeared in peer-reviewed journals. Of those not published, many have been presented either orally or as a poster at national/international meetings.

### **Resident Research Awards**

The faculty have observed that the research performed and presented by the residents was of high quality. Some of the residents have received awards recognizing outstanding research, therefore independently confirming the faculty's impressions.

## **UNDERGRADUATE PROGRAM**

### **Year I**

#### ***Anatomy - Radiology Seminars***

A large number of staff from all the teaching hospitals delivered a total of 72 hours of seminars again this year. Anatomy-radiology seminar sessions included: the thorax, abdomen, lumbar spine, pelvis and urinary tract, leg, arm, and head and neck. The seminars are conducted in the Medical Sciences Building, Department of Anatomy.

#### ***Imaging Exhibit***

A multi-panel multi-imaging exhibit concentrating on chest and cardiac imaging was set up and displayed to the first year students during the initial six weeks of their anatomy course. This display is stationed in the Anatomy museum at the Medical Science Building, and emphasizes multidisciplinary imaging, the algorithmic approach to imaging, as well as the economic aspects of modern imaging. Modern modalities such as CT, MRI and nuclear medical studies are included.

#### ***PBL Tutor For Brain and Behaviour Course***

Dr. Bruce Gray provided 48 hours of on-line tutoring time, plus an additional 48 hours of preparation and debriefing time for the tutorials.

#### ***PBL Tutor: Foundations of Medical Practice Course***

Drs. Wayne Deitel and Danny Marcuzzi provided 60 hours of teaching time as a tutor plus an additional 24 hours of preparation for this course.

### **Year II**

#### ***Teaching***

Year II teaching generally centres around the two main programs in the Year II curriculum: The Pathobiology of Disease (the first half of the year), and The Foundations of Medical Practice (the second half of the year).

#### ***The Pathobiology of Disease Course***

The aim of our department is to develop the material and teaching methods that would be appropriate for delivery for this PBL oriented curriculum.

#### ***Radiobiology Lecture***

A full class lecture is given to the Year II students as part of the Pathobiology of Disease Course. This is coordinated by the Department of Medical Biophysics and the coordinator of the Pathobiology of Disease and is given at the beginning of the course. This lecture is complimented by a second full class lecture, given to the Year III students, as part of the Determinants of Disease Course.

#### ***Pathobiology-Imaging Viewer***

A series of images with annotations is exhibited on a viewer opposite the main lecture theatre at the Medical Science Building. The content of this series roughly parallels and/or emphasizes the imaging aspects of the material given in the Pathobiology of

Disease course.

***Full Class Lectures: Chest Imaging***

A full class lecture is given by Dr. S. Herman at the beginning of the Pathobiology of Disease Course. It includes anatomy, physiology, pathophysiology of the lungs and of lung disease, along with numerous imaging examples of common lung diseases.

***Foundation of Medical Practice Course:***

This course has major radiologic input. At least seven Medical Imaging Packages have been assembled by various radiologists for use in the Foundations course. These packages serve to instruct both the PBL tutors and their students, and serve as the basis for small group discussion which are centred at each of the Academy radiology departments.

***Seminars***

*Chest Seminars*

A number of Chest seminars, generated as part of the Year II Foundations course "Respiratory Week" were given on March 30, 2000 at the various teaching hospitals. Up to 10 radiologists served as seminar leaders, with a total teaching time of about 20 hours.

*PBL Foundations of Medical Practice Full Class Teaching*

Dr. David Salonen delivered a full class lecture on the "Essentials of Skeletal Radiology" as part of the Foundations program.

*Pathology Imaging Exhibits*

This series of exhibits demonstrates common radiologic pathology, and serves to emphasize and give examples of the kinds of diseases and processes discussed during the Year II of the new curriculum. Initially designed for the old curriculum, this material compliments the Year II students' learning experience, and has proved very useful to Year I as well as Years III and IV medical students.

