

Department of Medical Imaging Annual Report 2005-2006

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CHAIR'S REPORT

It is my pleasure to present the 2005-2006 Department of Medical Imaging Annual Report. The past year has been a very successful one for the Department, with continued growth in new faculty and expansion of our research and educational programs. In 2005-2006 nine new faculty members joined our department. Our new members include: Dr. Ronit Agid, Dr. Frederick Au, Dr. Carrie Betel, Dr. Martin Charron, Dr. Pavel Crystal, Dr. David Gianfelice, Dr. Gilbert Hurwitz, Dr. Linda Probyn, and Dr. Roger Smith. We now have over 160 full-time faculty members, as well as 63 fellows and 62 residents.

We continue to have strong educational programs. I am especially grateful to our Program Directors, all of whom have contributed a great deal of their time towards the success of our department: Drs. Timothy Dowdell and Nasir Jaffer (Undergraduate Program), Drs. Walter Montanera and Anthony Hanbidge (Residency Program), Dr. Manohar Shroff (Fellowship Program), and Mostafa Atri (Continuing Education). All of our programs are very strong, and continue to improve, and grow in size.

Our department maintained strong support of its faculty for protected research time. This year, the faculty members with departmentally sponsored research time were:

- Robert Beecroft (High pressure angioplasty balloon vs. non-high pressure balloon; Angioplasty in hemodialysis arteriovenous access stenosis)
- Bairbre Connolly (Evaluating radiation exposures experienced by children undergoing pediatric interventional radiology procedures)
- Andrea Doria (Decision-analytic model for evaluation of tomography diagnostic techniques for appendicitis in children)
- Richard Farb (The dural worm: A sign of previous sinovenous thrombosis - renewed from July 1, 2004-05)
- Hyun-Jung Jang (Evaluation of liver nodules in patients at high risk for hepatocellular carcinoma: Contribution of contrast-enhanced ultrasound)
- Korosh Khalili (Determination of tumor differentiation by CT/MR in hepatocellular carcinoma)
- Tae Kyoung Kim (Focal nodular hyperplasia and hepatic adenoma: Differentiation with contrast-enhanced real-time ultrasound with maximum intensity projection technique)
- Seon Kyu Lee (The evaluation of intracranial atherosclerosis using the BOLD MRI technique)
- Martin O'Malley (Growth rates of hepatocellular carcinoma stratified by size - renewed from July 1, 2004-05)
- Yves Provost (CT coronary angiography - renewed from July 1, 2004-05)
- Dheeraj Rajan (Interventional research/Research in minimally invasive therapy - renewed from July 1, 2004-05)
- Heidi Roberts (Early lung cancer detection using computed tomography - renewed from July 1, 2004-05)
- Manohar Shroff (Normal anatomy, pitfalls and abnormal dural venous sinuses in neonates)
- Kong Teng Tan (CT venography – Evaluate an algorithm to maximize native arteriovenous fistulae (AVF) for hemodialysis access)
- Lawrence White (Quantitative T2 mapping of cartilage transplantation in an animal model - renewed from July 1, 2004-05)
- Stephanie Wilson (Addition of *quantitative* analysis to contrast enhanced ultrasound of the liver)

We are very proud of the excellent teaching in all of our educational programs. Every year we publicly recognize those teachers selected by our trainees as being the most outstanding. Our departmental teaching awards this year were:

Edward L. Lansdown Award for Outstanding Teaching in the Residency Training Program

- Dr. Edna Becker

Outstanding teaching in the residency program

- Dr. Mostafa Atri
- Dr. Edna Becker
- Dr. Robert Bleakney
- Dr. Raymond Chan
- Dr. Dae-Gyun Chung
- Dr. TaeBong Chung
- Dr. Lisa Ehrlich
- Dr. Anthony Hanbidge
- Dr. Nasir Jaffer
- Dr. Andrew Lata
- Dr. Dorothy Lazinski
- Dr. Caitlin T. McGregor
- Dr. Walter Montanera
- Dr. Derek Muradali
- Dr. Oscar Navarro
- Dr. Martin O'Malley
- Dr. Linda Probyn
- Dr. Manohar Shroff
- Dr. Harry Shulman
- Dr. Stephanie Wilson
- Dr. Louis Wu

Outstanding teaching in the fellowship program

- Dr. Mostafa Atri
- Dr. Paul Babyn
- Dr. Edna Becker
- Dr. Robert Bleakney
- Dr. Karina Bukhanov
- Dr. Dae-Gyun Chung
- Dr. Alan Daneman
- Dr. Masoom Haider
- Dr. Anthony Hanbidge
- Dr. Kartik Jhaveri
- Dr. Edward Kassel
- Dr. Korosh Khalili
- Dr. David Manson

- Dr. David Mikulis
- Dr. Walter Montanera
- Dr. Lyne Noël de Tilly
- Dr. Martin O'Malley
- Dr. Kamaldine Oudjhane
- Dr. Sophia Pantazi
- Dr. Charles Raybaud
- Dr. Manohar Shroff
- Dr. Gordon Weisbrod

Achieved distinction for outstanding teaching in both the residency and fellowship programs

- Dr. Mostafa Atri
- Dr. Edna Becker
- Dr. Robert Bleakney
- Dr. Dae-Gyun Chung
- Dr. Anthony Hanbidge
- Dr. Walter Montanera
- Dr. Martin O'Malley
- Dr. Manohar Shroff

The academic promotions this year were (effective July 1, 2006):

Professor -	Dr. Lawrence White
Associate Professor -	Dr. Timothy Dowdell
	Dr. Masoom Haider
	Dr. Martin O'Malley
Assistant Professor -	Dr. Petrina Causer
	Dr. Dorothy Lazinski
	Dr. Yves Provost

I would like to thank Suzanne D'Alvise, Amy Shea, Ayethida Walker and Denese Coulbeck - the administrative staff at the university offices. I greatly appreciate the efforts of the team!

Walter Kucharczyk, M.D., F.R.C.P. (C)
Professor and Chair

DEPARTMENT OF MEDICAL IMAGING - UNIVERSITY OF TORONTO

(as of June 30, 2006)

Chair Kucharczyk, W.
Associate Chair.....Babyn, P.

Radiologists-in-Chief

Hospital for Sick ChildrenBabyn, 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 CentreMoody, A.

Program Directors

Continuing Education Atri, M.
Fellowship Shroff, M.
Neuroradiology Fox, A.
Nuclear Medicine Ehrlich, L.
PGY1 Hambidge, A.
Radiology Residency Montanera, W.
Radiology Residency (Co-Director) Hanbidge, A.
Undergraduate Dowdell, T.
Undergraduate (Co-Director)..... Jaffer, N.

Division Heads

Abdominal Imaging..... Atri, M.
Breast Imaging.....Muradali, D.
Cardiothoracic
 Cardiac ImagingPaul, N. (Acting)
 Thoracic Imaging Paul, N.
Musculoskeletal Imaging..... White, L.
Neuroradiology..... terBrugge, K.G.
Nuclear Medicine Hurwitz, G.
Pediatric Imaging..... Manson, D.
Vascular and Interventional Radiology Rajan, D.

Department Administrative Staff

Business Officer D'Alvise, S.
Administrative Assistant.....Shea, A.
Residency Program AssistantWalker, A.
Research Program AssistantCoulbeck, D.

COMMITTEES

Executive Committee

Kucharczyk, W. (Committee Chair)
Jaskolka, J. (Chief Resident)
Babyn, P.
Bret, P.
Laughlin, S.
Common, A.
Dowdell, T.
Hamilton, P.
Hershkop, M.
Jaffer, N.
Laughlin, S.
Montanera, W.
Moody, A.
Salem, S.
Shroff, M.

Promotions Committee

terBrugge, K. (Committee Chair)
Atri, M.
Babyn, P.
Jaffer, N.
Rubenstein, J.
Weiser, W.
Yaffe, M.

Undergraduate Teaching Committee

Dowdell, T. (Committee Chair)
Bleakney, R.
Chawla, T.
Chung, T.B.
Deitel, W.
Jaffer, N.
Margolis, M.
Paul, N.
Sarrazin, J.
Shroff, M.

Specialty Training Committee

Montanera, W. (Committee Chair)
Jaskolka, J. (Chief Resident)
David, E.
Hayeems, E.
Hershkop, M.
Laughlin, S.
MacDonald, C.
Mikulis, D.
Pearce, D.
Prasad, V.
Martinovic, E.
Rosta, N.
Stimec, J.
Mokhtassi, A.

UNIVERSITY OF TORONTO FULLY AFFILIATED HOSPITALS AND INSTITUTES

Hospital for Sick Children	555 University Avenue Toronto, Ontario M5G 1X8
Mount Sinai Hospital	600 University Avenue Toronto, Ontario M5G 1X5
St. Michael's Hospital	30 Bond Street Toronto, Ontario M5B 1W8
Sunnybrook & Women's College Health Sciences Centre	
Sunnybrook Campus	2075 Bayview Avenue Toronto, Ontario M4N 3M5
Women's College Campus	76 Grenville Street Toronto, Ontario M5S 1B2
University Health Network	
Princess Margaret Hospital.....	610 University Avenue Toronto, Ontario M5G 2M9
Toronto General Hospital	585 University Avenue, NCSB Toronto, Ontario M5G 2N2
Toronto Western Hospital	399 Bathurst Street Toronto, Ontario M5T 2S8
Centre for Addiction and Mental Health	250 College Street Toronto, Ontario M5T 1B8
Positron Emission Tomography Centre	250 College Street Toronto, Ontario M5T 1B8

DEPARTMENT OF MEDICAL IMAGING FACULTY

Academic Rank, Subspecialty Division and Hospital as of June 30, 2006

<u>NAME</u>	<u>RANK</u>	<u>DIVISION</u>	<u>HOSPITAL</u>
Agid, R.	Assistant Professor	Neuroradiology	University Health Network
Alton, D.J.	Assistant Professor	Pediatric Imaging	Hospital for Sick Children
Arenson, A.M.	Assistant Professor	Abdominal Imaging	Sunnybrook & Women's College Health Sciences Centre
Armstrong, D.	Assistant Professor	Neuroradiology	Hospital for Sick Children
Ash, J.M.	Associate Professor	Pediatric Imaging	Hospital for Sick Children
Atri, M.	Associate Professor	Abdominal Imaging	Sunnybrook & Women's College Health Sciences Centre
Au, F.	Lecturer	Breast Imaging	University Health Network
Aviv, R.	Assistant Professor	Neuroradiology	Sunnybrook & Women's College Health Sciences Centre
Babyn, P.S.	Associate Professor	Pediatric Imaging	Hospital for Sick Children
Becker, E.J.	Associate Professor	Musculoskeletal Imaging	University Health Network
Becroft, R.	Lecturer	Vascular Imaging	Mount Sinai Hospital
Betel, C.	Lecturer	Abdominal Imaging	Sunnybrook & Women's College Health Sciences Centre
Blaser, S.	Associate Professor	Neuroradiology	Hospital for Sick Children
Bleakney, R.	Assistant Professor	Musculoskeletal Imaging	Mount Sinai Hospital
Blend, R.	Associate Professor	Neuroradiology	University Health Network
Bret, P.	Professor	Abdominal Imaging	University Health Network
Bukhanov, K.	Assistant Professor	Breast Imaging	Mount Sinai Hospital
Caldwell, C.B.	Assistant Professor	Research	Sunnybrook & Women's College Health Sciences Centre
Causar, P.	Assistant Professor	Abdominal Imaging	Sunnybrook & Women's College Health Sciences Centre
Chait, P.G.	Associate Professor	Pediatric Imaging	Hospital for Sick Children
Chan, R.	Assistant Professor	Vascular Imaging	St. Michael's Hospital
Charron, M.	Professor	Pediatric Imaging	Hospital for Sick Children
Chawla, T.	Assistant Professor	Abdominal Imaging	Mount Sinai Hospital
Cheng, M.H.L.	Assistant Professor	Pediatric Imaging	Hospital for Sick Children
Cheyne, D.	Associate Professor	Pediatric Imaging	Hospital for Sick Children
Christakis, M.	Assistant Professor	Musculoskeletal Imaging	Sunnybrook & Women's College Health Sciences Centre
Crystal, P.	Assistant Professor	Breast Imaging	Mount Sinai Hospital
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
Chung, T.B.	Assistant Professor	Cardiothoracic Imaging	University Health Network
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 Health Sciences Centre
Crawley, A.	Assistant Professor	Research	University Health Network
Curpen, B.	Assistant Professor	Breast Imaging	Sunnybrook & Women's College Health Sciences Centre
Damyranovich, A.	Assistant Professor	Research	University Health Network
Daneman, A.	Professor	Pediatric Imaging	Hospital for Sick Children
David, E.	Lecturer	Vascular Imaging	Sunnybrook & Women's College Health Sciences Centre
Deitel, W.	Assistant Professor	Abdominal Imaging	St. Michael's Hospital
Dill-Macky, M.	Assistant Professor	Breast Imaging	University Health Network
Doria, A.	Assistant Professor	Pediatric Imaging	Hospital for Sick Children
Dowdell, T.R.	Associate Professor	Musculoskeletal Imaging	St. Michael's Hospital
Ehrlich, L.E.	Associate Professor	Nuclear Medicine	Sunnybrook & Women's College Health Sciences Centre
Farb, R.	Assistant Professor	Neuroradiology	University Health Network
Fishell, E.	Associate Professor	Breast Imaging	Sunnybrook & Women's College Health Sciences Centre
Fong, K.	Associate Professor	Abdominal Imaging	Mount Sinai Hospital
Fox, A.	Professor	Neuroradiology	Sunnybrook & Women's College Health Sciences Centre
Ganguli, N.	Lecturer	Nuclear Medicine	Sunnybrook & Women's College Health Sciences Centre
Gianfelice, D.	Associate Professor	Abdominal Imaging	University Health Network
Gilday, D.L.	Professor	Pediatric Imaging	Hospital for Sick Children
Glanc, P.	Assistant Professor	Abdominal Imaging	Sunnybrook & Women's College Health Sciences Centre
Goldberg, F.	Assistant Professor	Breast Imaging	St. Michael's Hospital

Gray, B.	Assistant Professor	Neuroradiology	St. Michael's Hospital
Greyson, N.D.	Associate Professor	Nuclear Medicine	St. Michael's Hospital
Haider, M.	Associate Professor	Abdominal Imaging	University Health Network
Hamilton, P.A.	Assistant Professor	Abdominal Imaging	Sunnybrook & Women's College Health Sciences Centre
Hanbidge, A.	Assistant Professor	Abdominal Imaging	University Health Network
Hayeems, E.	Assistant Professpr	Vascular Imaging	Mount Sinai Hospital
Hendler, A.L.	Assistant Professor	Nuclear Medicine	University Health Network
Herman, S.J.	Associate Professor	Cardiothoracic Imaging	University Health Network
Ho, C.S.	Professor	Vascular Imaging	University Health Network
Houle, S.	Associate Professor	Nuclear Medicine	Centre for Addiction and Mental Health
Hurwitz, G.	Associate Professor	Nuclear Medicine	St. Michael's Hospital
Ibach, K.	Lecturer	Abdominal Imaging	University Health Network
Jaffer, N.M.	Associate Professor	Vascular Imaging	Mount Sinai Hospital
Jang, H.J.	Assistant Professor	Abdominal Imaging	University Health Network
Jhaveri, K.	Assistant Professor	Abdominal Imaging	University Health Network
John, P.	Associate Professor	Pediatric Imaging	Hospital for Sick Children
Jong, R.A.	Associate Professor	Breast Imaging	Sunnybrook & Women's College Health Sciences Centre
Kachura, J.	Assistant Professor	Vascular Imaging	University Health Network
Kassel, E.E.	Associate Professor	Neuroradiology	Mount Sinai Hospital
Kassner, A.	Assistant Professor	Research	University Health Network
Keller, M.A.	Assistant Professor	Neuroradiology	University Health Network
Khalili, K.	Assistant Professor	Abdominal Imaging	University Health Network
Kim, T.K.	Associate Professor	Abdominal Imaging	University Health Network
Koff, D.	Assistant Professor	Abdominal Imaging	Sunnybrook & Women's College Health Sciences Centre
Kucharczyk, W.	Professor and Chair	Neuroradiology	University Health Network
Kulkarni, S.	Assistant Professor	Breast Imaging	University Health Network
Lata, A.C.	Assistant Professor	Cardiothoracic Imaging	St. Michael's Hospital
Laughlin, S.	Assistant Professor	Neuroradiology	University Health Network
Lax, M.	Assistant Professor	Musculoskeletal Imaging	Mount Sinai Hospital
Lazinski, D.	Assistant Professor	Neuroradiology	Mount Sinai Hospital
Lee, S.K.	Assistant Professor	Neuroradiology	University Health Network
MacDonald, C.E.	Assistant Professor	Pediatric Imaging	Hospital for Sick Children
Macgowan, C.	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
Marotta, T.	Assistant Professor	Neuroradiology	St. Michael's Hospital
Merchant, N.	Assistant Professor	Cardiothoracic Imaging	University Health Network
McGregor, C.	Lecturer	Abdominal Imaging	Sunnybrook & Women's College Health Sciences Centre
Mikulis, D.	Associate Professor	Neuroradiology	University Health Network
Miller, S.	Assistant Professor	Pediatric Imaging	Hospital for Sick Children
Montanera, W.	Associate Professor	Neuroradiology	University Health Network
Moody, A.	Associate Professor	Cardiothoracic Imaging	Sunnybrook & Women's College Health Sciences Centre
Muradali, D.	Associate Professor	Breast Imaging	St. Michael's Hospital
Murray, S.Y.	Assistant Professor	Nuclear Medicine	Sunnybrook & Women's College Health Sciences Centre
Navarro, O.	Assistant Professor	Pediatric Imaging	Hospital for Sick Children
Noël de Tilly, L.	Assistant Professor	Neuroradiology	St. Michael's Hospital
Nugent, P.	Lecturer	Abdominal Imaging	Sunnybrook & Women's College Health Sciences Centre
O'Malley, M.	Associate Professor	Abdominal Imaging	University Health Network
Oudjhane, K.	Associate Professor	Pediatric Imaging	Hospital for Sick Children
Pantazi, S.	Assistant Professor	Breast Imaging	Mount Sinai Hospital
Paul, N.	Assistant Professor	Cardiothoracic Imaging	University Health Network
Pearce, D.	Lecturer	Musculoskeletal Imaging	St. Michael's Hospital
Probyn, L.	Assistant Professor	Musculoskeletal Imaging	Sunnybrook & Women's College Health Sciences Centre
Provost, Y.	Assistant Professor	Cardiothoracic Imaging	University Health Network
Pugash, R.A.	Assistant Professor	Vascular Imaging	Sunnybrook & Women's College Health Sciences Centre
Rajan, D.	Assistant Professor	Vascular Imaging	University Health Network
Ranson, M.	Assistant professor	Pediatric Imaging	Hospital for Sick Children
Raybaud, C.	Professor	Neuroradiology	Hospital for Sick Children
Roberts, H.	Associate Professor	Cardiothoracic Imaging	University Health Network
Rowlands, J.A.	Professor	Research/Medical Biophysics	Sunnybrook & Women's College Health Sciences Centre
Rubenstein, J.D.	Associate Professor	Musculoskeletal Imaging	Sunnybrook & Women's College Health Sciences Centre

Salem, S.	Associate Professor	Abdominal Imaging	Mount Sinai Hospital
Salonen, D.C.	Assistant Professor	Musculoskeletal Imaging	University Health Network
Sarrazin, J.	Assistant Professor	Cardiothoracic Imaging	Sunnybrook & Women's College Health Sciences Centre
Shroff, M.	Assistant Professor	Neuroradiology	Hospital for Sick Children
Shulman, H.S.	Professor	Cardiothoracic Imaging	Sunnybrook & Women's College Health Sciences Centre
Simons, M.	Assistant Professor	Vascular Imaging	University Health Network
Smith, R.	Assistant Professor	Neuroradiology	University Health Network
Sniderman, K.W.	Associate Professor	Vascular Imaging	University Health Network
Sussman, M.	Assistant Professor	Research	University Health Network
Sussman, S.	Lecturer	Cardiothoracic Imaging	University Health Network
Symons, S.	Assistant Professor	Neuroradiology	Sunnybrook & Women's College Health Sciences Centre
Tan, K.T.	Assistant Professor	Vascular Imaging	University Health Network
Temple, M.	Assistant Professor	Pediatric Imaging	Hospital for Sick Children
terBrugge, K.G.	Professor	Neuroradiology	University Health Network
Thomas, K.	Assistant Professor	Pediatric Imaging	Hospital for Sick Children
Thurston, W.	Assistant Professor	Abdominal Imaging	St. Joseph's Health Centre
Toi, A.	Associate Professor	Abdominal Imaging	Mount Sinai Hospital
Traubici, J.	Assistant Professor	Pediatric Imaging	Hospital for Sick Children
Turner, D.	Assistant Professor	Musculoskeletal Imaging	Sunnybrook & Women's College Health Sciences Centre
Wall, J.	Lecturer	Abdominal Imaging	Sunnybrook & Women's College Health Sciences Centre
Weisbrod, G.L.	Professor	Cardiothoracic Imaging	University Health Network
Weiser, W.J.	Professor	Cardiothoracic Imaging	St. Michael's Hospital
White, L.	Professor	Musculoskeletal Imaging	Mount Sinai Hospital
Willinsky, R.A.	Professor	Neuroradiology	University Health Network
Wilson, S.R.	Professor	Abdominal Imaging	University Health Network
Wood, M.L.	Professor	Research/Medical Biophysics	Sunnybrook & Women's College Health Sciences Centre
Wright, B.E.	Assistant Professor	Breast Imaging	Sunnybrook & Women's College Health Sciences Centre
Wu, L.	Assistant Professor	Abdominal Imaging	Sunnybrook & Woman's College Health Sciences Centre
Xiang, J.	Assistant Professor	Research	Hospital for Sick Children
Yaffe, M.J.	Professor	Research/Medical Biophysics	Sunnybrook & Women's College Health Sciences Centre
Yoo, S-J.	Professor	Pediatric Imaging	Hospital for Sick Children
Yu, E.	Lecturer	Neuroradiology	University Health Network
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.	Professor	Medical Biophysics
Foster, S.	Professor	Medical Biophysics
Freedom, R.	Professor	Pediatrics
Henkelman, R.M.	Professor	Medical Biophysics
Johnson, J.A.	Associate Professor	Obstetrics and Gynaecology
McLaughlin, P.R.	Professor	Medicine
Noseworthy, M.	Assistant Professor	Medical Biophysics
Noyek, A.M.	Professor	Otolaryngology
Pharoah, M.J.	Professor	Dentistry
Plewes, D.B.	Professor	Medical Biophysics
Reilly, R.	Associate Professor	Pharmacy
Tomlinson, G.	Assistant Professor	Biostatistics
Trachtenberg, J.	Professor	Surgery
Vanek, I.	Assistant Professor	Ophthalmology

Radiation Sciences Program (Joint Program with Michener Institute)

Babiak, C.	Instructor
Cornacchione, P.	Instructor
Crowley, S.	Instructor
Goodin, L.	Instructor
Havil, D.	Instructor
King, D-M.	Instructor
Maynard, L.	Instructor
Murray, L.	Instructor
Rodrigues, G.	Instructor
Sharpe, W.	Instructor
Sinn, H.	Instructor
Souter, C.	Instructor
Topple, A.	Instructor
Watson, T.	Instructor
Wong, B.	Instructor

THE DEPARTMENT OF MEDICAL IMAGING AND THE UNIVERSITY OF TORONTO TEACHING HOSPITALS

The academic programs in the Department of Medical Imaging are integrated with its five major teaching hospitals: the University Health Network (UHN), Mount Sinai Hospital (MSH), St. Michael's Hospital, Sunnybrook & Women's College Health Sciences Centre, and the Hospital for Sick Children. The medical imaging departments at UHN and MSH are consolidated into a single operational unit under the leadership of Dr. Patrice Bret. The Medical Imaging departments at St. Michael's Hospital, Sunnybrook & Women's College Health Sciences Centre, and the Hospital for Sick Children are led by Dr. Andrew Common, Dr. Alan Moody, and Dr. Paul Babyn.

University Health Network/Mount Sinai Hospital

Recruitment remains a priority for the Department, both for technologists and for radiologists. Our largely international fellowship program continues to contribute a number of outstanding radiologists from outside Canada to our Faculty, which in turn increases the pool of Canadian radiologists. As part of the MOH initiatives around waiting lists, some funding has been made available to Medical Imaging to reduce the waiting lists in MRI. This has allowed to complete the 24/7 coverage on most of the units and resulted in a significant decrease of the waiting list. At the same time, reorganization of the CT modality has allowed to also reduce the waiting list to a point where it now meets the benchmark standards for almost every indication. A large number of our faculty members continue to have time protected for academic work. Their work is more fully described in the Research Director's report. Significant events and accomplishments include very major renovations at Toronto Western Hospital, which created a virtually brand new facility. This opened with redesigned space and new imaging equipment including a 3T MRI, new neuroangio equipment, and a gamma knife, providing a unique environment for the treatment of neurological disorders. PMH has a PET/CT scanner but access remains unavailable to most patients because funding is only available within a few supported clinical trials. This continues to be a handicap for Princess Margaret Hospital and to our Department – our recruitment efforts of a PET expert are severely hampered by lack of funding for PET studies.

Sunnybrook and Women's College Health Sciences Centre

Sunnybrook Health Sciences Centre Medical Imaging Department is comprised of 6 divisions - Body Imaging, Neuroradiology, Cardiothoracic/VIR, Nuclear Medicine, Musculoskeletal and Breast Imaging, supporting major regional programmes including Oncology, Trauma, Burns and Stroke. The Department is research driven, encouraging hypothesis generated clinical research and collaboration with the adjacent department of Research Imaging. Access to state-of-the-art research equipment including 3T MRI, 1.5T MRI and PET-CT complement clinical twin speed MRI's (2), 3 CT scanners and fully equipped nuclear medicine, angiography and ultrasound departments. The Department is fully integrated with PACS and RIS systems. For further information regarding clinical or research imaging please contact alan.moody@sunnybrook.ca.

St. Michael's Hospital

The Medical Imaging Department at St. Michael's Hospital boasts a Siemens PACs system with integrated voice recognition technology, and electronic work-listing will soon render the department paperless, with markedly improved reporting efficiency. The annual tally of imaging examinations is over 250,000, excluding a very busy cardiac catheterization service which performs over 4000 radiologist-interpreted procedures per year. The department is equipped with three helical CT scanners (including two new 64-slice units), three new 1.5 Tesla MRI units, and three angio suites, including a bi-plane neuro interventional facility. An aggressive recruiting campaign of sub-specialist radiologists has brought full-time staffing levels to 18 which has allowed the department to better meet the needs of the University Residency and Fellowship Programs. St. Michael's is proud of its long-standing commitment to teaching and clinical excellence. The hospital has appointed a renowned Critical Care researcher as VP of Research, and there is renewed commitment to increasing the research profile of the hospital. A new state-of-the-art research and educational building complex will soon be built, to accommodate a focus on translational research. Other unique hospital attributes which are reflected in the Medical Imaging Department at St. Michael's are the Inner City Health Programme, and the Hereditary Hemorrhagic Telangiectasia Program. St. Michael's has recently been designated as a Centre of Excellence for Vascular Surgery, with a cooperative endovascular stent-graft program shared between Medical Imaging and Vascular Surgery. Our Neurointerventional Service has grown rapidly in the last few years, and will continue to do so as we expand our activities as a Regional Stroke Center. The Breast Imaging service has recently moved into a new CIBC Breast Centre on the same floor as the Medical Imaging Department. Further, St. Michael's is downtown Toronto's helipad-serviced trauma centre, and lithotripsy centre, and has outstanding clinical and research programs in renal disease, and in heart and vascular diseases, which are actively supported by the Medical Imaging Department.