*Radiology Case of the Week*

Unknown cases are periodically put up on a viewer in the medical student lounge adjacent to the main lecture theatre. These cases parallel areas of pathology and organ system teaching that is currently being presented to the students. These cases offer the student the opportunity to correlate their knowledge of anatomy, physiology and pathology with diagnostic imaging.

***Year III***

***Elective students***

A significant number of third year University of Toronto medical students took electives in radiology at the various teaching hospitals for the 1999-2000 Academic year.

***Hospital Based Seminars***

As part of the new curriculum, various Year III seminars have been held in the teaching hospitals as part of their Medicine - Surgery block rotation. These include a series of chest seminars, as well as neuroradiology seminars.

## **Year IV**

### ***University of Toronto Electives***

A total of 86 University of Toronto students took an elective in their clerkship year in radiology at the various teaching hospitals.

### ***Visiting Elective Students***

Thirty-nine non-University of Toronto students, many of these overseas foreign students in their senior undergraduate year, took part in visiting electives during the 1999 - 2000 academic year.

### ***Total Undergraduate Elective Students***

More than 125 elective students were taught by the Department of Medical Imaging in this academic year.

### ***Hospital Seminars***

Although somewhat informal, and arranged on a teaching hospital rather than on a university level, a number of senior student seminars are given at the various teaching hospitals. These generally are based on organ system coverage of disease, or coverage of the imaging aspects of cardinal signs and symptoms.

An example of such programs are ones given at St. Michael's hospital to the clinical clerks on the Principles of Chest Radiology. This consists of a series of six one-and one-half hour sessions given by Dr. W.J. Weiser and Dr. A. Zalev. Similar series of Chest Seminars are given to the residents and elective students on the Respiriology service and the Anaesthesiology service during the academic year.

### ***The Bruce Tovee LMCC Review Lectures***

The Undergraduate Committee in radiology has been involved in this review course for some years now. Three hours of radiology review lectures are given to final year medical students. The majority of these are University of Toronto students. However, the review course has been very well received and final year students from McMaster and other local medical schools routinely attend. The program is carried out in the evening at the main lecture theatre of the University. The radiologic content includes:

- i) Musculoskeletal radiology
- ii) Chest radiology
- iii) Gastrointestinal radiology

This program was organized by Dr. David Salonen, with Dr. Nasir Jaffer, and Dr. Daniel Rappaport, and Dr. David Salonen delivering the lectures.

The final year students have had access to a series of notes, the MCCQE Study Guide. The lecture series has undergone a major update and revision under the direction of Dr. David Salonen, and a new series of lecture note is available.

## **Other Teaching Activities**

### ***Physiotherapy Student Seminars***

A series of seminars is given to the physical therapy students at the University of

Toronto. Dr. David Salonen gives a series on Musculoskeletal Imaging at the Wightman Academy, and Dr. William J. Weiser gives a series on Chest Radiology at the Fitzgerald Academy.

### ***Career Sampling Electives in Radiology***

On a somewhat informal basis, undergraduate students, many in Year I, have spent various periods of time, from several days to weeks, in all the teaching hospital radiology departments as part of a career sampling experience.

### ***Undergraduate Teaching Computer File for Radiology***

A comprehensive interactive computerized teaching program, called Radiofile has been developed by the Department of Medical Imaging. This program allows undergraduate students to have a uniform exposure to core radiologic teaching material. The students can access this program either in the various radiology departments, or in the Academy computer laboratories. The program is available centrally, in the computer laboratory in the Medical Sciences Building.

### ***Other Undergraduate Computer Learning Projects***

Many computerized learning projects are underway in the Department of Medical Imaging.

An authoring module had been developed, which allows the easy and rapid preparation of computer based teaching programs for use by our students for self directed learning.

Collaboration is underway in the preparation of a central teaching case registry. This will be databased, and made available via networking and telecommunication to all the Academy radiology departments. Such a core radiology database will further ensure the uniform exposure of core teaching material to our students.

The Department of Medical Imaging, under the authorship of Dr. W.J. Weiser has developed several more interactive radiology teaching programs. One of these, The Radiology of Pneumonia is available for student use at the Fitzgerald Academy.

Other Radiology-interactive teaching computer programs authored by Dr. W.J. Weiser, entitled Cardiovascular Anatomy, and Abnormal Cardiovascular Calcifications are currently available for student use at all the teaching hospitals.

### ***Case of the Month CD Rom***

A prototype series of teaching case material has been presented to the residents on a monthly basis. The material has been initially presented in the form of an interactive computer program and distributed on CD Rom to our residents. This material will be linked to the Department of Medical Imaging site and posted on the Internet.

### ***The Internet and Undergraduate Education in Radiology***

The Department of Medical Imaging has a web site on the internet, and various program descriptions are posted there. There is considerable interest to demonstrate some of the Department of Medical Imaging teaching programs on the internet and to promote the Department of Medical Imaging and computer assisted learning at the University of Toronto.

This Radiology Teaching site has several cases at present demonstrating basic

radiologic material and interesting case material. It is primarily aimed at radiology residents and senior medical students. It will be developed on a continuing basis.

***Practical Radiology: the Chest X-ray***

A bedside teaching manual has been developed by Dr. Fred Lan, and Dr. Robert Yu, in collaboration with Dr. W.J. Weiser. This manual teaches practical chest diagnosis using the plain chest X-ray. We believe it will be a valuable adjunct to clinical diagnosis. It is hoped that this will be available on the Department of Medical Imaging web site in the future.

***Web Based Teaching Profile Database***

A web based database has been developed by Victor Yang (2nd year University of Toronto) and has been in place since May 2000. This is a prototype and further development is underway. This program allows for on line collection of various teaching data including teacher and program evaluation and is a useful vehicle for improving our overall teaching program.

## **ORGAN IMAGING REVIEW**

**October 3 – 7, 1999**

### **Course Description**

This four day course focuses on aspects of primary interest to both radiologists and radiologists-in-training. The course content includes concepts of both review nature and newer concepts of recent advances in medical imaging. Topics include fetal, gynecologic, abdominal, chest, musculoskeletal and spinal imaging. A half day focus session on electronic imaging and PACS is highlighted.

Course Chairman: Walter Kucharczyk, M.D.

Course Director: Daniel Rappaport, M.D.

### **University of Toronto Faculty**

Armstrong, Derek, M.B., B.S. Assistant Professor  
 Atri, Mostafa, M.D. Associate Professor  
 Becker, Edna J., M.D., Associate Professor  
 Bret, Patrice, M.D., Professor  
 Chait, Peter, M.B., B.Ch., Assistant Professor  
 Chung, Dae-Gyun, M.D., Lecturer  
 Cooper, Perry, M.D., Assistant Professor  
 Couch, Gregory, M.A.Sc., Lecturer  
 Christakis, Monique, M.D., Assistant Professor  
 Fong, Katherine, M.B., B.S., Assistant Professor  
 Haider, Masoom, M.D., Assistant Professor  
 Hamilton, Paul, M.D., Assistant Professor  
 Hanbidge, Anthony, M.B., B.Ch., Assistant Professor  
 Herman, Stephen J., M.D., Associate Professor  
 Kachura, John, M.D., Assistant Professor  
 Kucharczyk, Walter, M.D., Professor and Chairman  
 Laughlin, Suzanne, M.D., Lecturer  
 Manson, David, M.D., Assistant Professor  
 Margolis, Myles, M.D., Assistant Professor  
 Merchant, Naeem, M.D., Assistant Professor  
 Montanera, Walter, M.D., Associate Professor  
 Noël de Tilly, Lyne, M.D., Assistant Professor  
 O'Malley, Martin, M.D., Lecturer  
 Ranson, Marilyn, M.D., Assistant Professor  
 Rappaport, Daniel, M.D., Assistant Professor  
 Rubenstein, Joel, M.D., Associate Professor  
 Salem, Shia, M.D., Associate Professor  
 Salonen, David, M.D., Assistant Professor  
 Shulman, Harry, M.D., Professor