Hospital for Sick Children

The Hospital for Sick Children Department of Diagnostic Imaging provides full imaging service for all children up to the age of 18 years. We currently perform approximately 137,000 examinations per year. The department has 25 full-time and part-time staff, in all pediatric imaging subspecialties. Currently the department has three 1.5T MR scanners (one research), two CT scanners - including one 8 slice CT. Renovations are underway to replace this equipment with a 64 slice CT, PET/CT (16 slice), 1.5T and a 3T MRI.

We also have a dedicated Image Guided Therapy suite which allows both Interventional Radiology and minimally invasive surgical procedures to be combined. There are four rooms containing integrated CT fluoroscopy, a biplane unit, and two single plane fluoroscopic units with three ultrasound units. The department has an active Ultrasound service with ten ultrasound units. There is an integrated PACS and RIS system providing image and report distribution throughout the department and the hospital. Research and sub-specialty training are active interests of the department with three imaging scientists and seventeen fellows in subspecialty training from across the world.

RESEARCH 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.

Atri M (Principal Investigator). Assessment of vascular flow in cancer with ultrasound imaging. Translational research award, Department of Imaging, University of Toronto. \$35,000. 2005 - 2007

Bjarnason GA (Principal Investigator), Atri M, Burns P, Kerbel R, Shaked Y, Zhang L. (Co-Investigator). The timing of SU11248 treatment in patients with metastatic renal cell carcinoma. Pfizer Pharmaceuticals. \$494,121.00. 2005 - 2007

Berg W (Principal Investigator), Jong RA (Toronto Site Principle Investigator). Screening Breast Ultrasound in High Risk Women. Avon Foundation & National Institutes of Health. \$240,000 (US\$) for Toronto site. 2004 – 2007

Black S, Moody AR, Stanisz GJ, Graham S, Lobaugh NJ, Sahlas DJ, Stuss D. In Vivo Characterization of Subcortical Vascular Cognitive Impairment Using Advanced High Field MR Techniques. Vascular Health and Dementia Initiative, Heart and Stroke Foundation of Canada. \$360,000. Apr, 2005 - Mar, 2008.

Cheyne D CIHR Operating Grant: Neuromagnetic imaging methods for realistic models of brain activity. \$229,864 2006 – 2009.

Connolly B, Tuong B. Review of Morbidity & Mortality Rounds. SIR Summer Medical. \$2000 US. Summer 2006.

Connolly B, Glennie D. Evaluating Radiation Exposures Experienced by Children Undergoing Pediatric Interventional Radiology Procedures. Department of Medical Imaging, University of Toronto. \$8000. July 1, 2005 – June 30, 2006.

Cook DJ, Albert M, Anderson DR, Bates SM, Cade JF, Chittock DR, Cooper DJ, Crowther MA, Dial MS, Dodek PM, Doig C, Ferguson ND, Finfer SR, Fowler RA, Freitag AP, Geerts WH, Granton JT, Guyatt GH, Hebert PC, Kahn SR, Keenan SP, Kutsogiannis DJ, Langevin S, Marshall JC, Martin CM, Meade MO, Mehta S, Moody AR, et al. Prophylaxis of thromboembolism in critical care trial. CIHR Randomized Controlled Trials. \$4,880,347. Oct, 2005 - Sep, 2008.

Esdaille J (Principal Investigator), White LM et al. (Co-Investigator). Tooling up for OA: Measuring what matters. Canadian Institutes of Health Research (CIHR), and the Institute of Musculoskeletal Health and Arthritis (IMHA). \$1,500,000. 2003-2006.

Haider MA (Principal Investigator), Langer D, Evans A, Trachtenberg J, Wilson B (Co-Investigator(s)). 3-Dimensional Structural and Functional Magnetic Resonance Imaging to Localize Intra-Prostatic Cancer. Canadian Prostate Cancer Research Foundation. \$60,000. March 2006 – March 2007.

Haider MA (Principal Investigator), Toi A et al (Co-Investigator). The utility of functional and morphologic MRI in the detection of prostate cancer for patients with elevated PSA and prior negative biopsy. PMH Foundation. \$30,000. April 2002 (on-going).

Jewett M (Principal Investigator), Chin J, Evans A, Fleshner N, Gallie B, Haider M, Kachura J, Kapoor A, Klotz L, MacGregor P, Morash C, Nam R, Panzarella T, Rendon R, Siemens R (Co-applicants). The natural history of small renal masses. Kidney Foundation of Canada. \$50,000 per annum. July 2004 - June 2006

Kandel R et al (Principal Investigator), White LM et al (Co-Investigator). Bioengineering of skeletal tissue. Canadian Institutes of Health Research (CIHR). (CIHR New Emerging Team Grant). \$1,000,000. 2002-2007

Koff D. Canada Health Infoway - Fraser Health Authority - October 2005 - \$336,408 - #724180135 - Evaluation of Irreversible Compression Ratios (“Lossy Compression”) & Development of Canadian Association of Radiologists Guidelines. Peer reviewed by the Canadian Association of Radiologists.

Koff D. Philips Medical Systems - January 2006 - \$5,000 for the Second Annual Practical Course in Digital Imaging and Teleradiology: connectivity in the 21st century.

Koff D. Royal College of Physicians and Surgeons of Canada - January 2006 - \$1,200 for the Second Annual Practical Course in Digital Imaging and Teleradiology: connectivity in the 21st century.

MacRae AR (Principal Investigator), Toi A et al (Co-Investigator). The SAFER study: Second and first trimester evaluation of risk of fetal trisomies. CIRH(Canadian Institutes of Health Research). \$176,306 annually and \$114,000 annually. September 2002 competition for 3 years and January 2003 for equipment for 3 years.

Marotta TR. Biological response to eCLIPS (endovascular clip systems) leaf. 2004-2006.

Menard C (Principal Investigator), Haider MA et al (Co-Investigator). Integration of Diagnostic and Interventional MRI for the Study of Persistent Prostate Cancer after External Beam Radiotherapy. Department of Defense Prostate Cancer Research Program (CDMRP FY05). USD\$294,600. Sept. 2005 – Aug. 2008.

Montanera W, Marotta TR. Co-Investigator of NIH sponsored study with Baker A, Tucker W. Balloon prophylaxis of aneurysmal vasospasm BPAV. Ongoing.

Moody AR. Natural history of complicated carotid plaque defined by Magnetic Resonance Imaging (MRI): an aid to stroke prevention. PPP Foundation £213,777. May, 2002 – Aug, 2006

Nam RK (Principal Investigator), Toi A et al (Co-Investigator). Prospective evaluation of prostate biopsies for prostate cancer detection. National Cancer Institute of Canada. \$410,070. 2004-2007,

Nam RK (Principal Investigator), Toi A et al (Co-Investigator). Cross-Canada assessment of a new nomogram prediction tool for prostate cancer screening. National Cancer Institute of Canada. \$160,796, 2006-2007. \$150,644, 2007-2008. \$150,644, 2008-2009

Snead OC, Campbell M, Cheyne D, Dennis M., Josselyn S., Salter M., Sled J., Tannock R., Taylor M., Westall C. Canadian Foundation for Innovation (CFI) – New Initiatives Fund, Centre for the Investigation of Neuroplasticity and Developmental Disorders (CINDD). \$2,960,117.

Shroff M, Taylor M, DeVeber G, Cheyne D. University of Toronto Dept. of Medical Imaging Seed Grant, Neuroimaging and plasticity in the immature brain. \$105,000. 2005-2008.

Shroff M. Neuroplasticity in pediatric stroke. Department of Medical Imaging, University of Toronto. \$35,000. 2005 – 2006.

Shroff M, Banwell B. Impact of multiple sclerosis on myelin and neuronal integrity in children. \$84,000. CIHR. 2006 – 2007.

Shroff M, Taylor M. Neuroimaging the development of frontal lobe cognitive function in autism. \$115,907.00. NAAR. July 1, 2006 – June 30, 2008.

Shroff M. Diffusion weighted MR imaging of venous clots in cerebral sinovenous thrombosis in children. Department of Medical Imaging University of Toronto. \$8000. 2006 – 2007.

Shroff M. Normal anatomy, pitfalls and abnormal dural venous sinuses in neonates. Medical Imaging Research and Development Award Committee, University of Toronto. \$8000.00. July 1, 2005 – June 30, 2006.

Sung L, Traubici J. Prospective cohort study of genetic variation and risk of infection in Canadian children with primary acute myeloid leukemia. NCIC Research Grant. \$153,258.00. 2005 – 2006.

Sutcliffe T, Fehlings D, Shroff M, Logan W, Cheyne D. Physician's Services Incorporated Foundation – Research Grant, Constraint therapy in children with hemiplegia: Evaluating the longevity of motor improvement. \$16,000, 2005 – 2006.

Taylor MJ, Donner EJ, Pang EW. Multimodal neuroimaging of frontal lobe cognitive function in children. Canadian Institutes of Health Research (CIHR) 2006-2011, \$93,267/year (total: \$466,335).

Taylor MJ, Roberts W, Donner EJ, Shroff M, Bayless SJ. Neuroimaging the development of frontal lobe cognitive function in autism. National Alliance for Autism Research (NAAR). 2006 – 2008. 1st year \$59,386 (total \$115,907 (US)).

Tobe S. (Principal Investigator), Atri M, Kucey D, Oliver M. (Co-Investigators). Renal atherosclerotic revascularization evaluation (RAVE) study. PSI. \$88,000. 2004 – 2006.

Urbach D (Principal Investigator), Darling G, Diament N, Kortan P, Deitel W, Tomlinson G, Laporte A (Co-Investigators). A randomized comparison of laparoscopic myotomy and pneumatic dilatation for achalasia. Canadian Institutes of Health Research. \$445,410. 2004 – ongoing.

Warner E (PI), Causer P, DeBoer G, Jong RA, Messner S, Narod S, Plewes D, Wong J, Wright F, Yaffe MJ (Co-I) Surveillance Magnetic Resonance Imaging and Ultrasound for Women at High Risk for Hereditary Breast Cancer, Canadian Breast Cancer Research Alliance. \$1,300,000. 2004 – 2009

White LM (Principal Investigator), Hurtig MB et al (Co- Investigator). Risk factors that predict the progression of osteoarthritis after knee injury: *A retrospective pilot study* (Study 04-SRID-OA-02). Canadian Arthritis Network (CAN). \$132,000. 2004 – 2005

White LM (Principal Investigator), Hurtig MB et al (Co-Investigator). Risk factors and indicators that predict the progression of osteoarthritis after knee injury. Canadian Institutes of Health Research (CIHR), and the Institute of Musculoskeletal Health and Arthritis (IMAH). CIHR New Emerging Team NET Grant; Quality of Life Enhancement Competition 2004. \$1,500,000. 2004 – 2009.

White LM (Principal Investigator), Zalzal P et al (Co-Investigator). Sex differences in bone adaptation to fatigue and creep and its relationship to stress fractures - A model study. United States Army Grant. \$450,000 USD. 2006 – 2010.

Wright G, Dick A, Moody AR, Merchant N. Magnetic resonance for ischaemia. CIHR Operating Grant. \$533,700. Apr, 2005 – Sept. 2010.

PUBLICATIONS: PEER-REVIEWED PAPERS AND ABSTRACTS

Abla O, Sandlund JT, Sung L, Brock P, Corbett R, Kirov I, Griffin TC, Blaser S, Weitzman S. A case series of pediatric primary central nervous system lymphoma: Favorable outcome without cranial irradiation. *Pediatr Blood Cancer*. 2005 Dec; 47(7):880-5.

Agid R, Souza MP, Reintamm G, Armstrong D, Dirks P, terBrugge KG. The role of endovascular treatment for pediatric aneurysms. *Childs Nerv Syst*. 2005 Dec; 21(12):1030-6, Epub2005 Apr 29.

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Alkazaleh F, Chaddha V, Viero S, Malik A, Anastasiades C, Sroka H, Chitayat D, Toi A, Windrim RC, Kingdom JC. Second-trimester prediction of severe placental complications in women with combined elevations in alpha-fetoprotein and human chorionic gonadotrophin. *Am J Obstet Gynecol*. March 2006; 194(3):821-827.

Altaf N, Daniels L, Morgan PS, Lowe J, Gladman J, Macsweeney ST, Moody A, Auer DP. Cerebral white matter hyperintense lesions are associated with unstable carotid plaques. *Eur J Vasc Endovasc Surg*. 2006 Jan; 31(1):8-13.

Amark KM, Karamlou T, O'Carroll A, MacDonald C, Freedom RM, Yoo S-J, Williams WG, Van Arsdell GS, Caldarone CA, McCrindle BW. Independent factors associated with mortality, reintervention, and achievement of complete repair in children with pulmonary atresia with ventricular septal defect. *J Am Coll Cardiol*. 2006 Apr 4; 47(7):1448-56.

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Aviv RI, Benseler SM, Silverman ED, Tyrrell PN, deVeber G, Tsang LM, Armstrong D. Magnetic resonance imaging and angiography of primary CNS vasculitis of childhood. AJNR Am J Neuroradiol 2006 Jan; 27(1):192-9.

Aviv RI, O'Neill R, Patel M, Collqhoun I. Abciximab use in subarachnoid haemorrhage. AJNR Am J Neuroradiol 2005; 26:1744-1750.

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Picton TW, Taylor MJ, Durieux-Smith A. Brainstem auditory evoked potentials in pediatrics. In: Clinical neurology, 5th Edition, MJ Aminoff, (ed.). Churchill Livingstone, New York, 2005, pp. 525-552.

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Tan KT, Kachura JR. Embolotherapy for neuroendocrine tumor hepatic metastases. In: Goltzarian J, Sun S, Sharafuddin MJ. Vascular embolotherapy Volume 2 Chapter 14. Springer GmbH 2006,

Tan KT, Thomas SM, Fillinger MF. Endovascular techniques and radiological investigations of vascular diseases. In: Davies AH, Brophy CM. Vascular surgery, (Springer Specialist Surgery Series 2006) 1st Edition Chapter 21.

Taylor, MJ. Neural bases of cognitive development. In: Lifespan cognition: Mechanisms of change. E. Bialystok & F.I.M. Craik (eds.), New York: Oxford University Press. 2006, pp. 15-26.

Temple M, Restrepo R, Chait P, Connolly B, John P. The interventional radiologist's role in pediatric minimally invasive surgery. In: Pediatric minimally invasive surgery, Langer J and Albanese C, editors. Marcel Dekker, New York, 2005.

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Yu E, Shankar L, Marotta TR. An atlas of imaging of the paranasal sinuses. Second Edition. Martin Dunitz Ltd. Computed tomography of the paranasal sinuses. Chapter 4. April 2006.

Yu E, Marotta TR, Shankar L, Evans K. An atlas of imaging of the paranasal sinuses. Second Edition. Martin Dunitz Ltd. Tumors and tumor-like conditions of the sinonasal cavity. Chapter 9. April 2006.

INVITED PRESENTATIONS AND VISITING PROFESSORSHIPS

Amaral J. 36th Jornada Paulista De Radiologia, Sao Paulo, Brazil. April 2006. Percutaneous gastrointestinal access.

Amaral J. 36th Jornada Paulista De Radiologia, Sao Paulo, Brazil. April 2006. Intervention in pediatrics – What the general pediatric radiologist can offer – I.

Amaral J. 36th Jornada Paulista De Radiologia, Sao Paulo, Brazil. April 2006. Intervention in pediatrics – What the general pediatric radiologist can offer – II.

Amaral J. Hospital de Clinicas – Federal University of Parana, Curitiba, Brazil. April 2006. Pediatric Interventional Radiology.

Amaral J. Hospital de Clinicas – Federal University of Parana, Curitiba, Brazil. April 2006. Interventional Radiology – New technologies and future trends.

Amaral J. Feeding in the neurologically impaired child. Workshop. Society of Interventional Radiology, Toronto, April 2006.

Amaral J. How pediatric IR differs from adult IR – Not just a size difference. The Association of Vascular and Interventional Radiographers, Toronto, Canada, March 2006.

Amaral J. Oncology lecture; Lines and vascular access. The Hospital for Sick Children, December 2005.

Amaral J. Pediatric interventional radiology: GI and GU interventions. Association of Vascular and Interventional Radiographers Meeting. Toronto, Canada, March 2006.

Amaral J. Pediatric interventions: What you need to know - Cecostomy – Categorical course. Society of Interventional Radiology 31st annual scientific meeting. Toronto, Canada, March 2006.

Amaral J. Pediatric interventions: What you need to know - Cecostomy – A practical approach Workshop. Society of Interventional Radiology 31st annual scientific meeting. Toronto, Canada. March 2006.

Amaral J. Pediatric interventions: What you need to know. Categorical course. Society of Interventional Radiology 31st annual scientific meeting, Toronto, Canada. March 2006.

Atri M. Premenopausal and postmenopausal endometrium. RSNA refresher course. Chicago, IL, November 2005.

Atri M. US and MR imaging of the anexa. Canadian Association of Radiologists Annual Meeting. Banff, Alberta, October 2005.

Aviv R. A to E of Spine MRI. Toronto Rehabilitation Institute, April 24, 2006.

Bartlett ES, Fox AJ, Symons SP. Quantification of carotid stenosis with updated vascular imaging techniques. ENRS, Ottawa, Canada, August 2005.

Bayless S, Cheyne D, Taylor MJ. Neuroimaging executive function development using MEG: An adult pilot study of a modified card-sorting task. Annual meeting of the Cognitive Neuroscience Society, San Francisco, CA, 2006.

Blaser S. Japanese Society of Pediatric Radiology. Inborn errors of metabolism, Neuroradiology approach. Posterior fossa development and maldevelopment. Tokyo, May 17, 2006.

Blaser S. McMaster University, Hamilton, Ontario. Hypoxic ischemic insult of the fetus, premature, and full term infant. Neuroimaging of the inborn errors of Metabolism. Interesting case review. March 1-2, 2006.

Blaser S. National Childrens Hospital. Inborn errors of metabolism. Posterior fossa development and maldevelopment. Tokyo May 13, 2006.

Blaser S. Neonatal Intensive Care Unit. Hypoxic ischemic insult of the fetus, premature and full term infant. Fetal CNS development. Tokyo May 14, 2006.

Blaser S. Schneider Children's Hospital, Tel Aviv, Israel. Cerebellar development: In utero and postnatal. Neuroimaging of the inborn errors of Metabolism. Interesting case review. January 8, 2006.

Blaser S. University of Pittsburgh Children's Hospital. Neuroimaging of the inborn errors of Metabolism. Cerebellar development and maldevelopment. Pediatric neuroradiology preparation for the American Board of Radiology. November 4, 2005.

Blaser S. Fetal Imaging. University Health Network Research and Academic Day. MRT week November 10, 2005.

Bleakney RR. (a) Imaging of the ankle: MRI or ultrasound. (b) Sports MRI ankle. (c) MRI of the knee: Ligaments. University of Toronto Musculoskeletal MR Imaging Course 2006. Whistler, BC, March 2006.

Bleakney RR. Approach to lytic lesions of bone. Approach to Arthritis. Aberdeen University, Aberdeen, Scotland, UK, November 2005.

Bleakney RR. MSK radiology update: Getting high-yield results for diagnosis and treatment. General Practice Weekend MSK Program. University of Toronto, Department of Family and Community Medicine, Toronto, April 2006.

Bostan A, Pang E, Gaetz W, Chu W, Cheyne D. Localization of sensory and motor activity in subjects with orthodontic braces: Implications for pre-surgical functional mapping in pediatric populations. 15th International Conference on Biomagnetism, Vancouver, Canada, 2006.

Bourne T, Glanc P. Wednesday September 28, 2005: Demonstration and debates in Gynecology II. 15th World Congress on Ultrasound in Obstetrics and Gynecology, September 25-29, 2005, Vancouver, Canada.

Causier PA. MRI: What is it and who needs it? When, how and where to image the BRCA breast. BRCA: Today and Tomorrow. HBOC Foundation symposium, Montréal, Canada, October 2005.

Causier PA. Breast ultrasound lecture and interventional breast workshop. Women's Imaging Conference, Washington, DC. February 2006.

Causier PA. Optimizing your multimodality breast imaging practice for 2006: Problems and pitfalls in breast MRI (including MR-guided biopsy). Annual meeting of the Canadian Association of Radiologists, Toronto, Canada, June 2006.

Causier PA. Problems and pitfalls in breast MRI (including MR-guided biopsy). University of Toronto Breast Cancer Symposium, Toronto, Canada, June 2005.

Chan RP. Pulmonary arteriovenous malformations: diagnosis and management. Visiting Professorship. January 23, 2006. University of Alberta Hospital, Edmonton, Alberta.

Chan RP. Pulmonary AVMs: Adult experience, image-guided therapy. Guest speaker. January 20, 2006. Hospital for Sick Children, Toronto, Canada.

Cheyne D, Bostan A, Gaetz W, Pang E. Neuromagnetic mapping of sensory and motor cortex using event-related beamforming: Implications for pediatric imaging. 17th annual meeting of the International Society for Brain Electromagnetic Topography (ISBET), Chieti, Italy, 2006.

Cheyne D, Gaetz W, Pang EW, Drake J, Strantzas S, Benifla M, Holowka S, Hunjan A, Otsubo H. A new method for pre-operative mapping of the primary motor cortex in humans using spatially filtered magnetoencephalography. Annual meeting of Neuroscience, Washington, DC, 2005.

Cheyne D, Herdman T, Gaetz W, Ressel V, Pang L. Spatiotemporal dynamics of neuromagnetic responses related to language production. Annual meeting of the Cognitive Neuroscience Society, San Francisco, CA, 2006.

Cheyne D, Itier R, Hamilton A, Taylor MJ. Localization of cortical activity during face perception using event-related synthetic aperture magnetometry. Organization of Human Brain Mapping conference, Toronto, Canada. June 2005.

Common AA. Collateral channels in dialysis access: When should we intervene? Access to Science in Hemodialysis Conference. Toronto, June 4, 2006.

Daneman A. 38th Annual International Diagnostic Course in Davos. Davos, Switzerland, April 1-7, 2006. Intussusception: An approach to management, Pediatric Radiology Course. An approach to imaging the acute abdomen in pediatrics, Abdominal imaging course. Renal sonography: Unique appearance in the neonate, infant and young child. Highlight lecture.

Daneman A. Kinderspital. Zurich, Switzerland. Radiology grand rounds. High resolution sonography in neonates: Appreciation in brain and abdominal imaging. March 30, 2006.

Dockstader CL, Gaetz W, Cheyne D, Tannock R. Beta rebound in the human somatosensory cortex can be influenced by higher cognitive processes. 15th International Conference on Biomagnetism, Vancouver, Canada, 2006.

Dockstader CL, Gaetz W, Tannock R, Cheyne D. Effects of stimulus predictability on neural activation of the human somatosensory cortex. 11th annual meeting of the Organization for Human Brain Mapping, Toronto, Canada, 2005.

Dominguez LG, Gaetz W, Cheyne D, Wennberg R, Velazquez JLP. Brain coordination dynamics of the processing of self-referential stimuli. 12th annual meeting of the Organization for Human Brain Mapping, Florence, Italy, 2006.

Dowdell T. CCFP Annual Conference – Imaging Update. Toronto, November 18, 2005 (3 hrs).

Dowdell T. ACPAC (Advanced Clinician Practitioner in Arthritis Care) Lecture – MRI in MSK imaging. Physiotherapists 2 hrs. Toronto, December 2005.

Dowdell T. ACPAC (Advanced Clinician Practitioner in Arthritis Care) Fracture Lecture – 2 hrs. Toronto, April 11, 2006.

Ferrari P, Bostan A, Jantzen KJ, Kelso JAS, Cheyne D, Fuchs A. Magnetoencephalographic evidence of cortical networks underlying coordinated movements: Spatiotemporal dynamics of induced and event related brain responses revealed by beamforming. 15th International Conference on Biomagnetism, Vancouver, Canada, 2006.

Ferrari P, Cheyne D, Fuchs A. Beamforming applied to evoked and induced neural activity during coordinated movements: Determining functional cortical networks. Annual meeting of the Cognitive Neuroscience Society, San Francisco, CA, 2006.

Fong KW. First trimester sonography for chromosomal and structural abnormalities. 68th annual meeting of the Canadian Association of Radiologists, Lake Louise, Canada. September 29-October 2, 2005.

Fong KW. Increased nuchal translucency and normal karyotype. The 11-13⁺⁶ weeks scan course. Department of Obstetrics and Gynecology, University of Toronto. Toronto, Canada. May 13, 2006.

Fong KW. Refresher course faculty: Venous Doppler Sonography: Visceral and extremity applications (hands-on workshop). 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Fong KW. Talk to the experts - Workshop on Prenatal screening: Ultrasound and Biochemistry. Women's Imaging. Advances in Gynecological Imaging and First Trimester Ultrasound Conference, Departments of Medical Imaging and Obstetrics and Gynecology, University of Toronto. Toronto, Canada. February 10-12, 2006.

Fong KW. The early fetal anomaly scan. 11th Congress of the World Federation of Ultrasound in Medicine and Biology. Seoul, Korea. May 28-June 1, 2006.

Fong KW. The early fetal anomaly scan. The 11-13⁺⁶ weeks scan course. Department of Obstetrics and Gynecology, University of Toronto. Toronto, Canada. May 13, 2006.

Fong KW. Ultrasound of the endometrium and sonohysterography. Women's Imaging. Advances in Gynecological Imaging and First Trimester Ultrasound Conference, Departments of Medical Imaging and Obstetrics and Gynecology, University of Toronto. Toronto, Canada. February 10-12, 2006.

Fox AJ. a) Advanced CT imaging of acute stroke, May 4, 2006; b) Moderator of Symposium, Advanced CT and MR imaging of acute stroke: The key to guide therapy, May 4, 2006; c) Introduction of ASNR gold medal winners, Nick Bryan and Charles Kerber, ASNR President's Appreciation Dinner, May 2, 2006.

Fox AJ. a) Vascular anatomy and radiologic pearls in stroke diagnosis; b) Neuroimaging and stroke diagnosis, Workshop with A Demchuk. Canadian Stroke Consortium, Neurology Residents' Stroke Course, March 2005, Toronto, Canada.

Fox AJ. Quantification of carotid stenosis with updated vascular imaging techniques. Eastern Neuroradiology Society, annual meeting, Ottawa, Canada.

Fox AJ. a) Carotid stenosis measures: Pitfalls and progress; b) CT imaging of acute stroke. Soroka Medical Center, Beersheba, Israel, November 9, 2005.

Fox AJ. CT imaging of acute stroke in Adults. 7th Interventional Neuroradiology Symposium. University of Toronto. September 2005.

Gaetz W, Pang EW, Rutka J, Benifla M, Strantzas S, Sharma R, Chu W, Holowka S, Otsubo H, Cheyne D. Pre-operative mapping of primary motor cortex in children using spatially filtered magnetoencephalography. 15th International Conference on Biomagnetism, Vancouver, Canada, 2005.

Gaetz W, Sutcliffe TL, Logan W, Shroff M, Fehlings DL, Cheyne D. MEG and fMRI localized changes in cortical organization following constraint-induced therapy: A case study involving

hemiplegic cerebral palsy. 11th annual meeting of the Organization for Human Brain Mapping, Toronto, Canada, 2005.