Stewart, Lori, M.D., Lecturer  
 terBrugge, Karel, M.D., Professor  
 Toi, Ants, M.D., Associate Professor  
 Weisbrod, Gordon, M.D., Professor  
 White, Lawrence, M.D., Assistant Professor  
 Willinsky, Robert, M.D., Associate Professor  
 Wilson, Stephanie R., M.D., Professor  
 Yoo, Shi-Joon, M.D., Ph.D., Professor

### **Invited Clinical Speakers**

Johnson, Jo-Ann, M.D., Associate Professor  
 Division of Fetal and Maternal Medicine  
 Department of Obstetrics and Gynaecology

Ryan, Greg, M.B., Associate Professor  
 Division of Fetal and Maternal Medicine  
 Department of Obstetrics and Gynaecology

Rosen, Barry, M.D., Associate Professor  
 Division of Gynaecologic Oncology  
 Department of Obstetrics and Gynaecology

### **Guest Faculty**

Gore, Richard M., M.D., Professor and Vice Chairman,  
 Department of Diagnostic Radiology  
 Director, Section of Gastrointestinal Radiology  
 Evanston Hospital – Northwestern University,  
 Evanston, Illinois

Henri, Chris, Ph.D., Assistant Professor  
 Department of Diagnostic Radiology  
 McGill University Health Centre  
 Montreal, Quebec

Reinhold, Caroline, M.D., Associate Professor  
 Department of Diagnostic Radiology  
 McGill University Health Centre  
 Montreal, Quebec



## **6<sup>th</sup> ANNUAL INTERVENTIONAL/VASCULAR RADIOLOGY COURSE**

**November 4 – 6, 1999**

### **Course Description**

This live video course is designed for practicing interventionalists, as well as for residents and fellows pursuing a career in angiography and interventional radiology. The emphasis is on learning by observing live cases and through informal discussion, with limited formal didactic material. Technologists and nurses working in intervention also benefit from the excellent audiovisual presentation and the informal nature of the discussion.

Course Director: Andrew Common, M.D.

Co-Director: Eric Saibil, M.D.

### **Invited Clinical Faculty**

Asch, Murray, M.D., Assistant Professor  
 Bell, Stuart, M.D., Assistant Professor  
 Benko, Andrew, M.D., Assistant Professor  
 Chait, Peter, M.B., B.Ch., Assistant Professor  
 Cheung, Gordon, M.D., Assistant Professor  
 Clark, John, M.D., Assistant Professor  
 Ho, C.S., M.B., B.S., Professor  
 Jaffer, Nasir, M.D., Associate Professor  
 Kachura, John, M.D., Assistant Professor  
 Lossing, Alan, M.D., Assistant Professor  
 Maggisano, Robert, M.D., Assistant Professor  
 Pugash, Robyn, M.D., Assistant Professor  
 Simons, Martin, M.D., Assistant Professor  
 Sniderman, Kenneth, M.D., Associate Professor  
 Stroz, Peter, M.D., Lecturer  
 Thurston, Wendy, M.D., Assistant Professor  
 Vanderburgh, Leslie, M.D., Assistant Professor

### **Guest Faculty**

Dake, Michael, M.D.  
 Chief, Cardiovascular and Interventional Radiology  
 Assistant Professor of Radiology and Medicine  
 Stanford University Medical Center

Katzen, Barry T.  
 Medical Director

Miami Cardiac and Vascular Institute

Machan, Lindsay, M.D.  
Joachim Burhenne Scholar  
in Abdominal Radiology  
University of British Columbia