Gaetz W, Sutcliffe TL, Logan W, Shroff M, Fehlings DL, Cheyne D. MEG and fMRI measurement of sensorimotor cortical function following constraint-induced therapy in a child with hemiplegic cerebral palsy. 43rd annual meeting of the American Society of Neuroradiology, Toronto, Canada, 2005.

Gagnon A, Glanc P. Wednesday September 28, 2005: Stump the Professor – Obstetrics. 15th World Congress on Ultrasound in Obstetrics and Gynecology, September 25-29, 2005, Vancouver, Canada:

Gianfelice D. MR guided focused ultrasound tissue ablation: Applications. PROP Rounds. Princess Margaret Hospital, Radiation Oncology Department. Toronto, Canada. May 11, 2006.

Glanc P. Thursday September 29, 2005, Live Scan demonstration: Abdominal Organs. 15th World Congress on Ultrasound in Obstetrics and Gynecology, September 25-29, 2005, Vancouver, Canada:

Glanc P. Adnexal masses in pregnancy, Women's imaging: Advances in Gynaecological Imaging and First Trimester Ultrasound, February 10-12, 2006, University of Toronto.

Glanc P. Neonatal Ultrasound Seminar: Neonatology Fellowship Program, March 6, 2006.

Glanc P. The role of US in non-obstetrical complications: Maternal Fetal Medicine Program.

Glanc P. Use of ultrasound in managing non-obstetric complications of pregnancy. 15th World Congress on Ultrasound in Obstetrics and Gynecology, September 25-29, 2005, Vancouver, Canada.

Gunnarsson T, Farb RI, Klurfan P, Shelef I, Marotta TR, Willinsky RA, terBrugge KG. Surveillance of intracranial aneurysms treated with stent assisted coiling: Imaging characteristics and utility using ATECO MRA. Oral presentation, World Federation of Interventional and Therapeutic Neuroradiology VIII Congress, October 19-22, 2005, Venice, Italy.

Haider M. RSNA Refresher Course, Chicago, USA, November 2005. a) MRI of the pancreas, b) Optimize your body MR imaging protocols with the experts: pelvis.

Haider M. MRI pelvis. Body Imaging Symposium, Michener Institute, Toronto, February 18, 2006.

Haider M. Tumor perfusion imaging by CT and MRI. American College of Radiology Imaging Network (ACRIN) Fall Meeting, Gynecology/Genitourinary Scientific Session, Washington, DC, September 2005.

Haider M. MRI of the prostate – New frontiers. Alberta Medical Research Visiting Lecture Program, Grand Oncology Rounds, Cross Cancer Institute, Edmonton, Canada, June 13, 2006.

Haider M. MRI of the prostate. New Developments in Cancer Management, 5th annual meeting, Toronto, Canada, September 2005.

Haider M. MRI of uterine malignancy. Canadian Association of Radiologists Annual Meeting, Lake Louise, Canada, September 2005.

Hayeems E. Thrombolysis/mechanical thrombectomy: Winnipeg Vascular and Endovascular Symposium. Winnipeg, Canada. April 2006.

Ho CS. Large volume ethanol injection for medium and large hepatomas: A treatment option. Given at Society of Interventional Radiology (SIR), Toronto, March 2006 and at World Congress of Interventional Oncology (WCIO). Como. Italy. June 13, 2006.

Ho CS. Percutaneous management of hepatolithiasis. The American Hepato-Pancreato-Biliary Association, Fort Lauderdale, FL, April 2005.

Jang H-J, Kim TK, Wilson SR. Importance of ultrasound in evaluating the liver: Malignant masses. 106th annual meeting of the American Roentgen Ray Society, Vancouver, Canada. April-May 2006.

Jang H-J, Kim TK, Wilson SR. Resolution of indeterminate liver lesions on CT/MR with contrast-enhanced ultrasound. Part II. Malignant lesions. Society of Gastrointestinal Radiologists, February 2006.

Jang H-J. Clinical applications of contrast-enhanced ultrasound in the diagnosis of malignant hepatic lesions. Symposium. Department of Radiology, Asan Medical Center, Seoul, Korea, June 2006.

Jhaveri K. Imaging in right lower quadrant pain. National Conference of the Indian Radiological Imaging Association. Chennai, India. January 18, 2006.

Johnson BW, Muthukumaraswamy S, Gaetz W, Cheyne D. Neuromagnetic and neuroelectric oscillatory responses to acoustic stimulation with broadband noise. 15th International Conference on Biomagnetism, Vancouver, Canada, 2006.

Jong RA. Applied Health Informatics Bootcamp - University of Waterloo, Waterloo, Ontario - July 17-22, 2005:

Jong RA. Breast ultrasound: Interventional uses (Instructional course). 106th annual meeting of the American Roentgen Ray Society, Vancouver, Canada. April-May 2006.

Jong RA. Contrast digital mammography. European Congress of Radiology, Vienna, Austria. March 6, 2006.

Jong RA. Digital mammography 2005. MEDBUY Medical imaging pre-RSNA conference, Chicago, IL. November 26, 2005.

Jong RA. Digital mammography: Do I need It? Breast imaging seminar. Canadian Association of Radiologists, Toronto, Canada, June 16, 2006.

Jong RA. The post biopsied breast. Approach to diagnosis (Case-based imaging review). 106th annual meeting of the American Roentgen Ray Society, Vancouver, Canada. April-May 2006.

Jong RA. What you should know about digital mammography: 2nd annual Practical Course in Digital Imaging and Teleradiology Connectivity in the 21st Century. Toronto, Canada, April 7, 2006.

Jurkiewicz MT, Gaetz W, Bostan A, Cheyne D. Is post-movement beta rebound generated in motor or somatosensory cortex? 15th International Conference on Biomagnetism, Vancouver, Canada, 2006.

Kachura JR. Radiofrequency ablation: Current status. Visiting Professor. Queen's University, Kingston, Ontario. November 10-11, 2005.

Kachura JR. Radiofrequency ablation in clinical practice today. Invited speaker. Workshop on Minimally Invasive Image Guided Therapies. Ontario Consortium for Image Guided Therapy and Surgery. Wyndham Bristol Place Hotel, Toronto, Canada. November 7, 2005.

Kachura JR. Radiofrequency ablation of liver tumours. Speaker. Barium enemas by medical radiation technologists, 4th course. Toronto, Canada. October 22, 2005.

Kachura JR. Tumor ablation with radiofrequency, cryotherapy or microwave systems (hands-on workshop). Society of Interventional Radiology, 31st Annual Scientific Meeting. Toronto, Canada. March 31, 2006.

Kassel EE. Imaging of thyroid nodules. The 7th Current Concepts on the Management of Thyroid Nodular Disease and Cancer (Incorporating Parathyroid Disease). Departments of Otolaryngology - Head and Neck Surgery, Medicine, Surgery, Laboratory Medicine and Pathobiology, Oncology Continuing Education. Mount Sinai Hospital, Toronto, Canada. May 26, 2006.

Kassel EE. An appreciation of recent advances in head and neck imaging: Current capabilities. Featured Speaker. Research Day 2006. Faculty of Dentistry, University of Toronto. Toronto. February 14, 2006.

Kassel EE. Cranio-orbital imaging: Efficacy and cost effectiveness. Ophthalmology Conference - Eye Care: What Works? What Doesn't? Department of Ophthalmology, University of Toronto. Old Mill Inn, Toronto. December 2-3, 2005.

Kassel EE. Current perspectives on neoplastic and inflammatory processes. American Society of Head and Neck Radiology, 39th Annual Meeting and Symposium. San Francisco, CA. September 21-25, 2005.

Kassel EE. What information does the surgeon need to know? The Eastern Neuroradiological Society. Ottawa, Canada. August 25, 2005.

Keller A. Imaging of head and neck cancer. McGill University 16th Annual Research Day, Department of Diagnostic Radiology, Montréal, Canada. February 4, 2006.

Kim TK. Importance of ultrasound in evaluating the liver: Benign masses. 106th annual meeting of the American Roentgen Ray Society, Vancouver, Canada. April-May 2006.

Kim TK. Routine implementation of contrast-enhanced ultrasound in clinical practice. World Federation for Ultrasound in Medicine and Biology, Seoul, Korea. May-June 2006.

Koff DA, Townsend C. Continuing Medical Education Director. Major Healthcare Applications 2: Digital Imaging and PACS.

Koff DA. Applied Health Informatics Bootcamp - University of Waterloo, Waterloo, Canada. April 5-8, 2006 - Continuing Medical Education Director.

Koff DA. Second Annual Practical Course in Digital Imaging and Teleradiology Connectivity in the 21st Century. Course director. April 7-8, 2006. Women's College Hospital. Topics: Monitors, Speech recognition, CardioPACS, Digital Mammography, Teaching tools, PACS workflow, TRIP, IHE, LIHN, Infoway, Evidence-based medicine, Advanced processing, RIS, IT for teleradiology, Open source.

Kulkarni S. Full field digital mammography. Tata Memorial Hospital, Mumbai, India, August 2005.

Kulkarni S. Second trimester ultrasound: What not to miss. Fall Symposium, Ontario Society of Diagnostic Medical Sonographers, North Bay, Canada, October 2005.

Kulkarni S. Ultrasound contrast imaging in breast nodules. Fall Imaging Symposium, Ontario Society of Diagnostic Medical Sonographers, North Bay, Canada. October 2005.

Kulkarni S. Breast cancer detection: impact of imaging. 59th Annual Congress, Indian Radiological and Imaging Association, Chennai, India, January 2006.

Kulkarni S. Breast intervention: needle localization. 31st annual scientific meeting, Society of Interventional Radiology, Toronto, Canada, April 2006.

Lim R. Nuclear Medicine Board Review Seminars for Radiology Residents (2 hours), Massachusetts General Hospital, - April 14, 2006.

Lim R. Nuclear Medicine Board Review Seminars for Radiology Residents (2 hours), University of Toronto, May 25 and May 31, 2006.

Lim R. University of Toronto Nuclear Medicine Residency Lecture – Nuclear Imaging, various topics - April 2006.

Lim R. University of Toronto Radiology Residency Lectures - Nuclear Renal Imaging - March 22, 2006.

MacDonald C. Medical Imaging, McMaster University, Approach to pediatric congenital heart disease. April 26, 2006.

Macgowan C. Can we image microvascular flow in our patients? 2nd Annual Toronto Symposium – Contemporary Questions in Congenital Heart Disease, The Right Heart, Toronto, Canada, June 18, 2006. Sponsor: Hospital for Sick Children.

Macgowan C. Hemodynamic characterization using MRI. CAIMS-MITACS 2006 Joint Annual Conference, Toronto, Canada, June 16, 2006. Sponsor: Mathematics of Info. Tech. and Complex Systems, Network of Centres of Excellence.

Manson D. High resolution CT in children. Celebration of Pediatric Pulmonology 2006, San Juan, Puerto Rico, March 31-April 2, 2006.

Manson D. Notes from a radiologist: When imaging can and cannot help. Celebration of Pediatric Pulmonology 2006, San Juan, Puerto Rico, March 31-April 2, 2006.

Manson D. Recurrent infections in childhood imaging. Celebration of Pediatric Pulmonology 2006, San Juan, Puerto Rico, March 31-April 2, 2006.

Marotta TR, Montanera W. Endovascular management of vasospasm. 13th World Congress of Neurological Surgery. Marrakesh, Morocco. June/July 2005.

Marotta TR. Cerebral aneurysms: Clip versus coils. 13th World Congress of Neurological Surgery. Marrakesh, Morocco. June/July 2005.

Marotta TR. Interventional management of spontaneous and catheter induced stroke. Interventional Cardiology Meeting. January 2006, Whistler, BC.

Marotta TR. Intracranial angioplasty and stenting for impending stroke. 7th Annual Interventional Neuroradiology Symposium. Toronto, Canada. September 9, 2005.

Marotta TR. Moderator. Ischemia in adults 2. 7th Annual Interventional Neuroradiology Symposium. Toronto, Canada. September 9, 2005.

McVeigh P, Bostan A, Cheyne D. Comparison of dipole fit and beamformer localization with different head models: Simulations using a realistically shaped physical model. 15th International Conference on Biomagnetism, Vancouver, Canada, 2006.

Mohamed I, Gaetz W, Logan W, Otsubo H, Hunjan A, Donner E, Cheyne D, Pang E. Neuromagnetic imaging of cortical neural oscillations in children during auditory word recognition task. 11th annual meeting of the Organization for Human Brain Mapping, Toronto, Canada, 2005.

Mohamed I, Gaetz W., Otsubo H, Cheyne D. Localization of interictal spikes using an event-related beamformer. 15th International Conference on Biomagnetism, Vancouver, Canada, 2006.

Muradali D. European Society of Gastrointestinal Radiology: Sonography of the small bowel, ultrasound of the bowel, Crete, June 2006.

Muradali D. St Michael's Hospital Vascular Access Symposium, Access to science in haemodialysis: A call to arms. Sonography of haemodialysis shunts. Toronto, Canada. June 2005.

Muradali D. National Annual Congress of Indian Federation Ultrasound in Medicine and Biology; (i) Scrotal Ultrasound; (ii) Transplant ultrasound; (iii) Artifacts in ultrasound; (iv) Liver tumor symposium. Pune, India, February 2005.

Muradali D. Problem solving with breast ultrasound: To biopsy or not to biopsy. Case based review. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Muradali D. Society of Gastrointestinal Radiologists Abdominal Radiology Course 2005. Multimodality imaging of renal and liver transplants. San Antonio, TX, USA. March 2005.

Muradali D. Canadian Association of Radiology, Breast ultrasound: Clues to diagnosis. Toronto, June 2006.

O'Kelly C, Spears J, Montanera W, Marotta TR, Willinsky R, Wallace MC, terBrugge K. The impact of assistive devices on outcomes following endovascular closure of ruptured intracranial aneurysms, Joint Cerebrovascular Section of AANS, CCNS, and ASITN. Orlando, FL. February 2006.

O'Malley M. MDCT GU tract. Canadian Association of Radiologists. 68th Annual Scientific Meeting. Lake Louise, Canada, September 2005.

O'Malley M. Diffuse parenchymal liver disease. Visiting Professor. University of Ottawa, Ottawa, Canada. April 27, 2006.

O'Malley M. Imaging hepatocellular carcinoma. Visiting Professor. University of Ottawa, Ottawa, Canada. April 28, 2006.

O'Malley M. Multidetector CT: Kidneys and ureters. Visiting Professor. University of Ottawa, Ottawa, Canada. April 27, 2006.

O'Malley M. Renal lesion characterization. Urology Rounds, University Health Network, Princess Margaret Hospital, Toronto, Canada. June 12, 2006.

O'Malley M. Renal lesions: review. McMaster University, Hamilton, Canada. March 1, 2006.

Oudjhane K. L'histiocytose Langerhansienne de l'enfant dans tous ses etats. Journees Francaises de Radiologie, Paris, France, October 15-19, 2005.

Pang EW, Gaetz WC, Drake JM, Strantzas SC, Holowka S, Junjan A, Otsubo H, Cheyne DO. Direct correspondence between pre-operative MEG mapping of hand motor area and activation of same area with intra-operative cortical stimulation: A case report. 11th annual meeting of the Organization for Human Brain Mapping, Toronto, Canada, 2005.

Paul N. Advances in imaging: low dose spiral CT-are we ready for it? University of Toronto Annual Day in Respiriology November 12, 2005.

Paul N. Instructional Course, Radiological signs in thoracic imaging. American Roentgen Ray Society (ARRS), Vancouver, Canada, May 2006.

Paul N. Thoracic imaging: Introduction to respirology course. Annual Meeting for First year Respirology Residents in Ontario. Toronto July 4-7, 2005.

1) Provost Y. Cardiac CT and coronary artery CT angiography. CAR Annual Meeting, Lake Louise, Canada, 30 September 2005.

2) Provost Y. Technical and clinical aspects of coronary artery CT angiography. Atlantic Provinces Radiology Annual Meeting. St. John, Canada, May 5, 2006.

3) Provost Y. Anatomy of the heart in congenital heart disease. UHN Scientific Meeting for the technologists. University of Toronto, Toronto. March 29, 2006.

4) Raybaud C. Developmental disorders of the human nervous system, Doorwerth, The Netherlands. Development and disorders of the corpus callosum. May 17-19, 2006.

Raybaud C. ERASMUS Course in Neuroradiology, Maastricht, the Netherlands. Development of the brain. Congenital malformations of the brain. Hydrocephalus Workshop: Pediatric MR Imaging. October 8-13, 2005.

Raybaud C. European Advanced Course in Pediatric Neurosurgery, Siofok, Hungary. CSF physiology and imaging in hydrocephalus. Antenatal hydrocephalus. May 2-6, 2006.

Raybaud C. European Course in Neuroradiology ECNR, Basel, Switzerland. Anatomy of the carotid artery. Anatomy of the vertebro-basilar system. Development of the cerebral vessels and

blood-brain-barrier. Anatomy of the venous system. Microvascularization of the thalamus and basal ganglia. Workshop: Imaging of acute and chronic cerebral infarcts in children. Workshop: Vascular diseases of the developing brain. October 21-25, 2005.

Raybaud C. European Society of Pediatric Neurosurgery ESPN. La Martinique, French Caribbean. Pediatric epilepsy: Are invasive recordings still necessary? Neuroradiologist's opinion. March 6-11, 2006.

Raybaud C. Swiss Symposium on Pediatric Neuroradiology/ESMRN, Saint-Moritz, Switzerland. Development of cerebral vessels and BBB. Epilepsy, what to look for: neuroradiology. Epilepsy, what to look for: Workshop and case presentation. Anatomy of the arterial system of the brain. Anatomy of the venous system of the brain. January 18-21, 2006.

Raybaud C. XVIII Symposium Neuroradiologicum, Adelaide, Australia. Imaging the brain of the developmentally delayed infant. Imaging of malformations and phakomatoses. Fetal MR Imaging: Medico-legal problems. March 19-24, 2006.

Raybaud C. XXX Congress of the European Society of Neuroradiology (ESNR), Barcelona, Spain. Acute demyelination in children. September 15-18, 2005.

Raybaud C. 7th Canadian Interventional Neuroradiology Symposium, Toronto, Canada. Embryology of the intracranial venous vascular system. September 9-10, 2005.

Salem S. Medicolegal issues in obstetric ultrasound. Reducing the Risk of Medical Malpractice Symposium. The Canadian Institute, Toronto, Canada. March 2006.

Salem S. Medicolegal issues in obstetrical ultrasound. Obstetric Ultrasound: Setting the Standard for 2005. University of Toronto, Toronto, Canada. March 2005.

Salem S. Ultrasound of the early first trimester. Women's Imaging: Advances in Gynaecologic Imaging and First Trimester Ultrasound. University of Toronto, Toronto, Canada. February 2006.

Salem, S. Ultrasound in thyroid nodular disease. The 7th Current Concepts on the Management of Thyroid Nodular Disease and Cancer. Departments of Otolaryngology - Head and Neck Surgery, Medicine, Surgery, Laboratory Medicine and Pathobiology, Oncology Continuing Education. University of Toronto, Toronto, Canada. May 2006.

Shroff M. Imaging in epilepsy; and Advanced neuroimaging of brain tumors. Presented as CME lectures at the 6th Asian Conference of Neurological Surgeons, Mumbai, India, January 26-29, 2006.

Shroff M. CNS infections in children. Invited CME lecture at the 68th Canadian Association of Radiology annual scientific meeting, Lake Louise, Canada. October 2, 2005.

Shroff M. Neuroimaging of metabolic diseases; and Imaging of the temporal bone. Invited lectures presented as Visiting Professor to Alberta Children's Hospital, Calgary, Canada. September 29, 2005.

Sniderman K. Annual Film Panel. Presented at the 31st annual meeting of the Society of Interventional Radiologists, Toronto, Canada. March 30-April 4, 2006.

Sum W, Wu L, Chow CM. Imaging features of cardiac non-compaction on MRI with delayed enhancement. American Roentgen Ray Society, Vancouver, Canada. May 2006.

Symons SP, Aviv RI, Fox AJ. Emerging techniques in stroke imaging. Canadian Stroke Consortium, Toronto, Canada. March 2006.

Symons SP, Aviv RI. Perfusion imaging in acute stroke: Differences and pitfalls. Eastern Neuroradiological Society, Ottawa, Canada. August 2005.

Taylor MJ. Functional neuroimaging in children: Examples from face processing. Centre for Vision Sciences, York University, Toronto, Canada. September 2005.

Taylor MJ. Neuroimaging measures of face processing over childhood. Keynote lecture for the International Society for Brain Electromagnetic Tomography, Bern, Switzerland. October 2005.

Toi A. Retinoblastoma screening with fetal ultrasound. New Developments in Prenatal Diagnosis and Medical Genetics. University of Toronto, Toronto, Canada. May 17, 2006.

Toi A. Routine obstetrical ultrasound. Obstetrical residents teaching seminar. Women's College Hospital, Toronto, Canada. April 4, 2006.

White LM. (a) MR knee: Menisci and cartilage. (b) MRI knee: Postoperative. University of Toronto Musculoskeletal MR Imaging Course 2006. Whistler, Canada. March 26-28, 2006.

White LM. (a) MR imaging assessment of the knee following meniscal and ligament surgery. (b) MR imaging of the knee ligaments. Visiting Professor, Radiology Grand Rounds, Department of Radiology, University of British Columbia, Vancouver, Canada. January 18-19, 2006.

White LM. (a) MR imaging assessment of the knee ligaments. (b) MR imaging in the vicinity of orthopedic metal hardware. (c) MR imaging of the knee post meniscal and articular cartilage repair. Visiting Professor, Radiology Grand Rounds, Department of Radiology, University of Ottawa, Ottawa, Canada. February 15-17, 2006.

White LM. MR Imaging assessment of the postoperative knee. 32nd International Skeletal Society Annual Meeting and Refresher Course. Singapore. September 24-30, 2005.

White LM. MR Imaging of the postoperative knee: Menisci and ligaments. Lower Extremity Musculoskeletal Imaging Symposium. Toronto, Canada. November 11-12, 2005.

Wu L. MR imaging of the female pelvis: Current and near future indications. Department of Radiology, McMaster University. Hamilton, Canada. May 2006.

Wu L. MR imaging with new contrast agents: A Multihance perspective. Department of Radiology, Charlottetown, Canada. May 2006.

Wu L. MR imaging with new contrast agents: A Multihance perspective. Department of Radiology, Moncton, Canada. May 2006.

Wu L. Liver MRI contrast agents: A Multihance perspective. Department of Radiology, University of Alberta, Edmonton, Canada. March 14, 2006.

Wu L. Practical tips: Imaging the pelvis with MR. GE MR Symposium. Halifax, Canada. May 2006.

Wu L. Guest Lecturer (1 lecture): N.L.A.R. Newfoundland and Labrador, September 2005.

Wu, L. Visiting Professor (4 lectures): Memorial University, Newfoundland and Labrador, September 2005.

Yoo S-J. Abnormal conal development, MRI anatomy. Symposium on Congenital Heart Disease, Development, Pathology, Imaging and Surgery, Albuquerque, NM. September 8-13, 2005.

Yoo S-J. Abnormalities of an atrioventricular alignments, MRI anatomy. Symposium on Congenital Heart Disease, Development, Pathology, Imaging and Surgery, Albuquerque, NM. September 8-13, 2005.

Yoo S-J. Case-based review, pediatric, cardiovascular. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Yoo S-J. Controversy sessions: CTA versus MRI. 4th World Congress of Pediatric Cardiology and Cardiovascular Surgery, Buenos Aires, Argentina. September 19-22, 2005.

Yoo S-J. Differential diagnosis of abnormal cardiac position. Annual Congress of World Federation of Ultrasound in Medicine and Biology, Seoul, Korea. May 28-June 1, 2006.

Yoo S-J. Extended use of three-vessel view at fetal echocardiography. Annual Congress of World Federation of Ultrasound in Medicine and Biology, Seoul, Korea. May 28-June 1, 2006.

Yoo S-J. Fetal Symposium: Extended use of three-vessel view. 4th World Congress of Pediatric Cardiology and Cardiovascular Surgery, Buenos Aires, Argentina. September 19-22, 2005.

Yoo S-J. Normal cardiac anatomy on MRI. Symposium on Congenital Heart Disease, Development, Pathology, Imaging and Surgery, Albuquerque, NM. September 8-13, 2005.

Yoo S-J. Normal cardiac anatomy for imaging. 4th SPR Symposium on Pediatric Cardiovascular MR, Houston, TX. March 31-April 2, 2006.

Yoo S-J. Number games in pre-and post operative MR. 2006 Symposium on Advanced Pediatric Cardiovascular MR, Houston, TX. April 3-4, 2006.

Yoo S-J. Pediatric cardiovascular MRI overview. Symposium on Congenital Heart Disease, Development, Pathology, Imaging and Surgery, Albuquerque, NM. September 8-13, 2005.

Yoo S-J. Plenary Session: Cardiovascular MR. 4th World Congress of Pediatric Cardiology and Cardiovascular Surgery, Buenos Aires, Argentina. September 19-22, 2005.

Yoo S-J. Practicum. 4th SPR Symposium on Pediatric Cardiovascular MR, Houston, TX. March 31-April 2, 2006.

Yoo S-J. Refresher course: Obstetric Ultrasound I: The fetal heart through pregnancy. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Yoo S-J. Sequential segmental approach to congenital heart disease. 4th SPR Symposium on Pediatric Cardiovascular MR, Houston, TX. March 31-April 2, 2006.

Yoo S-J. Small group sessions: Aortic arch anomalies, MRI anatomy. Symposium on Congenital Heart Disease, Development, Pathology, Imaging and Surgery, Albuquerque, NM. September 8-13, 2005.

Yoo S-J. Small group sessions: Heterotaxy syndromes. Symposium on Congenital Heart Disease, Development, Pathology, Imaging and Surgery, Albuquerque, NM. September 8-13, 2005.

Yoo S-J. Symposium on advances in MRI and CTA-MRI in pulmonary vein anomalies assessment. 4th World Congress of Pediatric Cardiology and Cardiovascular Surgery, Buenos Aires, Argentina. September 19-22, 2005.

Yoo S-J. The branch pulmonary arteries: CT, MRI, CATH . . . How should we investigate? The 2nd Annual Toronto Symposium: The Right Heart, Toronto, Canada. June 18-20, 2006.

Yu E. Neuroradiology. University of Toronto Bruce Tovee Lecture Series: Toronto, Canada. January 2006.

Yu E. Neuroradiology. University of Toronto IMG Lecture Series: Toronto, Canada. October 2005.

SCIENTIFIC PRESENTATIONS: PEER-REVIEWED PAPERS, POSTERS AND EXHIBITS

Ahmad T, Aviv RI, Noël de Tilly L, Fox AJ, Symons SP. Comparison of CT angiography to DSA in evaluating etiology of non-traumatic, non-subarachnoid intracerebral hemorrhages. ASNR, San Diego, CA. May 2006.

Al-Kwif O, Kellenberger CJ, Wright GA, Macgowan CK. Evaluating contrast kinetics in pediatric patients by acquiring 2D images during 3D contrast enhanced acquisition. 4th Imaging Symposium, Imaging Network Ontario, Toronto, Canada. March 1-3, 2005.

Al Shaalan H, Manson D, Benseler S. Thoracic, abdominal and pelvic CT and US imaging features in children with HLH/MAS. International Pediatric Radiology 5th conjoint meeting. Montréal, Canada. May 2006.