## INVITED LECTURERS, VISITING PROFESSORS & CITY-WIDE ROUNDS

- |                     |  |
|---------------------|--|
| October 18-19, 1999 | <p>Dr. C. Daniel Johnson<br/>         Department of Radiology<br/>         Mayo Clinic</p> <ul style="list-style-type: none"> <li>• <i>CT colonography: a vision of the future?</i></li> <li>• <i>Benign liver lesions: refining your diagnostic skills</i></li> <li>• <i>Non-ductal pancreatic tumours: unusual neoplasms with specific imaging features</i></li> </ul>                             |
| November 1-2, 1999  | <p>Dr. David G. Disler<br/>         Department of Radiology<br/>         Medical College of Virginia</p> <ul style="list-style-type: none"> <li>• <i>Radiographic evaluation of bone tumours</i></li> <li>• <i>MR imaging of articular cartilage</i></li> <li>• <i>MR imaging of the knee</i></li> </ul>   |
| January 10, 2000    | <p>Dr. Kieran Murphy<br/>         Department of Radiology<br/>         Johns Hopkins Medical Center</p> <ul style="list-style-type: none"> <li>• <i>Vertebroplasty in benign and malignant disease</i></li> </ul>  |
| February 1, 2000    | <p>Dr. Olof Flodmark<br/>         Department of Radiology<br/>         Karolinska University, Stockholm</p> <ul style="list-style-type: none"> <li>• <i>CSF circulation and hydrocephalus—new concepts</i></li> </ul>  |
| March 6-7, 2000     | <p>Dr. W. Dennis Foley<br/>         Department of Radiology<br/>         Froedtert Memorial Lutheran Hospital</p> <ul style="list-style-type: none"> <li>• <i>Hepatic sonography: fundamental/harmonic imaging with conventional and matrix array probes</i></li> <li>• <i>Multidetector row CT: a new paradigm</i></li> <li>• <i>Role of sonography and CT in blunt abdominal trauma</i></li> </ul> |
| April 3-4, 2000     | <p>Dr. Sanjay Saini<br/>         Department of Radiology<br/>         Massachusetts General Hospital</p> <ul style="list-style-type: none"> <li>• <i>CT and MR of liver tumours</i></li> <li>• <i>Contrast enhanced MRI of the liver—what to use, when to use it and how to use it</i></li> <li>• <i>Multislice CT—how it works and what it shows</i></li> </ul>                                     |

May 1-2, 2000

Dr. Igor Laufer  
Department of Radiology  
University of Pennsylvania Medical Center

- *Principles of double contrast diagnosis*
- *Screening for colorectal cancer*
- *A detailed examination of the small bowel*

## **JOURNAL CLUB**

August 26, 1999: Management of intracranial aneurysms: coiling vs. surgery

October 26, 1999: Imaging of pancreatic lesions

January 25, 2000: The use of MR in the evaluation of multiple myeloma

## **MEDICAL IMAGING RESIDENTS**

### **PGY1**

Peter Ballyk, MD ..... University of Toronto, 1999  
 Carrie Betel, MD ..... University of Toronto, 1999  
 Anita Chae, MD ..... University of Western Ontario, 1999  
 Zdenko Filakovic, MD ..... Ontario International Medical Program, 1999  
 Angela Ho, MD ..... University of Toronto, 1999  
 Zeinab Layton, MD ..... University of Western Ontario, 1999  
 Selina Lem, MD ..... Queen's University, 1999  
 Bonnie O'Hayon, MD ..... University of Toronto, 1999  
 Markian Shulakewych, MD ..... University of Manitoba, 1994  
 Steven Singer, MD ..... University of Ottawa, 1998  
 Sameh Tadros, MB, BCh ..... Ontario International Medical Program, 1999  
 Lana Wilkinson, MD ..... McMaster University, 1999

### **PGY2 (R1)**

Frederick Lan, MD ..... University of Toronto, 1998  
 Erika Mann, MD ..... Queen's University, 1998  
 Marc Ossip, MD ..... University of Toronto, 1998  
 Jillian Pugh, MD ..... Dalhousie University, 1998  
 Tarang Sheth, MD ..... University of Toronto, 1998  
 Vincent Shin, MD ..... University of Ottawa, 1998  
 Robert Yu, MD ..... University of Toronto, 1998

### **PGY3 (R2)**

Hilarie Broom, MD ..... University of Ottawa, 1997  
 Elizabeth David, MD ..... University of Toronto, 1997  
 David Jacobs, MD ..... Queen's University, 1996  
 Jae Koul Kim, MD ..... University of Toronto, 1997  
 Teresa Loucks, MD ..... University of Ottawa, 1997  
 Nikunj Patel, MD ..... Queen's University, 1997  
 Anoosh Sharif, MD ..... University of Western Ontario, 1997  
 Nir Stanietzky, MD ..... University of Ottawa, 1997

### **PGY4 (R3)**

Gilbert Chow, MD ..... Queen's University, 1996  
 Mark Fruitman, MD ..... University of Western Ontario, 1996  
 Christopher Guest, MD ..... University of Toronto, 1996  
 James Haroun, MD ..... George Washington University, 1996  
 Soe Lwin Kyone, MD ..... University of Toronto, 1996  
 Angela Luong, MD ..... University of Toronto, 1996  
 Caitlin McGregor, MD ..... University of Toronto, 1996

James Meindok, MD .....University of Toronto, 1996  
 Andrea Miller, MD ..... McMaster University, 1996  
 Angeline Young, MD ..... Dalhousie University, 1996  
 Eugene Yu, MD .....University of Toronto, 1996

**PGY5 (R4)**

Petrina Causer, MD .....University of Toronto, 1995  
 Raymond Chan, M D .....University of Toronto, 1995  
 Eric Engmann, MD .....University of Toronto, 1995  
 Paul Hagen, MD ..... University of British Columbia, 1995  
 Eran Hayeems, MD .....University of Toronto, 1995  
 Anu Kumar, MD .....University of Toronto, 1995  
 Spencer Lister, MD .....University of Toronto, 1995  
 Eulla Tu, MD .....University of Toronto, 1995  
 Andreas von Ritschl, MD .....University of Toronto, 1995  
 Louis Wu, MD ..... McGill University, 1995

## FELLOWSHIP PROGRAM

With access to several thousand inpatient beds, the affiliated hospitals of the University of Toronto form one of the largest teaching facilities in the world, thereby serving as an ideal setting for advanced subspecialty training in Medical Imaging. The program has national and international stature both clinically and in research, and attracts fellows from around the world.

In 1999-2000 the seven divisions of the University of Toronto Department of Medical Imaging offered a comprehensive array of fellowships:

- Body Imaging
- Breast Imaging
- Magnetic Resonance Imaging
- Musculoskeletal Imaging
- Neuroradiology
- Pediatric Imaging
- Thoracic Imaging
- Vascular and Interventional Radiology
- Combined Clinical/Research fellowship

The flexibility of the program permits tailoring of the fellowship experience to accommodate most needs. Research is encouraged as an integral component of the fellowship program and to this end protected research time is available to all Medical Imaging fellows.

### ***1999-2000 Department of Medical Imaging Fellows***

	<i>Before fellowship</i>	<i>After fellowship</i>
<b><i>Body Imaging</i></b>		
Dr. Fayez Alameddine	American University of Beirut	Private practice in Lebanon
Dr. Marianne Amitai	Tel Aviv University	Abdominal Imaging fellowship at University of Toronto
Dr. Giovanni Artho	University Bern Switzerland	Abdominal Imaging fellowship at University of Toronto
Dr. Alan Bau	University of Toronto	Staff, Credit Valley Hospital
Dr. Ofer Benjaminov	Technion Haifa, Israel	Abdominal Imaging fellowship at University of Toronto
Dr. Jane Crossin	Queens University, Belfast	Abdominal Imaging fellowship at University of Toronto
Dr. Chee-Yan Hiew	University of Sydney	Neuroradiology fellowship at University of Toronto
Dr. Carlos de Sequeira	University of Witwatersrand, South Africa	Staff, Markham Stouffville Hospital