Amaral J. Percutaneous trimming of excess length from long-term central venous access devices: A unique method. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 2005.

Amaral J. Six-year review of interventional procedures in the very low-birth weight infant (less than 1.5 kg): Complications, lessons learned and current practice. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 2005.

Amaral J. Percutaneous nephrostomy (PN) in children younger than 1 year: Indications, risks and complications. Society of Interventional Radiology 31st annual meeting, Toronto, Canada. April 2006.

Amaral J. Plugged vs. non-plugged percutaneous biopsies in children. Society of Interventional Radiology 31st annual meeting, Toronto, Canada. April 2006.

Amaral J. Difficulties during CVC removals: Interventional approaches. Society of Interventional Radiology 31st annual meeting, Toronto, Canada. April 2006.

Amaral J. CT-guided lung biopsies in children. Society of Interventional Radiology 31st annual meeting, Toronto, Canada. April 2006.

Amaral J. Image-guided biopsies and aspirations of pelvic masses in children. 106th annual meeting of the American Roentgen Ray Society, Vancouver, Canada. April-May 2006.

Amaral J. Plugged vs. non-plugged percutaneous biopsies in children. 106th annual meeting of the American Roentgen Ray Society, Vancouver, Canada. April-May 2006.

Amaral J. Computed tomography-guided lung biopsies in children. 106th annual meeting of the American Roentgen Ray Society, Vancouver, Canada. April-May 2006.

Amaral J. Snapping hip syndrome: Imaging findings in 3 children. International Pediatric Radiology 5th conjoint meeting, Montréal, Canada. May 2006.

Amaral J. Retrograde percutaneous enterostomies in children using a needle system with valve mechanism: A new improved technique. International Pediatric Radiology 5th conjoint meeting, Montréal, Canada. May 2006.

Amendy U, Temple M, John P, Chait PG, Connolly B. Difficulties during CVC removals: Interventional approaches. Society of Interventional Radiology 31st annual meeting, Toronto, Canada. April 2006.

Anderson KJT, Leung G, Munce N, Qiang B, McMillan E, Graham J, Moody AR, Dick AJ, Strauss B, Wright G. Contrast-enhanced MRI of occlusive arterial disease. Proceedings of the 9th Society of Cardiac Magnetic Resonance, Miami, FL. January 2006.

Aviv R, Jahromi B, Verma R, Bartlett E, Sahlas D, Brodie D, Symons S, Fox A. Carotid CT angiography: Correlation of a linear measure with DUS. ASNR, San Diego, CA, May 2006.

Barbeau EJ, Taylor MJ, Regis J, Marquis P, Chauvel P, Liégeois-Chauvel C. An intracerebral study of famous face recognition: Some bottom-up, some top-down and a lot of parallel processes. Part of a symposium at the International Cognitive Neuroscience meeting, Havana, Cuba. September 2005.

Bartlett ES, Noël de Tilly L, Yu E. Leptomeningeal enhancement in PRES. Oral presentation, 44th annual meeting of the American Society of Neuroradiology, San Diego, CA. May 2006.

Baskin KM, Hernandez-Pampaloni M, El-Haddad G, El-Haddad G, Alavi A, Charron M, Towbin RB. PET-CT fusion as an alternative guidance modality in image-guided biopsy. *Pediatr Radiol* 2006; 36 (S1):63. (Presented at the International Pediatric Radiology 5th conjoint meeting, Montréal, Canada. May 2006).

Bayle DJ, Bostan AC, Taylor MJ. Attention to the person or the emotion: Underlying brain activations in MEG. Presented at BioMag 2006, Vancouver, Canada. August 2006.

Bayle D, Taylor MJ. The role of learned or acquired familiarity on early face recognition processes. Part of a symposium at the International Cognitive Neuroscience meeting, Havana, Cuba. September 2005.

Bayle D, Taylor MJ. Spatio-temporal dynamics of face expression processing and the effect of attention. Presented at the 12th annual meeting of the Organization for Human Brain Mapping, Florence, Italy. June 2006.

Bayless SJ, Cheyne DO, Taylor MJ. Neuroimaging executive function development using MEG: An adult pilot study of a modified card-sorting task. Cognitive Neuroscience Society, San Francisco, CA. April 2006.

Bayless SJ, Goltz H, Bells S, Arsalidou M, Taylor MJ. Spatial and object working memory for face stimuli: An fMRI investigation. Presented at the 12th annual meeting of the Organization for Human Brain Mapping, Florence, Italy. June 2006.

Bell JW, Osborn AG, Salzman KL, Blaser S, Jones BV, Chin SS. Neuroradiologic characteristics of astroblastomas and distinction from potential radiologic mimics. 44th annual meeting of the American Society of Neuroradiology, San Diego, CA. April 29-May 5, 2006.

Benamore R, Weisbrod G, Doyle D, Pereira A, Chung TB, Paul N. Pulmonary arterial hypertension imaging: Features and underlying etiology. 106th annual meeting of the American Roentgen Ray Society, Vancouver, Canada. April-May 2006.

Betel C. Breast intervention. 106th annual meeting of the American Roentgen Ray Society, Vancouver, Canada. April-May 2006.

Bigenwald R, Warner E, Gunaskeara A, Hill K, Causser P, Messner S, Eisen A, Plewes DB, Narod S, Yaffe M. Is mammography adequate for screening BRCA mutation carriers with low breast density? 42nd annual meeting of the American Society of Clinical Oncology, Atlanta, GA. June 2-6, 2006.

Biswas L, Anderson KJT, Pintilie S, Toma J, Hu N, Radau P, Macgowan CK, Wright GA. An interactive system for real-time device tracking. ISMRM Workshop on Real-Time MRI, Santa Monica, CA. February 23-24, 2006.

Biswas L, Anderson KJT, Pintilie S, Toma J, Hu N, Radau P, Macgowan CK, Wright GA. An interactive MRI system for device tracking. 5th Imaging Symposium, Imaging Network Ontario, Toronto, Canada. April 3-4, 2006.

Biswas L, Detsky JS, Stainsby JA, Yoo SJ, Wright GA, Macgowan CK. Design of a real-time magnetic resonance imaging interface: Case study of real-time MR blood-flow measurement. 4th Imaging Symposium, Imaging Network Ontario, Toronto, Canada. March 1-3, 2005.

Bitar R, Kulkarni S, Shaheen R, Kis A, Muradali D. Recent trends in the utilization and outcomes of magnetic resonance imaging in breast cancer detection and staging from 2001 to 2004: The Toronto experience. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Bitar R, Leung G, Crisp S, Symons S, Rowsell C, Butany J, Gladstone D, Sahlas DJ, Kis A, Nelson A, Maggisano R, Moody AR. 3-dimensional high resolution magnetic resonance direct thrombus imaging: Detection of carotid AHA VIb/c plaque. International Stroke Conference, Kissimmee, FL, 2006.

Bitar R, Moody AR, Leung G, Crisp S, Rowsell C, Butany J, Gladstone D, Sahlas DJ, Kis A, Nelson A, Maggisano R. 3D high-resolution magnetic resonance direct thrombus imaging (hiresMRDTI) and 3D conventional MRDTI (convMRDTI): A radiological-histological comparative study. 91st Scientific Assembly and annual meeting of the Radiological Society of

North America, Chicago, IL. November 27-December 2, 2005. (Radiology resident trainee award winner)

Bitar R, Moody AR, Leung G, Symons S, Crisp S, Rowsell C, Butany J, Kis A, Sahlas DJ, Gladstone D, Maggisano R. In vivo high-resolution volumetric imaging of carotid complicated plaque: 3-dimensional high-resolution magnetic resonance direct thrombus imaging (HiresMRDTI). 14th Scientific Meeting of the International Society of Magnetic Resonance in Medicine, Seattle, WA. May 2006.

Bitar R, Moody AR, Symons S, Leung G, Butany J, Crisp S, Kis A, Sahlas DJ, Gladstone D, Maggisano R. Distribution of intraplaque hemorrhage in carotid complicated plaques defined by high-resolution magnetic resonance direct thrombus imaging (HiresMRDTI). 14th Scientific Meeting of the International Society of Magnetic Resonance in Medicine, Seattle, WA. May 2006.

Bitar R, Leung G, Nelson A, Roberts TP, Moody A. Use of a novel normal and diseased-state vessel wall phantom for quantitative evaluation of high resolution magnetic resonance direct thrombus imaging sequence (MRDTI). 68th Canadian Association of Radiologists Annual Scientific Meeting, Lake Louise, Canada. September 2005. (First prize, Resident Research Award winner).

Bitar R, Leung G, Crisp S, Kis A, Gladstone D, Sahlas DJ, Nelson A, Maggisano R, Moody A. Identification of complicated plaque in the upper thoracic aorta and arch vessels with magnetic resonance direct thrombus imaging (MRDTI). 68th Canadian Association of Radiologists Annual Scientific Meeting, Lake Louise, Canada. September 2005.

Bitar R, Moody AR, Leung G, Crisp S, Rowsell C, Butany J, Gladstone D, Sahlas DJ, Kis A, Nelson A, Maggisano R. High-resolution imaging of atherosclerotic complicated plaque: Three-dimensional magnetic resonance direct thrombus imaging (hiresMRDTI). CSCI/CIHR Young Investigators Forum, Royal College of Physicians and Surgeons of Canada Meeting, Vancouver, Canada. September 2005.

Bitar R, Moody AR, Leung G, Kis A, Gladstone D, Sahlas DJ, Crisp S, Nelson A, Maggisano R. Differences in the prevalence of carotid complicated plaque detected with magnetic resonance direct thrombus imaging (MRDTI) in patients investigated for symptomatic anterior circulation cerebrovascular disease: A role for age and gender. CSCI/CIHR Young Investigators Forum, Royal College of Physicians and Surgeons of Canada Meeting, Vancouver, Canada. September 2005.

Bitar R, Moody AR, Leung G, Kis A, Gladstone D, Sahlas DJ, Crisp S, Nelson A, Maggisano R. In vivo identification of upper thoracic aorta and arch vessel complicated atherosclerotic plaque by magnetic resonance direct thrombus imaging (MRDTI) in patients investigated for symptomatic carotid artery disease. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Bitar R, Leung G, Moody AR, Nelson A, Crisp SJ, Roberts TP. What every radiologist/resident wants to know but is too afraid to ask about MR image optimization. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Bitar R, Leung G, Kis A, Gladstone D, Sahlas DJ, Crisp S, Nelson A, Maggisano R, Moody AR. Prevalence of intraplaque hemorrhage in vasculopathic patients with asymptomatic carotid stenosis. American Heart Association Scientific Sessions, Dallas, TX. November 2005. (Merit Award for Young investigator Award)

Bitar R, Moody AR, Leung G, Crisp S, Rowsell C, Butany J, Gladstone D, Sahlas DJ, Kis A, Nelson A, Maggisano R. 3D high-resolution magnetic resonance direct thrombus imaging (hiresMRDTI) and 3D conventional MRDTI (convMRDTI): A radiological-histological comparative study. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005. (Radiology resident trainee award winner)

Bitar R, Moody AR, Leung G, Kis A, Gladstone D, Sahlas DJ, Crisp S, Nelson A, Maggisano R. Age and gender differences in the prevalence of carotid AHA Type VI complicated plaque detected with magnetic resonance direct thrombus imaging (MRDTI) in patients investigated for symptomatic anterior circulation cerebrovascular disease. World Congress of Neurology, Sydney, Australia. November 2005.

Bitar R, Moody AR, Leung G, Kis A, Gladstone D, Sahlas DJ, Crisp S, Nelson A, Maggisano R. Upper thoracic aorta and arch vessel complicated atherosclerotic plaque identification by magnetic resonance direct thrombus imaging (MRDTI) in patients investigated for symptomatic cerebrovascular disease. World Congress of Neurology, Sydney, Australia. November 2005.

Bitar R, Moody AR, Leung G, Symons S, Crisp S, Rowsell C, Butany J, Kis A, Sahlas DJ, Gladstone D, Maggisano R. In vivo high-resolution volumetric imaging of carotid complicated plaque: Three-dimensional high-resolution magnetic resonance direct thrombus imaging (hiresMRDTI). 14th Scientific Meeting of the International Society of Magnetic Resonance in Medicine, Seattle, WA. May 2006.

Bitar R, Moody AR, Symons S, Leung G, Butany J, Crisp S, Kis A, Sahlas DJ, Gladstone D, Maggisano R. Distribution of intraplaque hemorrhage in carotid complicated plaques defined by high-resolution magnetic resonance direct thrombus imaging (hiresMRDTI). 14th Scientific Meeting of the International Society of Magnetic Resonance in Medicine, Seattle, WA. May 2006.

Bitar R, Moody AR, Symons S, Leung G, Butany J, Crisp S, Kis A, Sahlas DJ, Gladstone D, Maggisano R. Carotid atherosclerotic calcification does not appear as high signal in high-resolution magnetic resonance direct thrombus imaging. 44th annual meeting of the American Society of Neuroradiology, San Diego, CA. May 2006.

Bitar R, Moody AR, Symons S, Leung G, Butany J, Crisp S, Kis A, Sahlas DJ, Gladstone D, Maggisano R. Carotid atherosclerotic calcification does not appear as high signal in high-resolution magnetic resonance direct thrombus imaging. 44th annual meeting of the American Society of Neuroradiology, San Diego, CA. May 2006.

Blaser S, Feigenbaum A, Laughlin S, Clarke JTR. Neuroimaging in urea cycle enzyme disorders. International Pediatric Radiology 5th conjoint meeting, Montréal, Canada. May 2006.

Blaser S, Laughlin S, Fanning N, Parmar H, Propst E, Ford-Jones L, Papsin B. Imaging features of ossifying labyrinthitis: CT and MRI. American Society of Head and Neck Radiology, San Francisco, CA. September 21-25, 2005.

Blaser S, Moore A, Propst E, Shroff M, Papsin B. MRI of kernicterus in sensorineural hearing loss. American Society of Head and Neck Radiology, San Francisco, CA. September 2005.

Blaser S, Propst E, James A, Gordon K, Papsin B. Inner ear dysplasias in CHARGE, relationship to cochlear implantation. International Pediatric Radiology 5th conjoint meeting, Montréal, Canada. May 2006.

Blaser S, Propst E, James A, Gordon K, Papsin B. Inner ear dysplasias in CHARGE, relationship to cochlear implantation. American Society of Pediatric Otolaryngology 21st Annual Congress; Chicago, IL. May 2006.

Blaser S, Propst E, James A, Papsin B. Spectrum of temporal bone abnormalities in trisomy 21 includes inner ear dysplasias. Triological Society Annual Program, Chicago, IL. May 2006.

Brahm GL, Amaral J, Connolly B, John P, Temple M, Chait PG. Percutaneous nephrostomy (PN) in children younger than 1 year: Indications, risks and complications. Society for Interventional Radiology 31st annual meeting, Toronto, Canada. April 2006.

Branson H, Doria A, Moineddin, Shroff MM. Is contrast enhancement really needed after a normal unenhanced CT scan of the brain in children? A retrospective review. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Breen SL, Publicover J, De Silva S, Pond G, Brock K, Waldron J, Cummins B, Dawson L, Keller A, Kim J, Ringash J, Yu E, Hendler A, O'Sullivan B. Intra and Inter-observer variability in GTV delineation on FDG-PET-CT images of head and neck cancers. 47th annual meeting of the American Society for Therapeutic Radiology and Oncology, Denver, CO. October 2005.

Callen D, Shroff M, Li D, Stephens D, Banwell B. Magnetic resonance imaging criteria for the diagnosis of childhood multiple sclerosis. American Academy of Neurology. San Diego, CA. April 2006.

Callen D, Shroff M, Stephens D, Li D, Banwell B. MRI criteria for pediatric MS. ECTRIMS/ACTRIMS. Thessaloniki, Greece. September 2005.

Causar PA, Jong RA, Warner E, Hill K, Wong JW, Plewes DB, Curpen BN. MRI screen detected breast cancers in the BRCA population: ultrasound, mammographic and histopathologic correlation. 92nd Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 2006.

Chan P, Dinniwell R, Milosevic M, Haider, M, Fyles A, et al. Topographic analysis of inguinal lymph nodes using combidex enhanced magnetic resonance imaging: Defining the radiation therapy volume for tumors of the lower pelvis and genitalia. Canadian Association of Radiation Oncologists 19th annual meeting, Victoria, Canada. September, 2005.

Chan P, Dinniwell R, Milosevic M, Haider M, Fyles A, et al. Topographic analysis of inguinal lymph nodes using combidex enhanced magnetic resonance imaging: Defining the radiation therapy volume for tumors of the lower pelvis and genitalia. 47th annual meeting of the American Society for Therapeutic Radiology and Oncology, Denver, CO. October, 2005.

Chan RP. Pulmonary AVMs: Adult experience, image-guided therapy. Guest speaker, Hospital for Sick Children, Toronto, Canada. January, 2006.

Chan RP. Pulmonary arteriovenous malformations: Diagnosis and management. Visiting Professorship. University of Alberta Hospital, Edmonton, Canada. January, 2006.

Charron M, Green M, Leung K, Louca E, Coates AL. Using ^{99m}Tc -DTPA to measure lung deposition from delivery systems with very different delivery times. Northeast Regional Meeting of the Society of Nuclear Medicine, Groton, CT. October 27-29, 2006.

Chaudry C, MacDonald C, Adatia I, Manson D. Chest CT findings in primary pulmonary hypertension in children. International Pediatric Radiology 5th conjoint meeting, Montréal, Canada. May 2006.

Cheng H-L. T1 Measurement of flowing blood and arterial input function: Determination for quantitative 3D T1-weighted DCE-MRI. 14th Scientific Meeting of the International Society of Magnetic Resonance in Medicine, Seattle, WA. May 2006.

Cheng H-L, Wright GA. Rapid high-resolution T1 mapping by variable flip angles: Accurate and precise measurements in the presence of RF field inhomogeneity. 14th Scientific Meeting of the International Society of Magnetic Resonance in Medicine, Seattle, WA. May 2006.

Chennapragada SM, Preiss D, Mardimae A, Tan KT, Rajan DK, Simons ME, et al. Disproportionate increase in cardiac output with exercise in patients with high flow arteriovenous malformations. 31st annual meeting of the Society of Interventional Radiology, Toronto, Canada. April 2006.

Chennapragada SM, Rajan DK, Lok CE, Tan KT, Beecroft JR, Simons ME, Hayeems E. Patency of endovascular treatment for central venous stenosis: Are there differences in dialysis fistulas vs. grafts? 31st annual meeting of the Society of Interventional Radiology, Toronto, Canada. April 2006.

Cheow PC, Al-Alwan A, Kachura J, Ho CS, Grant D, Cattral M, McGilvray I, Sherman M, Walsh M, Shah S, Girgrah N, Lilly L, Levy G, Greig P. Ablation of hepatoma as a bridge to liver transplantation reduces drop-out from prolonged waiting time. The Liver Meeting, 56th annual meeting of the American Association for the Study of Liver Diseases (AASLD). San Francisco, CA. November 2005.

Chopra R, Baker N, Boyes A, Choy V, Tang K, Teahan S, Klotz L, Sugar L, Haider MA, Bronskill M. MRI-guided transurethral thermal therapy for prostate disease: In-vivo demonstration in a canine model. 5th International Symposium on Therapeutic Ultrasound, Boston, MA. October 2005.

Common AA. Collateral channels in dialysis access: When should we intervene? Access to Science in Hemodialysis Conference, Toronto, Canada. June 4, 2006.

Connolly B, Glennie D, Charkot E. Pediatric patient doses in interventional radiology using MOSFETs: Preliminary results. International Pediatric Radiology 5th conjoint meeting, Montréal, Canada. May 2006.

Crean A, Provost YL, Paul NS, Merchant N. The clinical, echocardiographic, and magnetic resonance imaging features of Ebstein's anomaly. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Crystal P, Strano S, Leor J, Friger M, Zelinger I, Crystal E. Breast arterial calcifications on routine mammography as a predictor of cardiovascular morbidity in women without history of cardiovascular disease: Results of 5 years' follow-up. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Daneman A, Navarro O, Mohanta A, Jarrin J, Nemati E, Gasparini F. Renal pyramids: High resolution sonography (HRS) of normal and pathologic processes. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Dawson L, Voroney J, Eccles C, Haider M, Brock K. Spatial and volumetric comparison of liver tumors on CT and MR using finite element based deformable image (poster and discussion). 47th annual meeting of the American Association of Medical Physicists, Seattle, WA. July 2005.

Dinniwell R, Chan P., Milosevic M., Haider M. et al. Nodal mapping using magnetic resonance lymphography with ferumoxtran-10 for radiotherapy treatment planning of bladder and prostate cancers. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Dinniwell R, Chan P, Milosevic M, Haider M, et al. Improved delineation of lymph node basins at risk in pelvic malignancies using magnetic resonance lymphography with ferumoxtran-10 for radiotherapy treatment planning. ECCO13. The European Cancer Conference (ESTRO 24), Paris, France. November 2005.

Dinniwell R, Chan P, Milosevic M, Haider M, et al. Pelvic and inguinal lymphatic target volume delineation: Analysis of the visible human high-resolution anatomic data. 19th annual meeting of the Canadian Association of Radiation Oncologists, Victoria, Canada. September 2005.

Dinniwell R, Chan P, Milosevic M, Haider M, et al. Radiotherapy treatment planning atlas for intensity modulated radiotherapy treatment planning in genitourinary and gynecological malignancies: Three-dimensional renderings of nodal topography and vascular anatomy from the visible human datasets. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005. (*Certificate of Merit for Excellence in Design*)

Dinniwell R, Chan P, Milosevic M, Haider M, et al. Magnetic resonance lymphography with ferumoxtran-10 for pelvic lymph node delineation in radiotherapy treatment planning of bladder and prostate cancers. 47th annual meeting of the American Society for Therapeutic Radiology and Oncology, Denver, CO. October 2005.

Dinniwell R, Chan P, Milosevic M, Haider M, et al. Magnetic resonance lymphography with ferumoxtran-10 for pelvic lymph node delineation in radiotherapy treatment planning of bladder and prostate cancers. 19th annual meeting of the Canadian Association of Radiation Oncologists, Victoria, Canada. September 2005.

Dinniwell R., Chan P., Milosevic M., Haider M. et al. Lymphatic target volume delineation using magnetic resonance imaging with ultrasmall particles of superparamagnetic iron oxide in carcinoma of the prostate. 19th annual meeting of the Canadian Association of Radiation Oncologists, Victoria, Canada. September 2005.

Dowdell T. CCFP Annual Conference: Imaging Update (3 hrs). Toronto, Canada. November 18, 2005.

Dowdell T. ACPAC (Advanced Clinician Practitioner in Arthritis Care) Lecture – MRI in MSK imaging (2 hrs) (Audience of Physiotherapists). Toronto, Canada. December 2005.

Dowdell T. ACPAC (Advanced Clinician Practitioner in Arthritis Care) Fracture Lecture – 2 hrs. Toronto, Canada. April 11, 2006.

Doyle DJ, Paul NS, Pereira A, Benamore R, Keshavjee S, Chung TB. Large airways disease: Imaging features and current treatment options. Annual meeting of the American Roentgen Ray Society, Vancouver, Canada. April/May 2006.

Doyle DJ, Paul NS, Benamore R, Pereira A, Downey G, Chung TB. Cystic lung disease: Imaging and clinical features and treatment options. Annual meeting of the American Roentgen Ray Society, Vancouver, Canada. April/May 2006.

Dunn AJ, Connolly B, Ranson M. CT angiography in paediatric extremity and pelvic trauma. International Pediatric Radiology 5th conjoint meeting, Montréal, Canada. May 2006.

Dunn AJ, Ranson MD, Connolly BL, Hayeems E. CT angiography in orthopaedic trauma. Annual meeting of the Society of Pediatric Radiology, Miami, FL. May 2006.

Epelman M, Blaser SI, Halliday W, Aziz A, Whyte H, Daneman A. Abnormal corpus callosum in neonates with hypoxic-ischemic injury (HI). International Pediatric Radiology 5th conjoint meeting, Montréal, Canada. May 2006.

Epelman M, Daneman A, Kellenberger C, Aziz A, Konen O, Blaser SI. Gray-white matter differentiation on head US: Normal and pathologic appearance. International Pediatric Radiology 5th conjoint meeting, Montréal, Canada, May 2006.

Epelman MS, Oudjhane K, Kellenberger CJ, Miller SF, Daneman A, Babyn PS. Imaging of the inguinal area in children: Classical and serendipitous findings. 91st Scientific Assembly and annual meeting of the Radiological Society of North America Chicago, IL, November 27-December 2, 2005.

Eskicioglu C, Quan ML, Glazier J, Smith AJ, Jong R, Causser P, Wright FC. Women with locally advanced breast cancer are not at higher risk for contralateral synchronous breast cancer. Society of Surgical Oncology, San Diego, CA. March 2006.

Evans JW, Todd RM, Taylor MJ. Comparison of functional activation in response to faces in adults and young children. 12th annual meeting of the Organization for Human Brain Mapping, Toronto, Canada, 2006.

Faingold R, Daneman A, Epelman M, Kim JH. Neonatal bowel viability assessment: current applications of color Doppler sonography technique and new horizons. International Pediatric Radiology 5th conjoint meeting. Montréal, Canada. May 18-20, 2006.

Fong KW, Toi A, Salem S, Pantazi S. Obstetric imaging case of the day cases. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Ghai S, Pattison J, Ghai S, O'Malley ME, Khalili K, Stephens M. Primary gastrointestinal lymphoma: Spectrum of imaging findings with pathological correlation. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005. Awarded Certificate of Merit.

Gianfelice D. Coaxial CT fluoroscopic core biopsy of abdominal lesions: A method to reduce procedure time, increase tissue harvest, and reduce morbidity. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Gianfelice D. MR guided focused ultrasound of breast carcinoma. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Gianfelice D. Abdominal intervention: Interactive case discussion. 7th Annual Multi-Slice Helical CT 2006: Basics to Advanced. Las Vegas, NV. March 30-April 1, 2006.

Gianfelice D. Thoracic intervention: Interactive case discussion.

Gianfelice D. Nonvascular intervention: New trends and therapies. 7th Annual Multi-Slice Helical CT 2006: Basics to Advanced. Las Vegas, NV. March 30-April 1, 2006.

Gianfelice D. MR guided focused ultrasound tissue ablation. Thoracic Oncology Tumour Conference, Toronto General Hospital. Toronto, Ontario. May 5, 2006.

Gianfelice D. High-focused ultrasound (HIFU). European Radiology Supplements. Vol 16, Suppl 5, pages E35-36. Abstracts of the 4th International Congress on MR Mammography. Jena, Germany. September 28-30, 2006.

Glanc P. Feasibility of fetal gender assignment by ultrasound evaluation of the pelvic organs in second and third trimester. Paper presented at the 15th World Congress on Ultrasound in Obstetrics and Gynecology, Vancouver, Canada. September 25, 2005.

Glanc P. Obstetrical ultrasound: New techniques and procedures. Oral scientific communication: Feasibility of fetal gender assignment by ultrasound evaluation of the pelvic organs in second and third trimester. AIUM annual meeting, Washington, DC. March 23-26, 2006.

Glanc P, Salem S, Farine D, Mahmoud K. Maternal adnexal masses: A diagnostic and management challenge. Session: Ovarian masses and gynecological malignancy. Poster presentation at the 15th World Congress on Ultrasound in Obstetrics and Gynecology, Vancouver, Canada. September 25, 2005.