	<i>Before fellowship</i>	<i>After fellowship</i>
Dr. Korosh Khalili	University of Ottawa	Staff, Mount Sinai Hospital-University Health Network
Dr. Rose Lee	University of Toronto	York Central and York County Hospitals
Dr. Kevin Lobo	University of British Columbia	Locum at Sunnybrook & Women's College Health Sciences Centre - Sunnybrook Campus
Dr. Mark McClure	Queen's University, Belfast	Return to Northern Ireland
Dr. Sunil Mehta	University of Toronto	Staff, Humber River Regional Hospital
Dr. Elaine O'Riordan	Trinity College Dublin, Ireland	Abdominal Imaging fellowship at University of Toronto
Dr. Miriam Sklair-Levy	Hebrew University-Jerusalem	Women's Imaging fellowship at University of Toronto
<b><i>Thoracic Imaging</i></b>		
Dr. Jane Crossin	Queen's University, Belfast	Abdominal Imaging fellowship at University of Toronto
<b><i>Magnetic Resonance Imaging</i></b>		
Dr. Joseph Murphy	University College Galway Ireland	Consultant Radiologist, James's Hospital, Ireland
<b><i>Musculoskeletal Imaging</i></b>		
Dr. Matthew Lax	University of Toronto	Staff, Mount Sinai Hospital-University Health Network
Dr. Dawn Pearce	University of Western Ontario	Staff, Mount Sinai Hospital-University Health Network
Dr. Philip Robinson	Queen's University, Belfast	Consultant Radiologist, United Kingdom
<b><i>Neuroradiology</i></b>		
Dr. Justin Cross	University of Cambridge	Second year in Neuroradiology fellowship at University of Toronto
Dr. Cheemun Lum	University of Ottawa	Second year in Neuroradiology fellowship at University of Toronto
Dr. Mayank Goyal	All India Institute of Medical Sciences, New Delhi	Clinical Fellow, University of Ottawa
Dr. David Westman	University of Western Ontario	Staff, Medical College of Virginia in Richmond, Virginia
<b><i>Pediatric Imaging</i></b>		
Dr. Pedro Albuquerque	Universidade do Rio de Janeiro	Return to Rio de Janeiro
Dr. Kevin Baskin	Creighton University	Instructor of Radiology, Harvard School of Medicine; Director, Section of Image Guided Therapy, Children's Hospital, Boston
Dr. Ursula Hughes	University of Wales, Cardiff	Staff position in Manchester, United Kingdom

	<b><i>Before fellowship</i></b>	<b><i>After fellowship</i></b>
Dr. Mary-Louise Greer	University of Queensland, Australia	Deputy Director of Paediatric Imaging, Royal Children's Hospital
Dr. Oscar Navarro	Universidad Catolica de Chile	Staff, Clinica Alemana, Santiago, Chile
Dr. Matthias Schmidt	University of Toronto	Staff, IWK Grace Health Centre, Nova Scotia
Dr. Michael Temple	University of Western Ontario	Staff, Hospital for Sick Children
Dr. Karen Thomas	University of Oxford	Return to United Kingdom
<b><i>Vascular/Interventional Radiology</i></b>		
Dr. Ahmed Al Nammi	King Saud University	Staff in Saudi Aramco Medical Service Organization, Saudi Arabia
Dr. Sanjoy Kundu	University of Toronto	Staff, York Central Hospital
Dr. Noel Langhorne	Queen's University	Staff, York County and York Central Hospitals
Dr. William Loan	Queen's University, Belfast	Return to United Kingdom
Dr. Edwin Mercer	Memorial University of Newfoundland	Staff, Western Memorial Hospital, Newfoundland