Glanc P, Salem S, Farine D, Khalifa M. Maternal adnexal masses: A diagnostic and management challenge. Annual meeting of the International Society of Ultrasound in Obstetrics and Gynecology, Vancouver, Canada. September 2005.

Glanc PA, Umranikar S, Koff DA. Fetal gender assignment by ultrasound evaluation of the pelvic organs in second and third trimester. 15th World Congress on Ultrasound in Obstetrics and Gynecology, Vancouver, Canada. September 25, 2005.

Gunnarsson T, Farb RI, Klurfan P, Shelef I, Marotta TR, Willinsky RA, terBrugge KG. Surveillance of intracranial aneurysms treated with stent assisted coiling: Imaging characteristics and utility using ATECO MRA. Oral presentation, WFITN – World Federation of Interventional and Therapeutic Neuroradiology VIII Congress, Venice, Italy. October 19-22, 2005.

Hamadah SMA, Lee K-S, Whyte H, Moore A, Donner E, Sell E, Blaser S, Taylor M. The use of EEG, MRI, and multimodality evoked potentials (EPs) for outcome prediction in neonates with hypoxic ischemic encephalopathy (HIE). PAS Annual Meeting; April 29–May 2, 2006, San Francisco, CA.

Ho CS, Beecroft R, Tan K, Kachura JR, Dawson L, Greig P, Grant D, Sherman M, Wong D, Gallinger S, Wong F. Percutaneous ethanol injection for medium and large hepatoma: A treatment option. World Conference on Interventional Oncology, Cernobbio, Italy. June 13, 2006.

Ho CS, Beecroft R, Kachura JR, Tan KT, Dawson L, Gallinger S, et al. Large volume ethanol injection of unresectable medium and large hepatomas: A viable treatment option. 31st annual meeting of the Society of Interventional Radiology. Toronto, Canada. March-April, 2006.

Ho CS, Beecroft R, Kachura JK, Tan KT, Dawson L, Gallinger S, et al. Large volume ethanol injection of unresectable medium and large hepatomas: A viable treatment option. 31st annual meeting of the Society of Interventional Radiology, Toronto, Canada. March-April 2006.

Jang H-J. Further characterization of indeterminate hepatic nodules on CT/MR in patients at high-risk for hepatocellular carcinoma with contrast-enhanced ultrasound. World Federation of Ultrasound in Medicine and Biology. 2006.

Jang H-J. Enhanced patterns of nodular hepatocellular carcinoma on contrast-enhanced ultrasound: Correlation with pathologic Differentiation. 91st Scientific Assembly and annual meeting of the Radiologic Society of North America, Chicago, IL. November 2005.

Jati A, Lim R, Israel DA. Causes of high FDG uptake in the female pelvis: An overview of diagnostic pitfalls in PET-CT fusion imaging (educational exhibit). 91st Scientific Assembly and annual meeting of the Radiological Society of North America, November 27-December 2, 2005. Recipient of Excellence in Design Award.

Jong RA, Umranikar S, Wolfman JA, Hendrick RE, Berns EA, Yaffe MJ, et al. Performance of CAD on a FFDM System. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. December, 2005.

Kachura JR, Hanson JM, Kirby JM, Ho CS, Cole EH, Richardson RM. Gross hematuria after radiofrequency ablation of the liver using the Berchtold/Integra LifeSciences device. 106th annual meeting of the American Roentgen Ray Society, Vancouver, Canada. April-May, 2006.

Katz L, Amaral JG, Connolly B, Temple M, John P, Chait PG. Computed tomography-guided lung biopsies in children. ARRS, Vancouver, Canada. May 2006.

Katz L, Amaral JG, Connolly B, Temple M, John P, Chait P. Computed tomography-guided lung biopsies in children. Annual meeting of the Society of Interventional Radiology, Toronto, Canada. April 2006.

Khalili K, Doyle D. Renal vasculitis in association with autoimmune pancreatitis: A clue to differentiation from pancreatic malignancy? 17th annual meeting of the European Society of Gastrointestinal and Abdominal Radiology, Crete. June 19-23, 2006.

Khalili K, Jhaveri K, Kim T, Guindi M. Adult hepatic hemangiomas: Imaging and pathologic features. 17th annual meeting of the European Society of Gastrointestinal and Abdominal Radiology, Crete. June 19-23, 2006.

Kim TK. Focal nodular hyperplasia and hepatic adenoma: Differentiation with microbubble-enhanced sonography. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Kingdom J, Toal M, Chitayat D, Toi A, et al. Second trimester diagnosis of severe placental insufficiency in women with elevations of either alpha-fetoprotein (AFP) or human chorionic gonadotropin (hCG). ISUOG 15th World Congress, Vancouver, Canada. September 25-29, 2005.

Kirby JM, Rajan DK, Tan KT, Hayeems EB, Simons ME. Ultrasound guided sclerotherapy for venous malformations: A five year experience. Annual meeting of the Society of Interventional Radiology, New Orleans, LA. 2005.

Kirby JM, Rajan DK, Tan KT, Hayeems EB, Simons ME. Ultrasound guided sclerotherapy for venous malformations: A five year experience. Annual meeting of the Radiological Society of Ireland, Cork, Ireland. 2005.

Koff DA. Digital compression in medical imaging: the CAR position. Annual meeting of the Canadian Association of Radiologists, Lake Louise, Canada. September 2005.

Koff DA. Teleradiologie au Canada en 2005 : Statut et perspectives (electronic poster). Journées Françaises de Radiologie, Paris, France. October 2005.

Koff DA. International panel on fetal echography around the French-speaking world. Guest speaker - XXème congrès annuel du Collège Français d'Echographie Fœtale, Blois, France. May 2006.

Koff DA. Challenges in clinical imaging and the need for research collaboration. Guest Speaker, University of Waterloo, Intramural Digital Imaging Symposium. June 22, 2006.

Koff DA, Doherty S. A new extensible framework for research in content-based medical image retrieval. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 2005.

Koff DA, Glanc P, Moscovici O. Heureux qui comme Ulysse: Sirène et Cyclope. XXème congrès annuel du Collège Français d'Échographie Fœtale, Blois, France. May 2006.

Koff DA, Shulman H, Kravchenko L, Bitar R, Leung G, Smolarski-Koff N, Kravchenko I, Moody A. Compression JPEG et JPEG 2000 appliquée à différentes séquences IRM : Évaluation à l'aide d'un logiciel dédié (electronic poster). Journées Françaises de Radiologie, Paris, France. October 2005.

Koh ES, Hodgson D, Tran T, Heydarian M, Tsang R, Gospodarowicz M, Sun A, Wells W, Paul N, Pintilie M. A dosemetric study of mantle versus involved field radiotherapy for Hodgkin's lymphoma: Implications for second cancer risk and cardiac toxicity. 47th annual meeting of the American Society for Therapeutic Radiology and Oncology, Denver, CO. October 2005.

Korzczak D, Connolly B, Katzman D, Baron T, Bernstein S. Safety and efficacy of image-guided gastrostomy (G) and gastrojejunostomy (GJ) tubes in child and adolescent psychiatry patients. Academy of Psychosomatic Medicine, Santa Ana, NM. November 2005.

Krishnamurthy G, Chait P, Connolly B, Temple M, Robinson A, Fontalvo L, Amaral J, John P. Percutaneous trimming of excess length from long-term central venous access devices: A novel method. European Society of Paediatric Radiology, Dublin, Ireland. June 2005.

Krishnamurthy G, Connolly B, Amaral J, John P, Temple M, Chait P. Retrograde percutaneous enterostomies in children using a needle system with valve mechanism: A new improved technique. International Pediatric Radiology 5th conjoint meeting, Montréal, Canada. May 2006.

Krishnamurthy G, Connolly B, Amaral J, Narayanan U, Babyn P. Snapping hip syndrome: Imaging findings in three children. International Pediatric Radiology 5th conjoint meeting, Montréal, Canada. May 2006.

Krishnamurthy G, John P, Chait PG, Connolly B, Temple M, Fontalvo L et al. Percutaneous trimming of excess length from long-term central venous access devices: A unique method. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Laffan E, Krishnamurthy G, Fontalvo L, Whyte H, McNamara P, Connolly B, et al. Six-year review of interventional procedures in the very low-birth weight infant (less than 1.5 kg): Complications, lessons learned and current practice. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Laffan E, Ngan BY, Navarro O. Magnetic resonance imaging of soft-tissue tumors and tumor-like lesions in children: Radiologic-pathologic correlation. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Laskin MD, Kingdom J, Toi A, Chitayat A. Perinatal and neurodevelopmental outcome with isolated fetal ventriculomegaly: A systematic review. Poster presented at the 55th annual meeting of the American Society of Human Genetics, Salt Lake City, UT. October 25-29, 2005.

Latinus M, Taylor MJ. Voice frequency, sex discrimination and ERPs. International Cognitive Neuroscience meeting, Havana, Cuba. September 2005.

Lertvaranurak R, Barnes P, Shroff M, Raybaud C. Early white matter injury in infants and children with hypoxic ischemic encephalopathy, Vancouver, Canada. February 2006.

Lertvaranurak R, Blaser S, Shroff M, Laughlin S, Raybaud C, Armstrong D. Pictorial review of normal and abnormal findings after lumbar puncture in children. 44th annual meeting of the American Society of Neuroradiology, San Diego, CA. April 29-May 5, 2006.

Leung G, Munce N, Bitar R, Butany J, Wright GA, Moody AR. MRI can detect intraplaque hemorrhage in ex-vivo coronary arteries. 14th annual meeting of the International Society of Magnetic Resonance in Medicine, Seattle, WA. May 2006.

Levine DS, Charron M. Only for kids: Nuclear medicine studies unique to pediatrics: A mini teaching atlas. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27- December 2, 2005.

Levine DS, Navarro OM, Chaudry G, Blaser S. Imaging the complications of bone marrow transplantation in children. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Lim R, Fahey FH, Laffin SP, Drubach LA, Connolly LP, Treves ST. Early experience with fluorine-18 bone PET in young athletes. Annual meeting of the Society of Nuclear Medicine, Toronto, Canada. June 2005.

Lobaugh NJ, Erlandsson A, Cheng H-L, Gretka V, Morshead C, Stanisz GJ. Brain tissue regeneration following activation of endogenous stem cells in animal model of stroke. 14th Scientific Meeting of the International Society of Magnetic Resonance in Medicine, Seattle, WA. May 2006.

Macgowan CK, Al-Kwif O, Varodayan F, Yoo S-J, Wright GA, Kellenberger CJ. Optimization of 3D contrast-enhanced pulmonary MRA in pediatric patients with congenital heart disease. Annual meeting of the International Society of Magnetic Resonance in Medicine, Miami Beach, FL. May 2005.

Macgowan CK, Madore B. Application of UNFOLD to real-time Fourier velocity encoding. 14th Scientific Meeting of the International Society of Magnetic Resonance in Medicine, Seattle, WA. May 2006.

Mahant S, Connolly B. The pediatric hospitalist and image guided therapy: A new model of care in pediatrics. American Academy of Pediatrics National Conference and Exhibition, Washington, DC. October 2005.

Malhotra A, Larheim TA, Kakimoto N, Blaser SI, Westesson PL. Facial growth disturbances: A pictorial review. 44th annual meeting of the American Society of Neuroradiology, San Diego, CA. April 29-May 5, 2006.

Mann EH, Blaser S, Pantazi S, Shannon P, Chitayat D, Toi, A, Ryan G, Raybaud C. Spectrum of CNS pathology with fetal ventriculomegaly evaluated by MR imaging. 44th annual meeting of the American Society of Neuroradiology, San Diego, CA. April 29-May 5, 2006.

Manson D, Wieskopf JS. Imaging of recurrent pneumonia in children. International Pediatric Radiology 5th conjoint meeting, Montréal, Canada. May 2006.

Marotta TR, Montanera W. Endovascular management of vasospasm. 13th World Congress of Neurological Surgery, Marrakesh, Morocco. June-July 2005.

Marotta TR. Cerebral aneurysms: Clip versus coils. 13th World Congress of Neurological Surgery, Marrakesh, Morocco. June-July 2005.

Marotta TR. Intracranial angioplasty and stenting for impending stroke. 7th annual Interventional Neuroradiology Symposium, Toronto, Canada. September 9, 2005.

Marotta TR. Moderator. Ischemia in adults 2. 7th annual Interventional Neuroradiology Symposium, Toronto, Canada. September 9, 2005.

Marotta TR. Interventional management of spontaneous and catheter induced stroke. Interventional Cardiology meeting, Whistler, Canada. January 2006.

Martin DA, Blaser S, Armstrong D, Forrest C., Papsin B. 3D and multiplanar CT of the temporal bone in auricle and external auditory canal dysplasias. A pictorial review: American Society of Head and Neck Radiology, San Francisco, CA. September 21-25, 2005.

Ménard C, Bayley A, Toi A, Wiltshire K, Kirilova A, Rosewall T, Catton C, Chung P, Gospodarowicz M, Haider M. Measuring the accuracy of ultrasound-guided fiducial marker placement in reference to prostatic anatomy using MRI: Implications for high-precision radiotherapy. ECCO 13, Paris, France. October 30-November 3, 2005.

Ménard C, Bayley A, Toi A, Wiltshire K, Kirilova A, Rosewall T, Catton C, Chung P, Gospodarowicz M, Haider M. Measuring the accuracy of ultrasound-guided fiducial marker placement in reference to prostatic anatomy using MRI: Implications for high-precision radiotherapy. Poster at the European Society for Therapeutic Radiology and Oncology, Paris, France. November 2, 2005.

Milic A, Chung T, Patsios D, Paul NS, Roberts H, Weisbrod G. Radiology of the normal and diseased thymus. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Moharir M, Shroff M, Chan A, Adams M, Bharucha P, deVeber G. Pediatric cerebral sinovenous thrombosis: A study of recanalization rates. Child Neurology Science meeting, Los Angeles, CA. September-October 2005.

Moscovici O, Causar PA, Jong RA, Warner E, Hill K, Plewes DB. Characteristics of breast MRI screen-detected lesions that should be sent for targeted ultrasound. Annual meeting of the American Roentgen Ray Society, Vancouver, Canada. April-May 2006.

Moscovici O, Causar PA, Jong RA, Hill K, Warner E, Plewes DB. Characteristics of breast MRI Screen-detected lesions that should be sent for targeted ultrasound. Annual meeting of the American Roentgen Ray Society, Vancouver, Canada. April-May 2006.

Murphy BD, Chen X, Lee T, Fox AJ, Sahlas DJ, Hogan M, et al. Thresholds of CT perfusion parameters for differentiating between infarct and penumbra in acute ischemic stroke. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. December 2005.

Nevo O, Blaser S, Chitayat D, Toi A, Pantazi S, Ryan G, Raybaud C. Difficulties in prenatal diagnosis of agenesis of the corpus callosum. 15th World Congress on Ultrasound in Obstetrics and Gynecology. September 25-29, 2005.

O'Kelly C, Spears J, Montanera W, Marotta TR, Willinsky R, Wallace MC, terBrugge K. The impact of assistive devices on outcomes following endovascular closure of ruptured intracranial aneurysms, Joint Cerebrovascular Section of AANS, CCNS, and ASITN. Orlando, FL. February 2006.

Muradali D. National Annual Congress of Indian Federation Ultrasound in Medicine and Biology; (i) Scrotal Ultrasound; (ii) Transplant ultrasound; (iii) Artifacts in ultrasound; (iv) Liver tumor symposium. Pune, India. February 2005.

Muradali D. Society of Gastrointestinal Radiologists Abdominal Radiology Course 2005. Multimodality imaging of renal and liver transplants. San Antonio, TX. March 2005.

Muradali D. St Michael's Hospital Vascular Access Symposium, Access to science in haemodialysis: A call to arms. Sonography of haemodialysis shunts. Toronto, Canada. June 2005.

Muradali D. Problem solving with breast ultrasound: To biopsy or not to biopsy. Case based review. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Muradali D. Breast ultrasound: Clues to diagnosis. Annual meeting of the Canadian Association of Radiology, Toronto, Canada. June 2006.

Muradali D. Sonography of the small bowel, ultrasound of the bowel. European Society of Gastrointestinal Radiology, Crete. June 2006.

Nevo O, Blaser S, Chitayat D, Toi A, et al. Prenatal diagnosis of agenesis of the corpus callosum: Advantages and pitfalls. ISUOG 15th World Congress, Vancouver, Canada. September 25-29, 2005.

Nevo O, Blaser S, Chitayat D, Toi A, Pantazi S, Ryan G., Raybaud C. Difficulties in prenatal diagnosis of agenesis of the corpus callosum. 15th World Congress on Ultrasound in Obstetrics and Gynecology. September 25-29, 2005.

Nii M, Guerra V, Roman KS, Macgowan CK, Smallhorn JF. Three-dimensional tricuspid annular function provides insight into the mechanisms of valve regurgitation in classic hypoplastic left heart syndrome. Annual meeting of the American Heart Association. 2006.

Nii M, Roman K, Macgowan CK, Smallhorn JF. Insights into normal atrioventricular valve junction motion in paediatrics: A real-time three-dimensional echocardiographic study. Annual meeting of the American Heart Association. 2005.

O'Connor S, Glanc P. Neonatal findings of fusion of the forniceal columns and absent cavum septum pellucidum. Presentation at Research Day, University of Toronto, Department of Medical Imaging, Toronto, Canada. April 25, 2006.

Okell J, Amaral JG, Connolly B, Temple M, John P, Chait PG. Image-guided biopsies and aspirations of pelvic masses in children. Annual meeting of the American Roentgen Ray Society, Vancouver, Canada. May 2006.

Ortiz C, Miller S, Babyn P, Ranson M. Imaging of MSK infection in children. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Orzech N, Navarro O, Langer JC. Is ultrasound a good screening test for intestinal malrotation? 37th annual meeting of the Canadian Association of Paediatric Surgeons, Quebec City, Canada. September 2005.

Oudjhane K, Cernay J. Pulmonary hydatid disease in children: Radiological characteristics and diagnostic pitfalls. Scientific poster presented at the 42nd annual meeting, ESPR, Dublin, Ireland. May 30-June 3, 2005.

Oudjhane K, Chaudry G., Navarro O, Levine D. Abdominal manifestations of cystic fibrosis in children. Poster presented at the 42nd annual meeting, ESPR, Dublin, Ireland. May 30-June 3, 2005.

Pantazi S, Fong KW, Chitayat D, Keating S, Toi A, Blaser S. MRI of the fetal musculoskeletal system. Education exhibit at the 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Patsios D, Roberts H, Paul NS, Chung T, Herman S, Weisbrod G, et al. CT-guided percutaneous fine needle aspiration biopsy of subcentimeter intrapulmonary nodules. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Patsios D, Pereira A, Paul N, Chung T, Herman S, Weisbrod G, Roberts H. Pictorial review of the many faces of bronchoalveolar cell carcinoma (BAC). 11th World Conference on Lung Cancer, Barcelona, Spain. July 2005.

Patsios D, Roberts H, Paul N, Chung T, Herman S, Weisbrod G. CT-guided percutaneous fine needle aspiration biopsy of subcentimeter intrapulmonary nodules. 11th World Conference on Lung Cancer, Barcelona, Spain. July 2005.

Patsios D, Crean AM, Chung T, Pereira A, Paul NS, Roberts H, et al. Pictorial review of the intrathoracic manifestations of amyloidosis. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Pattison J, Ghai S, Ghai S, O'Malley M, Khalili K, Stephens M. Primary gastrointestinal lymphoma: Spectrum of imaging findings with pathologic correlation. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005. (Received Certificate of Merit Award and recommendation for publication in RadioGraphics).

Paul NS, Chung T, Pereira A, Patsios D, Roberts H. Practical applications of very low dose thoracic CT. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Pereira A, Paul NS, Doyle DJ, Roberts H, Chung TB. CT guided lung biopsy: Is minimum dose CT helpful in patient management? Annual meeting of the American Roentgen Ray Society (ARRS), Vancouver, Canada. April-May 2006.

Pereira A, Paul NS, Patsios D, Crean A, Provost Y. Pulmonary vein abnormalities. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Pereira A, Paul NS, Doyle D, Chung TB, Patsios DA, Granton JT. Biometric analysis of pulmonary vessels in pulmonary arterial hypertension. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Platzker T, Rajan DK, Clark TW, Lok CE, Simons ME, Beecroft JR, et al. Ultrahigh vs. high-pressure PTA of venous anastomotic stenosis in HD grafts: Is there a difference in patency? Society of Interventional Radiology 31st annual meeting, Toronto, Canada. March 2006.

Plewes DB, Ramsay E, Chan R, Causer P, Murray C, Hill K, Warner E: Techniques for adaptive MRI for surveillance of hereditary breast cancer. Reasons for Hope, Montréal, Canada. May 2006.

Probyn LJ, Chae AS, White LM. Magnetic resonance imaging of anterior cruciate ligament reconstruction: The spectrum of hardware appliances and complications (Scientific Exhibit). 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005. Recommended for submission to RadioGraphics.

Probyn LJ, White L, Salonen D, Powell T, Tomlinson G, Boynton E, Powell T. Direct MR arthrographic assessment of recurrent symptoms post shoulder instability repair: Correlation with surgical evaluation (in 40 patients). 91st Scientific Assembly and annual meeting of the

Radiological Society of North America, Chicago, IL. November 27-December 2, 2005. Awarded the RSNA Research Trainee Research Prize.

Probyn LJ, White L, Salonen D, Powell T, Tomlinson G, Boynton E. Direct MR arthrographic assessment of recurrent symptoms post shoulder instability repair: Correlation with surgical evaluation (in 40 patients). Annual meeting of the Society of Skeletal Radiology, Tucson, AZ. March 2006.

Propst EJ, Papsin BC, Gordon KA, Blaser S. Temporal bone findings on computed tomography imaging in branchio-oto-renal syndrome. Annual meeting of the American Society of Head and Neck Radiology, San Francisco, CA. September 21-25, 2005.

Provost Y. The clinical and imaging features of constrictive pericarditis. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Provost Y. The clinical, echocardiographic, and magnetic resonance imaging features of Ebstein's Anomaly. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Provost Y. Pulmonary veins abnormalities. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Provost Y, Crean A, Paul NS, Merchant N. The clinical and imaging features of constrictive pericarditis. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Raabe AL, Manson D. Pulmonary infections in immunocompromised children. International Pediatric Radiology 5th conjoint meeting, Montréal, Canada. May 2006.

Raha RN, Beecroft JR, Rajan DK, Simons M, Kachura JR, Sniderman KW, et al. Use of prophylactic antibiotics for implanted chest port insertions: Is there reduced risk of infection? 31st annual meeting of the Society of Interventional Radiology, Toronto, Canada. April 2006.

Raikhlin A, Amaral JG, Chait PG, Connolly B, Temple M, John P. Plugged vs. non-plugged percutaneous biopsies in children. Annual meeting of the American Roentgen Ray Society, Vancouver, Canada. May 2006.

Raikhlin A, Amaral J, Connolly B, Temple M, John P, Chait P. Plugged vs. non-plugged percutaneous biopsies in children. 31st annual meeting of the Society of Interventional Radiology, Toronto, Canada. April 2006.

Reid DM, Kingdom A, Toi A, Chitayat D. Foramen magnum and cervical vertebral abnormalities in CDX2. Poster at the 55th annual meeting of the American Society of Human Genetics, Salt Lake City, UT. October 2005.

Roberts H, Patsios D, Paul N, Chung TB, Boerner S, Waddell T, Keshavjee S, Darling G, Tsao M, Shepherd F. Lung cancer screening using low-dose computed tomography: The Toronto experience. 11th World Conference on Lung Cancer, Barcelona, Spain. July 2005.

Roberts H, Patsios D, Kucharczyk M, Paul N, Sitartchouk I, Roberts T. Lung cancer screening using low-dose CT: Assessing the utility of computer-aided detection (CAD) software. 11th World Conference on Lung Cancer. Barcelona, Spain. July 2005.

Saengpatrachai M, Sharma R, Hunjan A, Shroff M, Cortez MA, Snead C. Non-convulsive status epilepticus in pediatric intensive care unit: Prevalence, etiology, EEG, and brain imaging findings.

Séverac Cauquil A, Delaux S, Lestringant R, Taylor MJ, Trotter Y. When colour creates depth: An evoked potential study of chromostereopsis. International Cognitive Neuroscience meeting, Havana, Cuba. September 2005.

Shah C, Johnson P, Bhanushali A, Glanc P. Complete molar gestation: Role of ultrasound. Sonoworld. Retrieved August 3 2008, from <http://www.sonoworld.com/SonoWorld/Article/ShowArticleDetails.aspx?aid=35>

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Siewerdsen JH, Shkumat NA, Dhanantwari AC, Richard S, Daly MJ, Paul NS, Moseley DJ, Jaffray DA, Yorkston J, Van Metter N. High-performance dual-energy imaging with a flat-panel detector: Imaging physics from blackboard to benchtop to bedside. Proceedings of SPIE -- Volume 6142 Medical Imaging 2006: Physics of Medical Imaging, Michael J. Flynn, Jiang Hsieh, Editors, 61421E (Mar. 2, 2006). San Diego, CA. February-March 2006.

Silva C, Daneman A, Moore A, Navarro O, Brindle M, Moineddin R. Correlation of sonographic findings and outcome in necrotizing enterocolitis. International Pediatric Radiology 5th conjoint meeting, Montréal, Canada. May 2006.

Silva C, Daneman A, Moore A, Navarro O, Brindle M, Moineddin R, Gerstle JT, Epelman M, Mittal A. Correlation of sonographic findings and outcome in necrotizing enterocolitis. International Pediatric Radiology 5th conjoint meeting, Montréal, Canada. May 2006.

Simchen MJ, Toi A, Silver M, et al. Fetal cardiac calcifications: report of four prenatally diagnosed cases. ISUOG 15th World Congress, Vancouver, Canada. September 2005.

Simons ME, Stents in hemodialysis, the bare facts. Presented at the second annual St. Michael's hospital, Access to Science in Hemodialysis meeting (150 attendees). Toronto, Canada. June 2006.

Slevin J, Blaser S, Toi A, et al. Intraventricular fused fornices: A marker for complex midline anomalies. ISUOG 15th World Congress, Vancouver, Canada. September 2005.

Symons SP, Aviv RI. Perfusion imaging in acute stroke: Differences and pitfalls. Annual meeting of the Eastern Neuroradiological Society, Ottawa, Canada. August 2005.

Symons SP, Fanning N, Marshall AH, Shipp D, Chen JM, Nedzelski JM. Cochlear implantation in cochlear otosclerosis. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. December 2005.

Takalkar A, Charron M, Baskin K, Hardy O, Steinmuller LA, Stanley CA, Adzick NS. Role of intraoperative otreotide studies in localization of insulinomas in pediatric patients. Northeast Regional Meeting of the Society of Nuclear Medicine, Groton, CT. October 27-29, 2006.

Taneja R, Leung G, Crisp S, Bitar R, Howe R, Murphy P, Moody AR. Application of magnetic resonance direct thrombus imaging for the detection and monitoring of pelvic endometriosis. 14th annual meeting of the International Society of Magnetic Resonance in Medicine, Seattle, WA. May 2006.

Teitelbaum R, Blaser S, Toi A, Fong K, Okun N, Chitayat D. Prenatal diagnosis of steatocystoma multiplex of the scalp using fetal ultrasound and MRI. Poster presented at the 55th annual meeting of the American Society of Human Genetics, Salt Lake City, UT. October 25-29, 2005.

Todd RM, Lewis M, Taylor MJ. Parental expression and emotion regulation: Adults' and young children's BOLD responses to emotional expression on mother's vs. stranger's faces. 12th annual meeting of the Organization for Human Brain Mapping, Florence, Italy. June 2006.

Traubici J, Raabe A, Taylor G, Daneman A. Renal cell carcinoma in children. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL. November 27-December 2, 2005.

Traubici J, Hossain N. Imaging of liver masses in children. 106th annual meeting of the Roentgen Ray Society, Vancouver, Canada. April-May, 2006.

Trimble K, Blaser S, James A, Papsin B. CT and/or MRI before pediatric cochlear implantation? Development of an investigative strategy. Annual meeting of the American Otological Society. May 2006.

Umranikar S, Glanc P, Chitayat D, Fong KW, Keating S. X-linked dominant chondrodysplasia punctata: Presentation Feature: Premature punctate epiphyseal stippling. Poster presented at the 15th World Congress on Ultrasound in Obstetrics and Gynecology, Vancouver, Canada. September 25-29, 2005. Ultrasound Obstet Gynecol 2005; 26: P 04.14.

van Amerom JF, Li JM, Stainsby JA, Biswas L, Merchant N, Macgowan CK, Sussman MS. Self-navigated phase contrast MR. 14th Scientific Meeting of the International Society of Magnetic Resonance in Medicine, Seattle, WA. May 2006.

van Amerom JF, Li JM, Stainsby JA, Biswas L, Merchant N, Sussman MS, Macgowan CK. Self-navigated phase contrast MR. ISMRM Workshop on Real-Time MRI, Santa Monica, CA. February 23-24, 2006.

van Amerom JF, Li JM, Stainsby JA, Biswas L, Merchant N, Sussman MS, Macgowan CK. Self-navigated phase contrast MR. 5th Imaging Symposium, Imaging Network Ontario, Toronto, Canada. April 3-4, 2006.

van Amerom JFP, Macgowan CK. Pulmonary vessel segmentation using phase-contrast MRI and correlation analysis: Pulsatile flow phantom validation. 4th Imaging Symposium, Imaging Network Ontario, Toronto, Canada. March 1-3, 2005.

White LM, Probyn LJ, Salonen DC, Tomlinson G, Boynton E, Powell T. Direct MR arthrographic assessment of recurrent symptoms post shoulder instability repair: Correlation with second look surgical evaluation (in 40 patients). Annual meeting of the Society of Skeletal Radiology, Tuscon, AZ. March 4-8, 2006.

White LM, Sussman MS, Hurtig M, Probyn LJ, Maier CF, Kandel R. Cartilage T2 assessment: Differentiation of normal hyaline cartilage versus reparative tissue following arthroscopic cartilage repair. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL, November 27-December 2, 2005.

Widjaja E, Blaser S, Raybaud C. Diffusion tensor imaging of developmental brain anomalies. 44th annual meeting of the American Society of Neuroradiology, San Diego, CA. April 29-May 5, 2006.

Widjaja E, Blaser S, Shroff M, Laughlin S, Raybaud C. Diffusion tensor imaging of midline posterior fossa malformations. Accepted as an oral paper presentation. Symposium Neuroimaging, Adelaide, Australia. March 2006.

Widjaja E, Blaser S, Shroff M, Laughlin S, Raybaud C. MR imaging of developmental delay of unknown cause. Accepted as an oral paper presentation. Society of Pediatric Radiology, June 2006.

Widjaja E, Shroff M, Blaser S, Laughlin S, Raybaud C. 2D time-of-flight MR venography in neonates: Anatomy and pitfalls. International Society of Pediatric Radiology 5th conjoint meeting, Montréal, Canada. May 2006.

Widjaja E, Shroff M, Blaser S, Laughlin S, Raybaud C. 2D time-of-flight venography in neonates: Anatomy and pitfalls. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL, November 27-December 2, 2005.

Widjaja E, Shroff M, Laughlin S, Raybaud C. Developmental delay of unknown cases. Symposium Neuroradiologicum, Adelaide, Australia. 2006.

Wiltshire KL, Haider M, Kirilova A, Toi A, Catton C, Bayley A, Gospodarowicz M, Warde P, Menard C. Accurate and non-invasive localization of the urethral anastomosis after radical prostatectomy using MRI. Poster presented at the Canadian Association of Radiation Oncologists annual meeting, Victoria, Canada. September 2005.

Wirsz N, Cordonnier E, Hosoba M, Kim HJ, Koff DA, Chen X. The IHE initiative worldwide: An update. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL, November 27-December 2, 2005.

Wong R, Ringash J, Kim J, Cummings B, Darling G, Knox J, Haider M, Guindi M, Hornby J, Cheung F, Brierley J. A phase II study of preoperative conformal radiotherapy and chemotherapy (CPTII/Cisplatin) for esophageal cancer. Poster presentation at the 47th annual meeting of the American Society for Therapeutic Radiology and Oncology, Denver, CO. October 2005.

Wu S-P, Al-Kwafi O, van Amerom, JF, Wright GA, Macgowan CK. The impact of vessel motion and flow variability on MR-based wall shear rate measurement in the carotid artery. 14th Scientific Meeting of the International Society of Magnetic Resonance in Medicine, Seattle, WA. May 2006.

Yu E. Current status of PET/CT. 7th Current Concepts on the Management of Thyroid Nodular Disease and Cancer Presentation, Toronto, Canada. May 2006.

Yu E, Kassel EE, Smith RML, Bartlett ES. Malignant melanoma of the pharyngeal mucosa: presentation of three cases and review of the literature. 44th annual meeting of the American Society of Neuroradiology, San Diego, CA. April 29-May 5, 2006.

Yu E, Pharoah MJ, Lee L, Keller MA, Kassel EE. Cystic lesions of the jaw: Clinico-radiologic-pathologic correlation. 39th annual meeting and symposium of the American Society of Head and Neck Radiology, San Francisco, CA. September 2005.

Yu E, Smith RML, Kassel EE, Bartlett ES. Malignant melanoma of the pharyngeal mucosa: Presentation of three cases and review of the literature. 44th annual meeting of the American Society of Neuroradiology, San Diego, CA. April 29-May 5, 2006.

Yaffe MJ, Jong RA, Wolfman JA, Hendrick RE, Causser PA, Berns EA et al. Performance of CAD for pre-screening with digital mammography. 91st Scientific Assembly and annual meeting of the Radiological Society of North America, Chicago, IL, November 27-December 2, 2005.

RESEARCH PROGRAM

The Research Program

Research and education are the two pillars of academic medicine. Our department places equal emphasis on both. With respect to research, in the broadest sense, our research endeavors span the entire spectrum of scientific inquiry - from basic science to clinical trials. However, our focus is on translational and clinically applied research - imaging research whose results are intended to be applied in the clinic within 1-5 years. Our research program is jointly led by Andrea Kassner, PhD, and David Mikulis, MD - our Acting Research Program Co-Directors.

Research is an important mission of the Department of Medical Imaging. Many of the faculty, residents, and fellows in the Department devote considerable effort to research. The Department supports research through several projects depending on the interest and expertise of individuals and on resources at particular hospitals. Furthermore, several dedicated research faculty with appointments in Medical Imaging at each of the affiliated hospitals collaborate with the Department to help comprise a massively diverse research program.

A synopsis of the key initiatives is presented below. Also included below are the research grants and publications of the faculty who are not listed with one of the affiliated hospitals.

The Faculty Research Award

The Department provides support to allow a small number of radiologists to devote 50% of their time to research, while retaining the other half for clinical duties. The following radiologists are supported through this initiative:

- Dr. David Mikulis (TWH)
- Dr. Masoom Haider (PMH)
- Dr. Heidi Roberts (TGH)

The Medical Imaging Research and Development Awards

The Medical Imaging Research and Development Awards is an initiative intended to allow a select group of clinical radiologists with a strong research interest to devote at least one day each week to a defined research project. The radiologists listed in the table below were awarded the Medical Imaging Research and Development Awards in 2005-2006.

Award Holder	Award Period	Hospital	Project Title
Robert Beecroft	1/7/2005 – 30/6/2006	UHN/MSH	High pressure angioplasty balloon vs. non-high pressure balloon; Angioplasty in hemodialysis arteriovenous access stenosis
Bairbre Connolly	1/7/2005 – 30/6/2006	HSC	Evaluating radiation exposures experienced by children undergoing pediatric interventional radiology procedures
Andrea Doria	1/7/2005 – 30/6/2006	HSC	Decision-analytic model for evaluation of tomography diagnostic techniques for appendicitis in children
Richard Farb	1/7/2005 – 30/6/2006	TWH?	The dural worm: A sign of previous sinovenous thrombosis (renewed from July 1, 2004-05)
Hyun-Jung Jang	1/7/2005 – 30/6/2006	TGH	Evaluation of liver nodules in patients at high risk for hepatocellular carcinoma: Contribution of contrast-enhanced ultrasound
Korosh Khalili	1/7/2005 – 30/6/2006	TGH	Determination of tumor differentiation by CT/MR in hepatocellular carcinoma
Tae Kyoung Kim	1/7/2005 – 30/6/2006	UHN/TGH	Focal nodular hyperplasia and hepatic adenoma: Differentiation with contrast-enhanced real-time ultrasound with maximum intensity projection technique
Seon Kyu Lee	1/7/2005 – 30/6/2006	TWH	The evaluation of intracranial atherosclerosis using the BOLD MRI technique
Martin O'Malley	1/7/2005 – 30/6/2006	UHN/TGH	Growth rates of hepatocellular carcinoma stratified by size (renewed from July 1, 2004-05)
Yves Provost	1/7/2005 – 30/6/2006	UHN/TGH	CT coronary angiography (renewed from July 1, 2004-05)
Dheeraj Rajan	1/7/2005 – 30/6/2006	UHN/TGH	Interventional research/Research in minimally invasive therapy (renewed from July 1, 2004-05)
Heidi Roberts	1/7/2005 – 30/6/2006	UHN/TGH	Early lung cancer detection using computed tomography (renewed from July 1, 2004-05)
Manohar Shroff	1/7/2005 – 30/6/2006	HSC	Normal anatomy, pitfalls and abnormal dural venous sinuses in neonates
Kong Teng Tan	1/7/2005 – 30/6/2006	UHN/TGH	CT venography – Evaluate an algorithm to maximize native arteriovenous fistulae (AVF) for hemodialysis access
Lawrence White	1/7/2005 – 30/6/2006	UHN/MSH	Quantitative T2 mapping of cartilage transplantation in an animal model (renewed from July 1, 2004-05)
Stephanie Wilson	1/7/2005 – 30/6/2006	UHN/TGH	Addition of <i>quantitative</i> analysis to contrast enhanced ultrasound of the liver

Multidisciplinary Research Program – Translational Research Grant

The final results of this year's competition for Seed Grant funding as part of our departmental initiative to build our multidisciplinary research programs are as follows:

- Dr. Mostafa Atri - Ultrasound Assessment of Tumor Perfusion
- Dr. Andrea Doria - Pediatric Musculoskeletal Imaging
- Dr. Masoom Haider - Advanced Prostate Cancer Imaging
- Dr. Roberta Jong - Breast Imaging Research

Dr. Heidi Roberts - Lung Nodule Characterization Using CT Perfusion and PET
Dr. Manohar Shroff - Neuroimaging and Plasticity in the Immature Brain
Dr. Lawrence White - Cartilage Imaging and Characterization

All awardees are expected to write a peer-reviewed grant by the end of this calendar year, and to be successful with their grant applications by the end of 2007.

RSNA Roentgen Resident/Fellow Research Award

The RSNA Research and Education Fund offers this Award annually to recognize and encourage outstanding residents and fellows in radiology research. Each year the director of the residency program or the department chair will nominate an individual based on publication and presentation of scientific papers, receipt of research grants or successful contributions to the departmental research program. In 2006, Noel Fanning, MD received this award for his significant academic and research contributions to neuroradiology.

Research Day

Annual forum for highlighting research accomplishments, which was held on April 25, 2006. It consisted of presentations from senior residents, the faculty who received the Medical Imaging Research and Development Awards, and many other members of the department. An excerpt from the Program for Research Day is included at the end of this section.

Positron Emission Tomography Centre, Centre for Addiction and Mental Health

The Vivian M. Rakoff Positron Emission Tomography (PET) Centre under the direction of Dr. Sylvain Houle, located at the Centre for Addiction and Mental Health, fosters multidisciplinary research within the University of Toronto neuroscience community. The PET Centre is part of the University Functional Imaging Research Network (FIRN) and the provincial BRAIN research network. The intramural research at the PET Centre itself is focused on basic research in PET methodology (radiochemistry, neuroscience and physics) and in clinical application of PET to the understanding and treatment of mental disorders (schizophrenia, depression and aging) and addiction.

The PET Centre has recently developed a new selective PET radioligand for the serotonin transporter which is now being applied to the study of selective serotonin reuptake inhibitors (SSRIs) used to treat depression. Even though SSRIs have been prescribed for the treatment of depression in millions of patients but, up to now, it had not been possible to directly measure its effect in the brain. This new tracer, [C-11] DASB, is now being adopted by other leading PET research centres worldwide.

Another research programme within the PET Centre explores the role of the dopamine system in schizophrenia. Although the effects of antipsychotic medications are known to be linked to their effects on the dopamine system, very little is known about their actual mechanism of action in the brain. New insights in the role of the dopamine system have been obtained by closely linking

human findings obtained with PET with those obtained from animal research. This approach is already providing clinical benefits in the treatment of schizophrenia by providing objective means of optimizing existing treatments and by offering new avenues for the development of more effective drugs.

Imaging/Bioengineering Research, SWCHSC

Imaging research is a major focus of the Imaging/Bioengineering Research group at Sunnybrook and Women's College Health Sciences Centre (SWCHSC). Scientists in this group have University of Toronto appointments in the Department of Medical Biophysics, or the Department of Medical Imaging, or both. The faculty in this group make use of exceptional resources for research at SWCHSC and conduct research involving x-ray, nuclear medicine, magnetic resonance, and ultrasound technology. This group is internationally recognized for its excellent graduate student program.

Image Guided Minimally Invasive Therapy (IGMIT)

This research program has received large extra-mural grants from Technology Ontario, the Canadian Foundation for Innovation, the ORDCF, and from the commercial sector. It is part of the University of Toronto wide collaborative program "Functional Imaging Research Network" (FIRN), and the Ontario wide collaborative programs, Ontario Consortium for Image Guided Surgery (OCITS), and the Imaging Network of Ontario (INO).

The IGMIT project has been in existence since 1995. The principal investigator is Dr. Walter Kucharczyk. There are many co-investigators and collaborators, especially in Neurosurgery under the leadership of Dr. Mark Bernstein, and in Medical Biophysics under the leadership of Dr. Mike Bronskill. The main thrust of this research program is the development and clinical implementation of multi-parametric imaging that demonstrates anatomic, physiologic, and functional tissue characteristics, with subsequent use of these multi-parametric tissue maps for image guidance in minimally invasive and surgical procedures. Much of the initial work has focused on open-concept MRI systems and the brain. Components of this project include image processing and analysis, neuro-navigation, pulse programming, thermometry, surface coil development, robotics, and MRI compatible surgical tools.

Downtown Imaging Physics Group

Research scientists from the Department of Medical Imaging's affiliates: The University Health Network and the Hospital for Sick Children comprise this core group of imaging physicists and scientists in the downtown sector. Research areas focus on clinical translation and include but are not limited to Magnetic Resonance Imaging (MRI) physics, physiologic specific imaging, clinical applications in MRI, Dynamic CT, functional MRI and Magnetoencephalography (MEG) mapping methods as well as investigations in sensory and cognitive function. Individual projects of this group are briefly outlined below:

Projects by Andrea Kassner, PhD – UHN

1. Prediction of hemorrhage in acute ischemic stroke using permeability MRI

Increased risk of intracranial hemorrhage limits the general use of tissue plasminogen activators (t-PA) in acute ischemic stroke (AIS). Preliminary results of this study shows that early blood-brain-barrier (BBB) defects in AIS can be assessed using quantitative DCE MRI. Significantly increased permeability was found in 3 cases which later on hemorrhaged. This method has potential to identify patients at higher risk of HT and may allow to use physiological imaging rather than time from onset of symptoms to guide the decision to treat with t-PA. This work has resulted in 1 paper, several abstracts and a successful grant application (CIHR).

Collaborators: David Mikulis, Anne Martel

2. Functional MRI measures in brain tumors

Physiological MR imaging including diffusion (to assess tumor cellularity), dynamic contrast-enhanced (DCE) MRI (to assess blood volume and microvascular permeability related to angiogenesis) and spectroscopy (to assess metabolism) offer insights into aspects of tumor physiology and metabolism, thus allowing characterization of tumor dysfunction. These techniques will assist with monitoring of cancer related therapies. Furthermore the use of combinatorial approaches such as factor analysis may yield even higher specificity in determining prognosis and treatment response. Software developments and validation studies for this project are ongoing.

Collaborators: Fang Liu, Cynthia Menard, Norman Laperriere, Cedara Softw Corp

3. Assessment of cerebral vascular reactivity (CVR)

Combining CO₂ manipulation with BOLD MRI is a promising for assessing regional differences in cerebrovascular reactivity (CVR) which is a measurement of the brains autoregulatory capacity which is important for the assessment of vascular disorders in which autoregulation is compromised or exhausted. Since this technique is beginning to be used pre-operatively to guide surgical decision making and to assess efficacy of revascularization, knowledge concerning reproducibility and gender differences are essential. This work has resulted in several abstracts, 1 submitted paper. We plan to adapt this methodology for use in children; it has been used in 150 adults so far.

Collaborators: Adrian Crawley, Julien Poublanc, David Mikulis, Joe Fisher

4. Imaging of angiogenesis in experimental arthritis

Juvenile idiopathic arthritis is a chronic disease that may impair any joint of the body. It produces inflammation of the synovium, which is a highly vascularized membrane that overlies the bones at the joints. The inflamed synovium in arthritis erodes the adjacent cartilage and bone. The sooner the arthritis is treated, the milder is the progression of the disease. Although conventional imaging modalities exist to evaluate the degree of inflammation and degeneration of the articular cartilage, such as anatomic magnetic resonance imaging, they are unable to depict articular changes before the joint is destroyed. In this study we plan to induce arthritis in rabbit knees and to determine whether functional magnetic resonance imaging such as permeability or BOLD imaging is able to monitor the response of the joints to treatment using non-steroidal

antiinflammatory drugs and a technique of continuous movimentation of the rabbit legs by means of a machine which is called continuous passive motion.

Collaborators: Andrea Doria, Adrian Crawley, Hai-Ling Chen

5. DTI assessment in tumors and in healthy brain

Diffusion tensor imaging identification and characterization of white matter tracts according to the direction and degree of anisotropic water diffusion within them. Quantifying the degree of anisotropy in terms of the quantity, fractional anisotropy, or FA offers insight into white matter development and degradation, for example in the presence of infiltrating cerebral neoplasm. Additionally, white matter tractography or fiber tracking based on the same data acquisition allows descriptive delineation of white matter fiber paths and their potential displacement by mass lesions.

With a view to quantifying the intactness of white matter in the vicinity of tumor, we define a quantity FDi, or fiber density index, as a indicator of the density of white matter fibers within the bundle passing through a single pixel or region of interest. We have correlated this measure with the related quantity, fractional anisotropy. This work resulted in 2 abstracts and 1 paper.

This work was further extended to assess FDi differences in white matter of the corpus callosum between healthy male and female volunteers. Women have a larger callosal area proportional to cerebral volume which suggests that a larger number of fibers are crossing through and hence inter-hemispheric transfer is enhanced. We hypothesized that we can document this using DTI. This led to 1 abstract and 1 paper submission.

Collaborators: Fang Liu, Tim Roberts, Januthy Tharmakulasingam

Projects by Adrian Crawley, PhD – UHN

Cerebrovascular reactivity (CVR) projects (in collaboration with Dr. Mikulis)

Under my supervision, Julien Poublanc has developed a method to analyze the BOLD response to a CO₂ vasodilatory stimulus in order to create a map of the vascular arrival time of CO₂ bolus and a separate map of the arteriolar response time. He is also conducting a comparison between these arrival time maps and those generated by conventional bolus gadolinium scans. The aim is to investigate whether the CVR exam can provide diagnostic information about the blood supply to an ischemic area as well as the remaining cerebrovascular reserve.

I have also provided extensive co-supervision to Danny Mandel, with regard to a theoretical analysis of various possible confounds that could potentially contaminate the quantitative flow imaging capabilities of arterial spin labelling (ASL). We have concluded that the potential for BOLD contamination is larger than was assumed by early investigators who adopted a fast-exchange model for labelled spins "perfusing" into the brain parenchyma. Since it is now generally accepted that a considerable number of labelled spins remain in the intravascular space, BOLD modulation of this signal is possible and should be minimized by the use of a minimum-TE spin-echo EPI acquisition. We have a specialized interest in using ASL to measure flow

under conditions of 100% inspired O₂, which requires an assessment of the T₁ effects of arterial plasma O₂ as a potential confound. As a result, we are adopting a strategy of using other methods such as phase-contrast MRA to properly assess whether O₂ is a vasoconstrictor in the brain (disputed in the literature).

Other projects:

James McCurdy is completing his M.Sc. project under my supervision. His project is in collaboration with Dr. Guha and Dr. Mikulis. He is analyzing quantitative MRI (DTI – ADC and FA; permeability – kps and fBV) ROI data from ~5 low grade gliomas and ~11 high grades to assess the discriminative power of these measures for early detection of low grade conversion to high grade tumours. We are focussing particularly on whether the data demonstrate any significant differences in ADC/FA/fBV patterns in non-enhancing low-grade compared to non-enhancing tissue peripheral to the central enhancing region in the high-grades.

Voxel-based morphometry projects are continuing in various schizophrenia populations in collaboration with Dr. Eva Chow (CAMH). I continue to be involved in several fMRI projects. In particular, Dr. Ian Tannock (PMH) has a large on-going project (over 60 subjects already scanned) involving the effects of chemotherapy on cognitive performance, for which I have done all the fMRI analysis.

Projects by Marshall Sussman, PhD - UHN

1) Cardiac:

My research has primarily involved two different areas: motion compensation and T₂ mapping. I will discuss each of these in turn. My main collaborators for this work are Naeem Merchant, Jeff Stainsby, and Chris Macgowan.

The first area of my research deals with the development of techniques for motion compensation. This technique is known as the SIMNAV method. The advantage over conventional methods is that it uses the image data itself, rather than external devices such as ECG, to correct for motion. As a result, it is potentially more accurate and robust than conventional motion compensation methods. An additional advantage is that this approach may be applied to any type of motion. As a result, there are a broad range of applications. To date, we have explored the applications of cardiac imaging and the assessment of joint kinematics with this technique. Other areas, such as abdominal and neuro imaging, are planned for the future. In the past year, this work has resulted in 3 abstracts and 1 paper.

A second area of interest in cardiac imaging is T₂ mapping. To date, we have successfully implemented at UHN a T₂ mapping pulse sequence, as well as T₂ mapping post-processing software. The T₂ value of tissue can potentially provide information in a broad range of disease processes. At the present time, we are using it to assess the state of the myocardium in patients with cardiomyopathies, patients with iron overload disease, and to quantify blood oxygen level. Utilizing these techniques, we are currently participating in an international multi-centre trial regarding T₂ mapping and iron quantification in the heart and liver (TCRN – Thalassemia Clinical Research Network).

2) Musculoskeletal:

I have primarily been involved in three different areas of research for MSK imaging: T₂ mapping, diffusion-weighted imaging, and joint kinematics. I will discuss each of these in turn. My main collaborator for this work is Lawrence White.

The first area of my research in MSK imaging is T₂ mapping. As with the cardiac T₂ mapping projects discussed above, we have implemented a T₂ mapping pulse sequence, as well a number of different versions of T₂ mapping post-processing software. A major focus of this study was the evaluation of cartilage degeneration in surgically-treated horse knees. T₂ maps were obtained from a total of 10 horse knees. This project was carried out under funding provided by a Canadian Arthritis Foundation (CAN) grant. A paper has been accepted for publication based on this work, and one abstract has been published. We have also begun some investigations into more sophisticated T₂ analysis techniques, using some of the methodology previously developed. Data analysis is under way.

A second area of interest is in diffusion-tensor imaging (DTI) of muscle. DTI provides an indication of the direction of water diffusion. This is particularly useful in highlighting the structure of anisotropic tissues like muscle fibers. The ultimate objective is to determine if DTI can provide a novel measure of the integrity of muscle fibers. One abstract has been published based on this work, and a paper has been submitted.

A third area of interest in MSK is the imaging of joint kinematics. The technical development for this project is derived from the SIMNAV technique, developed as part of the cardiac research project described above. As mentioned earlier, this general motion compensation strategy can be applied to almost any type of motion. Currently, we are investigating its use in the imaging of joint kinematics. A grant has been submitted based on this work.

3) Interventional MRI:

In surgical procedures, one must often navigate through the body based on information contained within previously acquired medical images. A major challenge associated with this task is correlating the information contained within the images with the actual coordinate system of the body. For this project, a surgical navigation system has been developed which tracks the position of surgical instruments during the surgical procedure via an infrared camera. This tracking information is displayed graphically and in real-time on top of the previously-acquired images. This allows the surgeon to directly correlate the surgical and image coordinate systems. This navigation system has been used successfully in brain biopsy procedures, as well as lymph node excisions from the abdomen. We are also currently applying these techniques to lung biopsies. In the past year, this work has resulted in 3 abstract publications. My main collaborators for this work are Walter Kucharczyk and Michael Jewett.

4) Miscellaneous:

I am also involved in other miscellaneous projects. These include the development of novel data acquisition strategies (Spiral-PR), the development of real-time MR techniques, the development of motion tracking algorithms. In total, this work has resulted in 1 abstract, 1

patent submission, and 1 paper accepted for publication. My main collaborators for this work are Timothy Roberts, Jeff Stainsby, Masoom Haider, and Michael Noseworthy.

Projects by Chris Macgowan, PhD - HSC

MRI Measurement of Pulmonary Blood Flow in Pulmonary Hypertension

Collaborators: Shi-Joon Yoo, Jaques Belik

The effect of pulmonary hypertension on pulmonary vascular function has previously been investigated using non-invasive imaging methods to measure blood-flow velocities; however, studies have been hampered by the poor accessibility of the pulmonary vessels to these methods. Ultrasound cannot penetrate the lungs while small vessels (diameter < 5 mm) are difficult to delineate accurately in phase-contrast (PC) magnetic-resonance (MR) images.

An evaluation of flow velocities in the many peripheral pulmonary vessels (e.g., segmental and sub-segmental) would also be tedious using existing post-processing methods. As a result, imaging studies of blood-flow velocity have focused on the large proximal vessels and provide only indirect information about distal vascular function and disease. We are developing and evaluating an automated method to measure blood-flow velocities throughout the pulmonary vasculature, including the smaller peripheral vessels. This additional hemodynamic information is relevant to the study of pathologies that mainly affect peripheral vessels, such as pulmonary hypertension, and pathologies with a geographic pattern of involvement, such as peripheral pulmonary stenosis.

Measurement of Lung Water Clearance using MRI

Collaborators: Hugh O'Brodovich, Paul Babyn

Indirect measurements suggest that the ability to clear airspace fluid correlates with morbidity and mortality in patients with pulmonary edema. In order to evaluate potential therapy options, accurate fluid clearance measurement methods are needed.

Currently fluid clearance is measured by instilling fluid laced with a tracer molecule. After an hour or so, the fluid is removed and the tracer concentration increase yields the fluid-clearance rate. Although reliable fluid clearance rate estimates are obtained, the relative contributions of different parts of the lung are still unknown. In this work we are developing an MRI technique to image regional pulmonary fluid clearance.

Projects by Hai-Ling (Margaret) Chen, PhD – HSC

My primary research interest is developing functional and molecular MRI of the microcirculation. Basic physics research on MRI methodologies and applications research, in both animal models of disease and clinical trials, are undertaken. Following are current projects.

1. Molecular and functional magnetic resonance imaging of angiogenesis in urinary bladder regeneration.
Principal Investigator: Cheng HL
Collaborators: Farhat WA, Towner RA
2. In-vivo monitoring of neural recovery following stem-cell therapies in an animal model of stroke.
Principal Investigator: Stanis G
Co-investigators: Morshead C, Lobaugh N, Cheng HL, Graham S
3. Functional MR imaging for early detection and physiologic characterization of inflammatory arthritis in a rabbit model.
Principal Investigator: Doria AS
Co-investigators: Belik J, Kassner A, Tomlinson G, Yeung R, Cheng HL, Crawley A

Projects by Douglas Cheyne, PhD – HSC

My research is focused on the development of neuroimaging methods using Magnetoencephalography (MEG) – a new imaging technology that monitors brain function non-invasively, by detecting small magnetic fields produced by neural activity. We use mathematical models to localize the generators of the measured fields to produce images of activity patterns throughout the brain. This neuromagnetic imaging method has applications in the diagnosis of abnormal brain activity in disorders such as childhood epilepsy, as well as aiding in the localization of various functional cortical areas prior to surgery. Our laboratory is developing new analysis methods for the application of neuromagnetic imaging to the study of various sensory, motor and cognitive processes and their impairments in adults and children. Our goal is to provide new tools for the study of basic and higher brain function in health and disease.

Projects currently underway include: mapping the organization of auditory and somatosensory and language areas in children; measuring cortical oscillatory activity associated with somatosensory stimulation and movement; studies of motor inhibition in childhood disorders such as ADHD; neuromagnetic imaging of motor cortex function in children with cerebral palsy; and localization of neural activity associated with visuomotor integration. Selected publications from this work are listed below.

Projects by Martin Yaffe, PhD – SWCHSC

Digital mammography is a new technology for producing x-ray mammograms of the breast. My laboratory has been carrying out research in this area since the early 1980s and has built one of the world's first prototype systems. In digital mammography, the film normally used for recording the image is replaced by an electronic x-ray detector which we have designed. The electrical signal from the detector is digitized and stored in computer memory to form a digital image. This image can then be displayed and adjusted interactively by the radiologist to facilitate detection of small breast cancers. Current research projects are:

- Research on improved early detection of breast cancer - digital breast tomosynthesis
- Study of etiology of breast cancer and means of prevention. Breast density as a biomarker for breast cancer risk
- Development and evaluation of contrast-enhanced digital mammography
- Development of solid state high resolution x-ray detectors for digital radiography
- Optimization of image quality in radiology – quality control program for digital mammography
- Development of new methods for whole-mount histopathology - improved imaging/pathology correlation

Faculty List – non-clinical

(Academic Rank as of June 30, 2005)

- | | | |
|------------------------|---------------------|--|
| • Martin J. Yaffe | Professor | Senior Scientist, SWCHSC |
| • Sylvain Houle | Associate Professor | Director, PET Centre
Centre for Addiction and Mental Health |
| • Douglas Cheyne | Associate Professor | Senior Scientist, HSC |
| • Curtis B. Caldwell | Assistant Professor | Physicist, SWCHSC |
| • Adrian Crawley | Assistant Professor | MR Physicist, UHN |
| • Andrea Kassner | Assistant Professor | Scientist, UHN |
| • Christopher Macgowan | Assistant Professor | Scientist, HSC |
| • Marshall Sussman | Assistant Professor | MR Physicist, UHN |
| • Hai-Ling Cheng | Assistant Professor | MR physicist, HSC |

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.

Bitar R – CHIR Research Fellowship, \$50,000 pa, 2004–2007.

Bitar R – CHAR/Amsterdam Health Development Award, First Canadian Recipient, \$12,000.

Boyd NF, Yaffe M. Determinants of breast tissue composition in young women. National Cancer Institute of Canada (NCIC) and Canadian Breast Cancer Research Alliance (CBCRA), \$1,309,434, 2003/07 – 2006/06

Boyd NF, Aitken S, Fishell E, Greyson ND, Jong RA, Koo J, Lickley L, Minkin S, Sidlofsky S, Wadden N, Yaffe MJ, Martin LFW, Minuk TG, Shaw BH, Tarulli GP, Wycoco D. An explanatory clinical trial of breast cancer prevention. National Cancer Institute of Canada (NCIC) and Canadian Breast Cancer Research Alliance (CBCRA), \$1,025,097, 2003/07 – 2006/12

Boyd NF, Anand S, Chiarelli A, Freidenreich C, Harper P, Hislop TG, Minkin S, Yaffe MJ. Lifestyle and breast tissue composition in Chinese and Caucasian women. National Cancer Institute of Canada (NCIC) and Canadian Breast Cancer Research Alliance (CBCRA), \$2,011,925, 2002/07 – 2005/06

Boyd NF, Yaffe M, Freidenreich CM, Minkin S, Hislop TG, Harper P. The determinants and significance of change in mammographic density. National Cancer Institute of Canada (NCIC), \$1,865,259, 2003/07 – 2006/06

Caldwell CB, Mah K, Poon I. Effect of the use of FDG-PET/CT and automated image segmentation on observer variation in target volume delineation. National Cancer Institute, Canada 2005–2006

Caldwell CB, Mah K, Turksen IB, Ung YC, Danjoux CE, Ehrlich LE – Principal Investigators. Automated target definition for radiation treatment. Ontario Cancer Research Network, \$108,667/year (3 years total) 2004–2006

Caldwell CB, Mah K, Turksen IB, Ung YC, Danjoux CE, Ehrlich LE – Principal Investigators. A Fuzzy logic expert system for radiation targeting. Philips Medical Systems, Inc. \$125,000/year (2 years total) 2004–2005

Caldwell CB, Pignol JP, Keller B, Beachey D, Reznik. On line Gamma-camera Imaging of 103-Palladium Seed (OGIPS) for permanent breast seed implantation. Canadian Breast Cancer Foundation - Ontario Chapter, \$99,100/year (3 years total). 2005–2007

Cheyne D - Principal Investigator: CIHR – Research Grant, Development of neuromagnetic imaging methods for measuring oscillatory brain activity. \$276,054, 2003–2006

Cheyne D - Co-Investigator. CIHR – New Emerging Team (NET) Grant, Inattention, impulsiveness, and restlessness in childhood: Heritability, genetics, neuropsychology and psychophysiology (KIDNET). \$1,249,585, 2002–2007.

Cheyne, D. CIHR Operating Grant, Neuromagnetic imaging methods for realistic models of brain activity. \$229,864 2006–2009.

Crawley A – Co-investigator. Canadian Breast Cancer Research Alliance – Developmental and Exploratory (DEX) Research Grant, PI: I Tannock. Cognitive impairment associated with chemotherapy for breast cancer: An exploratory case-controlled study. 2004–2005

Crawley A – Co-investigator. CIHR Operating Grant, PI: L deNil. Neuroimaging studies of auditory processing in individuals who stutter. \$82,344 pa 2004–2009

Crawley A – Co-investigator. CIHR Operating Grant, PI: E Chow. 22q11 deletion syndrome: Children at high risk for psychiatric disorders. \$81,508 pa 2005–2008

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 (NCIC), Terry Fox Program Project \$7,129,222, 2001/07 – 2006/06

Kassner A, Roberts TPL. – Principal Investigators. Brain tumor characterization using advanced neuro MR imaging techniques. Research and Development Fund (University of Toronto, Dept of Medical Imaging). \$50,000 (total), 2003–2006.

Kassner A – Principal Investigator. Can stabilization of the blood brain barrier be achieved in ischemic endothelium using corticosteroids: An MRI permeability study in a rodent model of acute ischemic stroke. Dean's Fund (University of Toronto, Faculty of Medicine). \$10,000 (total), 2005–2006

Kassner A – Principal Investigator. Widening the therapeutic window and reducing treatment morbidity in acute stroke: Assessment of blood-brain-barrier integrity with permeability MRI. Canadian Institutes of Health Research (CIHR). \$ 260,000 (total), 2005–2008

Kassner A – Principal Investigator. Stabilization of the blood-brain-barrier (BBB) will delay progression of BBB defects: a permeability study in a rat model using MRI. Project date: UHN Medical Imaging Excellence and Research Award. \$30,000, 2005–2006

Macgowan C – Co-Applicant. Heart and Stroke Foundation (Grants-in-Aid), PI: G Cohen. Left ventricular mass regression following stentless and stented aortic valve replacement: Follow up of a randomized trial. \$89,350 (total), 2004/07 – 2006/06

Macgowan C – Principal Investigator. Canadian Institutes of Health Research (Operating Grant), Co-Applicant: S-J Yoo. MRI assessment of pulmonary hemodynamics within the lungs. \$212,279 (total), 2004/10 – 2007/09

Robaey P, Schachar R, Cheyne D, Perusse D: CIHR – New Emerging Team Grant, Inattention, impulsiveness, and restlessness in childhood: Heritability, genetics, neuropsychology and psychophysiology (KIDNET). Amount: \$1,249,585; 2002–2007

Rommens JM, Boyd N, Patterson A, Andrulis I, Yaffe M, Hopper J, John E. Genetic studies in mammographic density. National Institutes of Health (NIH) \$US 3,759,047; 2005/09 – 2010/06

Shroff M, Taylor M, DeVeber G, Cheyne D. University of Toronto Dept. of Medical Imaging Seed Grant, Neuroimaging and plasticity in the immature brain. \$105,000, 2005–2008

Snead OC, Campbell M, Cheyne D, Dennis M, Josselyn S, Salter M, Sled J, Tannock R, Taylor, M, Westall, C. Canadian Foundation for Innovation (CFI) – New Initiatives Fund, Centre for the Investigation of Neuroplasticity and Developmental Disorders (CINDD). \$2,960,117

Sussman MS (Principal Investigator for University Health Network site), Ontario R&D Challenge fund (ORDCF), Ontario Consortium for Cardiac Imaging (OCCI), \$1,886,700 total 2001–2007 (funding includes ORDCF, private sector and institution component)

Sutcliffe T, Fehlings D, Shroff M, Logan W, Cheyne D. Physician's Services Incorporated Foundation – Research Grant, Constraint therapy in children with hemiplegia: Evaluating the longevity of motor improvement. \$16,000, 2005–2006.

Warner E, Causer P, DeBoer G, Jong R, Messner S, Narod S, Plewes D, Wong J, Wright F, Yaffe M. Surveillance magnetic resonance imaging and ultrasound for women at high risk for hereditary breast cancer. Canadian Breast Cancer Research Alliance (CBCRA) \$1,312,191; 2004/07 – 2009/06

Yaffe MJ, Burns P, Boyd NF, Catzavelos C, Rowlands J, Plewes D, Bronskill M, Reilly R, Wilson B, Cunningham I, Foster S, Santyr G. Ontario Centre of Excellence in Breast Cancer Imaging Research. Ontario R&D Challenge Fund \$9,102,570, 2001/01 – 2005/12

Yaffe MJ, Mainprize J. Three-dimensional contrast-enhanced breast cancer detection. Canadian Institutes of Health Research (CIHR) \$179,033, 2004/07 – 2007/06

Publications

Members of the Department of Medical Imaging (underlined) are also members of the Research Division.

Al-Kwif O, Stainsby JA, Foltz WD, Sussman MS, Huang Y, Wright GA. Characterizing coronary motion and its effect on MR coronary angiography: Initial experience. Journal of Magnetic Resonance Imaging 2006, 24(4):842-50.

Arslan MC, Caldwell CB, Turksen IB. Comparison of FCM clustering with crisp k-mean clustering in radiation treatment planning for non-small cell lung carcinoma J Nuclear Medicine 2005; 46(5) p.462P.

Bayless S, Gaetz, W, Cheyne D, Taylor M.J. (2006) Spatiotemporal analysis of feedback processing during a card sorting task using spatially filtered MEG. Neuroscience Letters 410: 31-36.

Behl P, Caldwell CB, Cotter A, Black SE. Does cholinergic therapy benefit regional brain perfusion on SPECT in moderate stage Alzheimers Disease (AD)? J Nuclear Medicine 2005, 46(5), p. 294P (supplement)

Bérubé S, Diorio C, Mâsse B, Hebert-Croteau N, Byrne C, Côté G, Pollak M, Yaffe M, Brisson J. Vitamin D and calcium intakes from food or supplements and mammographic breast density. Cancer Epidemiol Biomarkers Prev. 2005 Jul;14(7):1653-9.

Bérubé S, Diorio C, Verhoek-Oftedahl W, Mâsse B, Hebert-Croteau N, Byrne C, Côté G, Pollak M, Yaffe MJ, Brisson J. Vitamin D, Calcium and Mammographic Breast Density Cancer Epidemiology, Biomarkers and Prevention 2005 14: 1065-1073 .

Bloomquist AK, Yaffe MJ, Pisano ED, Hendrick RE, Mawdsley GE, Bright S, Shen SZ, Mahesh M, Nickoloff EL, Fleischman RC, Williams MB, Maidment ADA, Beideck DJ, Och J, Seibert JA. Quality Control for Digital Mammography in the ACRIN DMIST Trial - Part I. Medical Physics. 33, 719-736, 2006.

Boyd NF, Rommens JM, Lee V, Hopper JL, Yaffe MJ, Patterson AD. Mammographic density as an intermediate phenotype for breast cancer. Lancet Oncology 6, 798-808, 2005.

Cartwright L, Farhat WA, Sherman C, Chen J, Babyn P, Yeger H, Cheng HL. Dynamic contrast-enhanced MRI to quantify VEGF-enhanced tissue-engineered bladder graft neovascularization: Pilot study. Journal of Biomedical Materials Research 2006; Part A 77A(2), 390-95.

Cheng HL, Wright GA. Rapid high-resolution T(1) mapping by variable flip angles: Accurate and precise measurements in the presence of radiofrequency field inhomogeneity. Magnetic Resonance in Medicine 2006; 55(3), 566-74.

Cheng HL, Chen J, Babyn PS, Farhat WA. Dynamic Gd-DTPA enhanced MRI as a surrogate marker of angiogenesis in tissue-engineered bladder constructs: A feasibility study in rabbits. Journal of Magnetic Resonance Imaging 2005; 21(4), 415-23.

Cheyne D, Bakhtazad L, Gaetz W. (2006) Spatiotemporal mapping of cortical activity accompanying voluntary movements using an event-related beamforming approach. Human Brain Mapping 27: 213-229.

Cheyne D, Bostan AC, Gaetz W, Pang EW. Event-related beamforming: A robust method for functional brain mapping using MEG. Under revision for Clinical Neurophysiology.

Cheyne D, Gaetz W, Bells S, Wennberg R, Bostan AC. Neuromagnetic evidence of high frequency (70 - 80 Hz) gamma oscillations in human motor cortex. Submitted to Journal of Neuroscience.

Chong R, Caldwell CB, Mah K. Cost effectiveness of ¹⁸F-FDG PET/CT on radiation therapy for non-small cell lung cancer: a Canadian perspective J Nuclear Medicine 2005, 46(5), p. 427P (supplement)

Cotter A, Caldwell CB, Black SE. SPECT Perfusion in the Posterior Cingulate combined with Medial Temporal Lobe Width can help with diagnosis of Alzheimer's Disease J Nuclear Medicine 2005, (5), p. 122P (supplement)

Crawford MW, Arrica M, Macgowan CK, Yoo S-J. Extent and Localization of Changes in Upper Airway Caliber with Varying Concentrations of Sevoflurane in Children. Anesthesiology. In Press (2006) – Coauthor

Crawford MW, Rohan D, Macgowan CK, Yoo S-J, Macpherson BA. Effect of Propofol Anesthesia and Continuous Positive Airway Pressure on Upper Airway Size and Configuration in Infants. Anesthesiology. In Press (2006) – Coauthor

Destouet JM, Bassett LW, Yaffe MJ, Butler PF, Wilcox PA. The American College of Radiology Mammography Accreditation Committee – 10 Years of experience since MQSA. J. American College of Radiology. 2, 585-594, 2005.

Diorio C, Bérubé S, Byrne C, Mâsse B, Hebert-Croteau N, Yaffe M, Côté G, Pollak M, Brisson J. Influence of insulin-like growth factors on the strength of the relation of vitamin D and calcium intakes to mammographic breast density. Cancer Res. 2006 Jan 1;66(1):588-97.

Diorio C, Pollak M, Byrne C, Mâsse B, Hebert-Croteau N, Yaffe M, Cote G, Bérubé S, Morin C, Brisson J. Insulin-like growth factor-I, IGF-binding protein-3, and mammographic breast density. Cancer Epidemiol Biomarkers Prev. 2005 May;14(5):1065-73.

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Dominguez LG, Wennberg R, Gaetz W, Cheyne D, Snead III OC, Velazquez JLP. (2005) Enhanced synchrony in epileptiform activity? Local versus distant synchronization in generalized seizures. Journal of Neuroscience 25: 8077-8084.

Ducreux D, Buvat I, Meder JF, Mikulis D, Crawley AP, Fredy D, terBrugge K, Lasjaunias P, Bittoun J. Perfusion-Weighted MRI studies in Brain Hypervascular Diseases: Comparison of Arterial Input Function Extractions for Perfusion Measurement. AJNR 2006;27(5):1059-1069.

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Gaetz W, Cheyne D. Localization of sensorimotor cortical rhythms induced by tactile stimulation using spatially filtered MEG. Neuroimage. 2005 Dec 1; [Epub ahead of print]

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Herdman T, Pang E, Gaetz W, Ressler V, Cheyne D. Spatiotemporal dynamics of neuromagnetic responses related to language production. Cerebral Cortex in press.

Itier RJ, Herdman AT, George N, Cheyne D, Taylor MJ. (2006) Inversion and contrast-reversal effects of face processing assessed by MEG. Brain Research 1115: 108-120.

Jurkiewicz MT, Gaetz W, Bostan A, Cheyne D. (2006) Post-movement beta rebound is generated in motor cortex: Evidence from neuromagnetic recordings. *NeuroImage* 32: 1281-1289.

Jensen J, Smith AJ, Willeit M, Crawley AP, Mikulis DJ, Vitcu I, Kapur S. Separate brain regions code for salience versus valence during reward prediction in humans. *Human Brain Mapping* (accepted 2006).

Jurkiewicz MT, Crawley AP, Verrier MC, Fehlings MG, Mikulis DJ. Somatosensory Cortical Atrophy after Spinal Cord Injury: A Voxel-Based Morphometry Study. *Neurology* 2006;66(5):762-764.

Kassner A, Poublanc J, Mikulis D, Crawley A. Mapping autoregulatory capacity using BOLD MRI and alternating state levels of pCO₂ – a reproducibility study. 11th Annual meeting of the Organization for HBM. Toronto, June 2005.

Kassner A, Poublanc J, Tomlinson G, Crawley A. Differences in cerebrovascular reactivity in males versus females obtained using BOLD MRI and alternating states of end-tidal pCO₂. 14th Scientific Meeting of the ISMRM. Seattle, May 2006.

Kassner A, Roberts TPL, Taylor K, Silver F, Mikulis D. Prediction of hemorrhagic transformation in acute ischemic stroke using dynamic contrast-enhanced permeability MRI. *AJNR* 2005;26: 2213-2217.

Kellenberger CJ, Macgowan CK, Roman KS, Al-Habshan F, Benson LN, Redington AN, Yoo S-J. Hemodynamic Evaluation of the Peripheral Pulmonary Circulation by Cine Phase-Contrast Magnetic Resonance Imaging. *J. Magn. Reson. Med.* 22(6): 780-787 (2005) – Co-principal Author

Kusano M, Caldwell CB, Lanctot KL, Chow TW. Evaluation and Refinement of an MR-Based Brain Pet Partial Volume Correction Method Using The Zubal Brain Phantom. *J Nuclear Medicine* 2005, 46(5), p. 452P (supplement)

Kusano ML, Caldwell CB. Generation of Realistic Computer-Simulated PET/CT Tumours Using Fractal Analysis And Motion Modeling For Evaluation Of Radiation Target Definition Methods *J Nuclear Medicine* 2005 p 164P(supplement).

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Macgowan CK, Al-Kwif O, Varodayan F, Yoo S-J, Wright GA, Kellenberger CJ. Optimization of 3D Contrast-Enhanced Pulmonary MRA in Paediatric Patients with Cardiovascular Disease. *Magn. Reson. Med.*: 54:207–212 (2005) – Principal Author

Macgowan CK, Al-Kwafi O, Yoo S-J, Kellenberger CJ, Wright GA. Optimization of 3D Contrast-Enhanced Pulmonary MR Angiography in Pediatric Patients with Cardiovascular Disease. International Society of Magnetic Resonance in Medicine (2005) – Principal Author

Macgowan CK, Kellenberger CJ, Detsky JS, Roman K, Yoo S-J. Real-Time Magnetic Resonance Velocimetry: An In-Vivo Evaluation. J. Magn. Reson. Imag. 21, 297–304 (2005) – Principal Author

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Patents

Sussman MS, Roberts TPL, Spiral-PR: A New Polar k-Space Trajectory, Pending.

Invited Presentations

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Bostan A, Pang E, Gaetz W, Chu W, Cheyne D. Localization of sensory and motor activity in subjects with orthodontic braces: Implications for pre-surgical functional mapping in pediatric populations. 15th International Conference on Biomagnetism, 2006, Vancouver, Canada.

Cheng HL. Dynamic contrast-enhanced MRI: Principles and applications. Diagnostic Imaging Teaching Rounds, The Hospital for Sick Children, Toronto, Canada, 21 Nov., 2005.

Cheyne D, Bostan A, Gaetz W, Pang E. Neuromagnetic mapping of sensory and motor cortex using event-related beamforming: Implications for pediatric imaging. 17th Meeting of the International Society for Brain Electromagnetic Topography (ISBET), 2006, Chieti, Italy.

Cheyne D, Gaetz W, Pang EW, Drake J, Strantzas S, Benifla M, Holowka S, Hunjan A, Otsubo H. A new method for pre-operative mapping of the primary motor cortex in humans using spatially filtered Magnetoencephalography. Annual meeting of Neuroscience, 2005, Washington, DC.

Cheyne D, Herdman T, Gaetz W, Ressel V, Pang L. Spatiotemporal dynamics of neuromagnetic responses related to language production. Annual meeting of the Cognitive Neuroscience Society, 2006, San Francisco.

Cheyne D, Itier R, Hamilton A, Taylor MJ. Localization of cortical activity during face perception using event-related synthetic aperture magnetometry 11th Annual Meeting of the Organization for Human Brain Mapping, 2005, Toronto, Canada.

Dockstader CL, Gaetz W, Cheyne D, Tannock R. Beta rebound in the human somatosensory cortex can be influenced by higher cognitive processes. 15th International Conference on Biomagnetism, 2006, Vancouver, Canada.

Dockstader CL, Gaetz W, Tannock R, Cheyne D. Effects of stimulus predictability on neural activation of the human somatosensory cortex. 11th Annual Meeting of the Organization for Human Brain Mapping, 2005, Toronto, Canada.

Dominguez LG, Gaetz W, Cheyne D, Wennberg R, Velazquez JLP. Brain coordination dynamics of the processing of self-referential stimuli. 12th Annual Meeting of the Organization for Human Brain Mapping, 2006, Florence, Italy.

Ferrari P, Bostan A, Jantzen KJ, Kelso JAS, Cheyne D, Fuchs A. Magnetoencephalographic evidence of cortical networks underlying coordinated movements: Spatiotemporal dynamics of induced and event related brain responses revealed by beamforming. 15th International Conference on Biomagnetism, 2006, Vancouver, Canada.

Ferrari P, Cheyne D, Fuchs A. Beamforming applied to evoked and induced neural activity during coordinated movements: Determining functional cortical networks. Annual meeting of the Cognitive Neuroscience Society, 2006, San Francisco.

Gaetz W, Pang EW, Rutka J, Benifla M, Strantzas S, Sharma R, Chu W, Holowka S, Otsubo H, Cheyne D. Pre-operative mapping of primary motor cortex in children using spatially filtered magnetoencephalography. 15th International Conference on Biomagnetism, 2005, Vancouver, Canada.

Gaetz W, Sutcliffe TL, Logan W, Shroff M, Fehlings DL, Cheyne D. MEG and fMRI localized changes in cortical organization following constraint-induced therapy: A case study involving hemiplegic cerebral palsy. 11th Annual Meeting of the Organization for Human Brain Mapping, 2005, Toronto, Canada.

Gaetz W, Sutcliffe TL, Logan W, Shroff M, Fehlings DL, Cheyne D. MEG and fMRI measurement of sensorimotor cortical function following constraint-induced therapy in a child with hemiplegic cerebral palsy. Annual meeting of the American Society of Neuroradiology, 2005, Toronto, Canada.

Johnson BW, Muthukumaraswamy S, Gaetz W, Cheyne D. Neuromagnetic and neuroelectric oscillatory responses to acoustic stimulation with broadband noise. 15th International Conference on Biomagnetism, 2006, Vancouver, Canada.

Jurkiewicz M, Gaetz W, Bostan A, Cheyne D. Is post-movement beta rebound generated in motor or somatosensory cortex? 15th International Conference on Biomagnetism, 2006, Vancouver, Canada.

Kassner A. Beyond perfusion: assessment of cerebral vascular reactivity using BOLD MRI. University of Illinois, Chicago, July 2005

Kassner A. MR perfusion: predicting post-tPA hemorrhage with MR based permeability maps. 4th International Symposium on CT and MR Brain Perfusion. Chicago, Illinois, Sept 2005

Kassner A. MR perfusion. MSc lecture series at McMaster University, Hamilton, Canada, Oct 2005

Kassner, A. Towards biological imaging of brain tumors. Karmanos Cancer Centre, Detroit, Oct 2005

Kassner, A. Window into the brain: non-invasive lesion characterization using functional MRI. Hospital for Sick Children, Toronto, Oct 2005

Kassner, A. Perfusion and permeability in stroke. ASNR, San Diego, May 2006

Macgowan C. Hemodynamic characterization using MRI. CAIMS-MITACS 2006 Joint Annual Conference, Toronto, Canada – June 16, 2006. Sponsor: Mathematics of Info. Tech. and Complex Systems, Network of Centres of Excellence

Macgowan C. Can we image microvascular flow in our patients? 2nd Annual Toronto Symposium – Contemporary Questions in Congenital Heart Disease, The Right Heart, Toronto, Canada – June 18, 2006. Sponsor: Hospital for Sick Children

Macgowan C. Hemodynamic characterization using MRI. Biomedical Engineering and Medical Biophysics Seminar Series, London, Canada – April 6, 2005. Sponsor: University of Western Ontario, Depts. of Biomedical Engineering and Medical Biophysics

Macgowan C. Real-time MRI. Pediatric Cardiovascular MR Symposium, Toronto, Canada – April 3, 2005. Sponsor: Society for Pediatric Radiology

Macgowan C. How to reduce magnetic resonance artifacts. Pediatric Cardiovascular MR Symposium, Toronto, Canada – April 3, 2005. Sponsor: Society for Pediatric Radiology

McVeigh P, Bostan A, Cheyne D. Comparison of dipole fit and beamformer localization with different head models: Simulations using a realistically shaped physical model. 15th International Conference on Biomagnetism, 2006, Vancouver, Canada.

Mohamed I, Gaetz W, Logan W, Otsubo H, Hunjan A, Donner E, Cheyne D., Pang E. Neuromagnetic imaging of cortical neural oscillations in children during auditory word recognition task. 11th Annual Meeting of the Organization for Human Brain Mapping, 2005, Toronto, Canada.

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Pang EW, Gaetz WC, Drake JM, Strantzas SC, Holowka S, Junjan A, Otsubo H, Cheyne D. (2005) Direct correspondence between pre-operative MEG mapping of hand motor area and activation of same area with intra-operative cortical stimulation: A case report. 11th Annual Meeting of the Organization for Human Brain Mapping, Toronto, Canada.

Yaffe MJ. Update course in diagnostic radiology physics—Advances in digital mammography: Image processing, digital subtraction, and dual-energy techniques. RSNA Nov. 29, 2005.

Yaffe MJ. The continuing development of new imaging systems. RSNA Nov. 29, 2005.

Yaffe MJ. Digital mammography physics. North Carolina Radiology Course, Jan. 13, 2006.

Yaffe MJ. Digital X-Ray and PACS Forum Mar. 4, 2006, Hilton Head
a. Digital Mammography: The Physicist's Perspective, Present & Future
b. Digital Mammography Workstations
c. Digital Tomosynthesis

Yaffe MJ. Development of a quality control program for digital mammography. SCAR, April 2006, Austin, TX.

Yaffe MJ. ACR National Breast Cancer Conference, April 2006, San Diego.

Teaching - Hours of Lectures

Faculty Member	Students	Residents, Fellows, Faculty	Technologists
C.B. Caldwell	4	10	10
S. Houle	10	20	10

Faculty Member	Students	Residents, Fellows, Faculty	Technologists
M.J. Yaffe	6	33	0
A. Kassner	2	6	4
M. Sussman	0	18	0

DEPARTMENT OF MEDICAL IMAGING ANNUAL RESEARCH DAY 2006

Date: Tuesday, April 25, 2006

Location: J.J.R. MacLeod Auditorium

Starting Time: 12:00 PM with welcome by Walter Kucharczyk

Abdominal, Pelvis, GI, and GU Imaging

Session Chair: Mostafa Atri

12:10 PM	Ants Toi	Do additional lateral cores increase prostate cancer detection compared to the standard sextant biopsy?
12:17 PM	Masoom Haider	Diffusion Weighted Imaging for Localization of Prostate Cancer
12:24 PM	Hyun-Jung Jang	Enhancement Patterns of Hepatocellular Carcinoma on Contrast-enhanced Ultrasound – Correlation with Pathologic Differentiation
12:31 PM	Kartik Jhaveri	Comparison of CT Histogram analysis to adrenal washout CT in diagnosis of lipid poor adenomas
12:38 PM	Emma Robinson	MRI imaging and clinical response of adenomyosis to uterine artery embolization
12:45 PM	M. Aeja Syed	Hepatic and Portal Venous Thrombosis Associated with Hepatic Abscess
12:52 PM	Brian Yeung	Does Radiology Consultation Pre-Imaging Affect the Outcomes of CT Renal Colic Scans?
12:59 PM	Tae Kyoung Kim	Focal Nodular Hyperplasia and Hepatic Adenoma: Differentiation with Low-MI Contrast-enhanced Ultrasound – Work in Progress
1:06 PM	Neil Rosta	Emergency CT Imaging for Acute Abdominal Aortic Disease - Are Utilization Patterns Changing?
1:13 PM	An Tang	Hepatic vein transit times using a microbubble agent to predict severity of hepatic disease non-invasively
1:20 PM	Bina Lanka	Impact of Contrast Enhanced Ultrasound in a Tertiary Clinical Practice
1:27 PM	Richard Bessell-Browne	Pheochromocytoma and paraganglioma: Risk of adverse events with IV nonionic contrast material for CT
1:34 PM	Martin O'Malley	Testicular Cancer Surveillance: Standard versus Low Dose CT
1:41 PM	Marie Staunton	Can CT reliably distinguish moderately from poorly differentiated hepatocellular carcinoma?

Breast, Chest, and Cardiac

Session Chair: Narinder Paul

1:50 PM	Roberta Jong	The Results of the Digital Mammographic Imaging Screening Trial - DMIST
1:57 PM	Oana Moscovici	Characteristics of Breast MRI Screen-detected lesions that should be sent for targeted Ultrasound
2:04 PM	Raafat Abou Saif	The Value of Breast Imaging in Diagnosis of Breast Cancer in Patients with Nipple Discharge
2:11 PM	Mousumi Bhaduri	Outcome of Breast MRI for screening breast cancer in mixed population of women
2:18 PM	Andre Pereira	Assessing the performance of CAD for lung nodule detection: effect of radiation dose
2:25 PM	Hamid Bayanati	Low-dose Computed Tomography in Prior Asbestos-exposed Workers: Assessment of lung nodules and pleural plaques
2:32 PM	Igor Sitartchouk	Dynamic CT perfusion for Lung Nodules Characterization
2:39 PM	Hany Mehdizadeh-Kashani	Effect of slice thickness and algorithm reconstruction on the performance of CAD for lung nodule detection
2:46 PM	Katherine Zukotynski	Contrast Echocardiography Grading Predicts Pulmonary Arteriovenous Malformations at CT

2:53 PM	Patrick Cervini	Out of Hours CT Pulmonary Angiograms: Accuracy of Resident Reporting
3:00 PM	Philip Buckler	Pulmonary High Resolution CT Findings in Patients with Congenital Bilateral Absence of the Vas Deferens
3:07 PM	Afsaneh Amirabadi	T2 MRI for Early Diagnosis of Myocardial Iron Overload in b-Thalassemia
3:14 PM	Hong Huang	Cardiac MRI Assessment of Cardiomyopathy in Patients with Cirrhotic Ascites
3:21 PM	Errol Colak	The Utility of a First-Generation Computer-aided Detection (CAD) Tool for the Diagnosis of Pulmonary Arterial Filling Defects

Musculoskeletal, Physics, and Paediatric

Session Chair: Lawrence White

3:30 PM	Nadja Saupe	Diffusion Tensor MR Imaging and Fibertractography of the Human Calf: Results at 1.5T and 3.0T
3:37 PM	Jim Li	Dynamic joint imaging using the similarity-based navigator (SIMNAV) motion compensation technique
3:44 PM	Katherine Zukotynski	Ultrasonography for Children with Hemophilic Arthropathy: How we do it.
3:51 PM	Sean O'Connor	Neonatal Findings of Fusion of the Forniceal Columns and Absent Cavum Septum Pellucidum
3:58 PM	Shantel Minnis	The Value of Ultrasound in Assessing the Need for Full vs Focused CT in Children Evaluated for Acute Appendicitis

Neuroimaging

Session Char:

4:07 PM	David J. Mikulis	Gadolinium Enhancement Predicts Hemorrhagic Transformation in Acute Ischemic Stroke
4:14 PM	Noel Fanning	Cochlear implantation in patients with cochlear otosclerosis
4:21 PM	Santanu Chakraborty	Value of CTA-Source Images in Acute Stroke using ASPECT Scoring
4:28 PM	Tabassum Ahmad	Comparison of CTA to DSA in evaluating etiology of non-traumatic, non-subarachnoid intracranial hemorrhage
4:35 PM	Adrian Crawley	Differences in cerebrovascular reactivity in males versus females obtained using BOLD MRI and alternating states of end-tidal pCO ₂
4:42 PM	Julien Poublanc	Investigation of short TE inflow-based contrast for fMRI
4:49 PM	Fang Liu	Gender Differences in Water Diffusion of the Corpus Callosum : A Diffusion Tensor Imaging Study
4:56 PM	Louis-Martin Boucher	Reviewer discrepancies in analyzing CT Heads and Shunt Series in children in which VP shunt obstruction is suspected
5:03 PM	Sandeep Bhuta	3T Intracranial arterial wall imaging: Clinical Impact
5:10 PM	Jeff Mandelcorn	ASPECT Scoring of CT Perfusion in Early Stroke Visualization and Assessment
5:17 PM	Seon Kyu Lee	The Evaluation of Intracranial Atherosclerosis Using the BOLD MRI technique, Part 1: BOLD MRI Mapping of Cerebro-Vascular Reserve (Cerebro-Vascular Reserve) with Carotid Artery Occlusive Disease (CAOD): Value in Identifying Patients for Carotid Artery Revascularizations
5:24 PM	Peter Howard	Optimizing Gadolinium Enhanced MRA for Demonstration of the Artery of Adamkiewicz
5:31 PM	Ryan Wada	CTA can predict hematoma progression in spontaneous intracerebral hemorrhage
5:38 PM	Veera Bharatwal	Correlation between nasal dermoid cysts and foramen cecum size

Vascular and Interventional Radiology

Session Chair:

5:47 PM	John Kachura	Radiofrequency ablation of renal cell carcinoma using a multitined electrode: preliminary experience
5:54 PM	Ronjon Raha	Use of Prophylactic Antibiotics for Implanted Chest Port Insertions: Is There Reduced Risk of Infection?
6:01 PM	Dheeraj Rajan	Ultra-high vs. high-pressure PTA of venous anastomotic stenosis in HD grafts: Is there a difference in patency?
6:08 PM	Marshall Sussman	Image-Guided Navigation in the Presence of Motion
6:15 PM	Richard Bitar	Distribution of Intraplaque Hemorrhage in Carotid Complicated Plaques Defined by High-Resolution Magnetic Resonance Direct Thrombus Imaging (hiresMRDTI)
6:22 PM	Murthy S. Chennapragada	Disproportionate increase in cardiac output with exercise in patients with high flow peripheral arterio-venous malformations
6:29 PM	Manish Taneja	Iatrogenic renal trauma: Patterns of arterial injury and endovascular management
6:36 PM	Walter Kucharczyk	Closing Comments

RESIDENT TRAINING PROGRAM

General Description

There were 48 residents in our program in the 2005-2006 year. The five-year program consists of one year of preliminary clinical training (PGY1), followed by four years of training in medical imaging.

The university-wide integration and rotational system ensures that each resident will have access to all the strengths of our large and expert faculty and the huge volume of clinical pathology. Residents have the opportunity to train at several large modern hospitals, doing so in groups of 5 – 10 trainees of all levels, thus maintaining a close working environment with peers and faculty. All hospitals are equipped with state-of-the-art equipment. Residents work daily with the best of general radiographic, ultrasound, CT and MRI technology. Several hospitals have digital image archiving and communication systems.

PGY1

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 2005 - 2006, the core teaching hospitals have been the Mount Sinai Hospital and the St. Michael's Hospital. Community training is principally done at the North York General Hospital. The content of the PGY1 program included Medicine (General Medicine and Respiriology); Surgery (General Surgery, Orthopaedics, Urology, Neurosurgery, Obstetrics and Gynaecology); one month of Paediatrics; one month of Anatomy at the U of T Anatomy Department; and two months of elective choices. In the final month of PGY1, 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

During 2005 - 2006, a PGY2 trainee spent the entire year at one or two of the three core teaching Departments (Mount Sinai – University Health Network, Sunnybrook and Women's College Health Sciences Centre and St. Michael's Hospital). There is a graduated increase in responsibility over the course of the year. 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 2005 - 2006, residents in this training year divided their rotations into three to six 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. MRI training is included within all organ system rotations and is a strong component of all core hospitals.

PGY4

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 obstetric ultrasound, cardiac imaging and Body 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. Dr. David Mikulis is responsible for the design and delivery of the course curriculum, 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 course.
- 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.

2005 - 2006 recipient: Dr. Jeffrey Jaskolka, PGY5

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.

2005 - 2006 winner: Dr. Jeffrey Jaskolka, PGY5
Dr. Ryan Margau, PGY5

3) Research Awards

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.

2005 - 2006 winner: Dr. Noel Fanning, Neuroradiology Fellow

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.

RESIDENTS

PGY1 Level

Mark Baerlocher, MD
University of Toronto, 2005
Daniel Baxter, MD
McGill University, 2005
Ida Chan, MD
University of British Columbia, 2005
Perry Choi, MD
University of Toronto, 2005
Susan James, MD
University of Toronto, 2005
David Kelton, MD
University of Toronto, 2005

PGY2 Level

Alan Andrew, MD
University of Toronto, 2004
Hemi Dua, MD
University of Toronto, 2004
Dean Durant, MBBS
University of the West Indies, 2001
Jonathan Mandel, MD
University of Toronto, 2004
Aiden Mokhtassi, MD
University of Toronto, 2004
Christopher Mongiardi, MD
University of Ottawa, 2004
Elissa Price, MD
University of Toronto, 2004
Lara Richmond, MD
University of Toronto, 2004

PGY3 Level

Aditya Bharatha, MD
University of Toronto, 2003
Mino Bozorgzadeh, MD
Iran Medical University, 1984
Philip Buckler, MD
University of Toronto, 2003

Patrick Cervini, MD
University of Toronto, 2003
Errol Colak, MD
University of Toronto, 2003
Kebby King, MD
University of West Indies, 1997
Robert Kurtz, MD
University of Toronto, 1996
Jeff Mandelcorn, MD
University of Toronto, 2003
Danny Mandell, MD
McMaster University, 2003
Alex Menard, MD
University of Ottawa, 2003
Jennifer Stimec, MD
University of Toronto, 2003
Jeremy White, MD
University of British Columbia, 2003

PGY4 Level

Louis-Martin Boucher, MD
University of Toronto, 2001
Meg Chiavaras, MD
University of Massachusetts, 2002
Christopher Dyck, MD
University of Toronto, 2002
Lenny Grinblat, MD
McMaster University, 2002
Winnie Lee, MD
University of Toronto, 2002
Andrea Milic, MD
University of Ottawa, 2002
Shantel Minnis, MBBS
University of West Indies, 1998
Emma Robinson, MD
University of Toronto, 2002
Neil Rosta, MD
Queen's University, 1994
Rola Shaheen, MD
University of Jordan, 1996
Brian Yeung, MD
Queen's University, 2002
Katherine Zukotynski, MD
University of Toronto, 2002

PGY5 Level

Gagan Ahuja, MD
University of Toronto, 2001

Harpreet Baweja, MD
McMaster University, 1994

Richard Bitar, MD
University of Toronto, 2001

Debra Chang, MD
University of Toronto, 2000

Deborah Cheng, MD
University of Toronto, 2000

Meaghan Hyland, MD
University of Ottawa, 2001

Jeffery Jaskolka, MD
University of Western Ontario, 2001

Ryan Margau, MD
University of Toronto, 2001

Elaine Martinovic, MD
University of Calgary, 2001

Matthew McInnes, MD
University of Toronto, 2001

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 diagnosis, and treatment of disease. Our program currently provides dual-certification in radiology and nuclear medicine. This is a six year (including PGY1) program which includes 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 all aspects of nuclear medicine including cardiac and oncologic nuclear medicine, functional neuroimaging, radiopharmacy, nuclear physics, and general nuclear medicine. Residents have rotation specific goals, objectives and reading lists. There are biweekly teaching rounds for both radiology and nuclear medicine residents. The residents acquire skills by participating in daily clinical work. Didactic instruction is supplemented by teaching files at each hospital. Residents attend city wide teaching seminars and participate in journal club with teaching staff.

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, one to two slots per year are 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

- 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

- 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 staff who are 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.

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 for their work. 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 18th annual Department of Medical Imaging Research Day was held on April 25, 2006. The resident presentations included:

Richard Bitar	Distribution of Intraplaque Hemorrhage in Carotid Complicated Plaques Defined by High-Resolution Magnetic Resonance Direct Thrombus Imaging (hiresMRDTI)
Louis-Martin Boucher	Reviewer discrepancies in analyzing CT Heads and Shunt Series in children in which VP shunt obstruction is suspected
Philip Buckler	Pulmonary High Resolution CT Findings in Patients with Congenital Bilateral Absence of the Vas Deferens
Patrick Cervini	Out of Hours CT Pulmonary Angiograms: Accuracy of Resident Reporting
Errol Colak	The Utility of a First-Generation Computer-aided Detection (CAD) Tool for the Diagnosis of Pulmonary Arterial Filling Defects
Jeff Mandelcorn	ASPECT Scoring of CT Perfusion in Early Stroke Visualization and Assessment
Shantel Minnis	The Value of Ultrasound in Assessing the Need for Full vs Focused CT in Children Evaluated for Acute Appendicitis
Emma Robinson	MRI imaging and clinical response of adenomyosis to uterine artery embolization
Neil Rosta	Emergency CT Imaging for Acute Abdominal Aortic Disease - Are Utilization Patterns Changing?
Brian Yeung	Does Radiology Consultation Pre-Imaging Affect the Outcomes of CT Renal Colic Scans?
Katherine Zukotynski	Contrast Echocardiography Grading Predicts Pulmonary Arteriovenous Malformations at CT
Katherine Zukotynski	Ultrasonography for Children with Hemophilic Arthropathy: How we do it

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, more than 60 of the residents' 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.

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 2005-2006 the seven divisions of the University of Toronto Department of Medical Imaging offered a comprehensive array of fellowships:

- Abdominal Imaging
- Breast Imaging
- Cardiac Imaging
- Cross-sectional Imaging
- Magnetic Resonance Imaging
- Musculoskeletal Imaging
- Neuroradiology (Diagnostic)
- Neuroradiology (Interventional)
- Pediatric Imaging
- Thoracic Imaging
- Vascular/Interventional Radiology
- Women's Imaging
- Combined Clinical/Research

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.

2005–2006 Department of Medical Imaging Fellows

Abdominal Imaging Fellows

- Humoud Al-Dhuhli
- Richard Bessell-Browne
- Bryan Campbell
- Bina Lanka
- Laxminarayana Lanka
- Charu Mittal
- Marie Staunton
- Aejaz M. Syed
- An Tang

Breast Imaging

- Raafat Abou Saif

Cardiac Imaging Fellow

- Mark Hansen

Cross-sectional Imaging Fellows

- Melanie Ferri
- Priya Healey
- Eugene Ng
- Wynne Sum

Musculoskeletal Imaging Fellows

- Andrew Dunn
- Craig Harris
- Sarah Koles

Neuroradiology (diagnostic) Fellows

- Tabassum Ahmad
- Veera Bharatwal
- Sandeep Bhuta
- Santanu Chakraborty
- Noel Fanning
- Peter Howard
- Keng Yeow Tay
- Ryan Wada

Neuroradiology (interventional) Fellows

- Tali Jonas-Kimchi
- Marlise Santos

Thoracic Imaging Fellows

- Rachel Benamore
- Deirdre Doyle
- Andre Pereira

Vascular/Interventional Radiology Fellows

- Murthy S. Chennapragada
- John Hanson
- Deborah Low
- Ronjon Raha
- Aravindhan Ravindran
- Manish Taneja

Women's Imaging Fellow

- Susan Armstrong
- Mousumi Bhaduri
- Oana Moscovici
- Sean O'Connor
- Susan Peddle
- Michael Stefanos

Pediatric Imaging Fellows

- Hesham Al-Shaalan
- Joao Amaral

- Ulrich Amendy
- Helen Branson
- Gulraiz Chaudry
- Andrew Healey
- Hyun Woo Goo
- Munire Gundogan
- Ganesh Krishnamurthy
- Eoghan Laffan
- Erika Mann
- Daniel Martin
- Anke Raabe
- Ai-Min Sun
- Sameh Tadros
- Cicero Torres
- Xingchang Wei
- Elysa Widjaja

UNDERGRADUATE PROGRAM

Year I Medicine

The first year medical program consists of three main contiguous block courses of study. These include Structure and Function, Metabolism and Nutrition and Brain and Behavior. Medical imaging participates in the Structure and Function and Brain and Behavior courses.

Structure and Function

This course teaches anatomy, histology, and cardio-respiratory physiology.

Anatomy - Radiology Seminar

The anatomy radiology seminar series is being constantly revised and standardized. Sixteen lecturers gave a total of 48 hours of interactive seminars to the first year medical class using this new curriculum. The coordinator for this seminar series and Year 1 radiology teaching was Dr. Josee Sarrazin. These six seminars taught radiographic anatomy of the thorax, abdomen, pelvis-urinary tract, upper extremity, lower extremity and of the head and neck. Faculty lecturers participating in this seminar series included the following radiologists; Dr. Ronit Agid, Dr. Tanya Chawla, Dr. Julien Chen, Dr. TaeBong Chung, Dr. Wayne Deitel, Dr. Tim Dowdell, Dr. Frank Goldberg, Dr. Nasir Jaffer, Dr. Caitlin McGregor, Dr. Matthew Lax, Dr. Seon Kyu Lee, Dr. Dawn Pearce, Dr. Josée Sarazin, Dr. Harry Shulman, Dr. Sean Symons and Dr. Louis Wu.

Full Class Lecture - Medical Imaging Modalities

This one hour lecture was given by Dr. Nasir Jaffer. It outlines basic technical aspects of the major medical imaging modalities including X-ray, CT, MRI, ultrasound and nuclear medicine.

Brain and Behavior

From time to time, the Department of Medical Imaging has provided tutors for the Brain and Behavior course. Dr. Tom Marotta and Dr. Robert Bleakney have served as tutors in this program over the past 2 years. Neuroradiology teaching tools have been developed by members of the department of Medical Imaging and are used in this course on an ongoing basis.

Year II Medicine

Year II teaching centers 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

This fourteen-week course teaches pathology, immunology, genetics and other similar subjects. The Department of Medical Imaging has worked on an ongoing basis to develop and provide the medical imaging teaching resources required for delivery of this PBL. (Problem based learning), oriented curriculum. The Medical Imaging coordinator for Pathobiology of Disease was Dr. Tanya Chawla.

Pathobiology of Disease - Imaging Case material

In past years, a series of images with annotations was exhibited on a viewer in the Medical Science Building. The content of this series roughly paralleled and/or emphasizes the imaging aspects of the material taught in the Pathobiology of Disease course. Efforts are currently under way, in cooperation with course organizers, to revise and update these cases using current imaging technology. Increasingly, this case material will be presented to students in a web-based format.

Seminar in Chest Imaging

Dr. TaeBong Chung gave a 2-hour lecture on chest imaging to the entire year 2 class, at the beginning of the Pathobiology of Disease Course. This seminar included a review of the radiographic anatomy and radiographic findings associated with the pathology of common diseases of the lung. Numerous radiographs of common lung diseases were presented.

Seminar in the Imaging of Cancer

This lecture emphasized the role medical imaging plays in the staging and follow-up of neoplastic disease. Dr. Tanya Chawla gave this 2-hour lecture to the entire year 2 medicine class.

Foundation of Medical Practice Course

This 21-week course teaches core clinical subjects such as medicine and surgery. Dr. TaeBong Chung was the Medical Imaging Coordinator for the Foundations of Medical Practice Course.

Year II Foundation of Medical Practice Course Seminars

Chest Imaging

The chest imaging seminar, previously given through the academies was revised again last year. The seminar series was prepared and supervised by Dr. TaeBong Chung. This 2-hour seminar was given to smaller seminar groups of students at the academies by the following radiologists. Dr. Louis Wu, Dr. Wayne Deitel, Dr. Nasir Jaffer, Dr. Myles Margolis, Dr. Narinder Paul and Dr. Harry Shulman participated in this seminar series.

Trauma Radiology

The trauma imaging seminars, previously given as full class lectures last year was revised this past year by Dr. R. Bleakney and Dr. Nasir Jaffer. This seminar introduced key elements of trauma imaging. Topics covered included imaging of the cervical spine and brain, chest trauma and imaging of abdominal trauma. This 2-hour seminar was given to smaller seminar groups of students at the academies by the following radiologists Dr. R. Bleakney, Dr. T. Chung, Dr. T. Dowdell, Dr. N. Jaffer and Dr. L. Probyn,

PBL Tutors

Faculty members in the Department of Medical Imaging participated as tutors by leading core multidisciplinary seminars in the Foundations of Medical Practice curriculum.

Dr. Frank Goldberg, Dr. Wayne Deitel, Dr. Danny Marcuzzi and Dr. R. Bleakney provided many hours of teaching time as tutors, plus additional hours of preparation for this course.

Clerkship

The two-year clerkship consists of 78 weeks of clinical rotations. The department of medical imaging provides an array of teaching activity during the clerkship program.

Year III Clerkship

Essentials of Radiology Lecture Seminar Series

Dr. Manohar Shroff and Dr. Nasir Jaffer coordinated this lecture series.

Five half day teaching sessions were presented to the year three class to help prepare them prior to the commencement of their clinical clerkship. This lecture/seminar series previously utilized a, one hour, full class lecture format followed immediately by a two hour, case review, seminar in which the class was divided into four groups. This year a revised 2-hour seminar format replaced the full class lecture.

The curriculum for this series brought together elements from the first and second undergraduate years in medical imaging instruction and emphasised core concepts of medical imaging geared to the needs of clinical clerks.

Seminars for this series were led by the following radiologists.

Interventional Radiology – Dr. E. Hayeems (Coordinator), Dr. R. Beecroft, Dr. R. Chan

Chest Imaging – Dr. T. Chung (Coordinator), Dr. N. Paul, Dr. F. Goldberg, Dr. M. Lax

Abdominal Imaging – Dr. N. Jaffer (Coordinator), Dr. W. Deitel, Dr. J. Sarrazin, Dr. M. Margolis

Neuroradiology – Dr. Manohar Shroff (Coordinator), Dr. S. Laughlin, Dr. E. Yu., Dr. S. Symons

Muskuloskeletal Imaging – Dr. Robert Bleakney (Coordinator), Dr. T. Dowdell, Dr. L. Probyn, Dr. J. Rubinstein

Elective Students

A significant number of third year medical students at the University of Toronto took electives in radiology at the various teaching hospitals during the 2004-2005 Academic year.

Hospital Based Seminars

Various Year III seminars have been held in the teaching hospitals as part of the Medicine - Surgery block rotations. These include a series of chest seminars, interventional, gastrointestinal, as well as neuroradiology seminars.

Year IV

Medical Imaging Electives

Electives in Medical Imaging are among the most popular medical under-graduate electives at the University of Toronto. In addition to teaching basic radiology skills these electives also serve to promote awareness about medical Imaging within the undergraduate medical community. Elective students are also given an opportunity to consider specialty training in radiology during these teaching blocks.

These electives remain very popular in the undergraduate elective program.

University of Toronto Electives

One hundred sixty four University of Toronto medical students took radiology electives in their third and fourth year at the various teaching hospitals during the 2005-2006 academic year.

Visiting Elective Students

Forty five medical students from outside medical schools, many of whom were overseas foreign students in their senior undergraduate year, took part in visiting electives during the 2005–2006 academic year.

The Bruce Tovee LMCC Review Lectures

The Undergraduate Committee in Radiology has participated in this review course for many years. Three hours of radiology review lectures were given to final year medical students. The majority of these were University of Toronto students. The review course has also been very well received and attended by final year students from McMaster and other local medical schools. The lectures were given in the evening at the main medical lecture theatre of the University. Three, one hour lectures were given. These are listed below.

- i) Musculoskeletal Radiology – Dr. Robert Bleakney
- ii) Chest Radiology – Dr. TaeBong Chung

- iii) Gastrointestinal Radiology – Dr. Nasir Jaffer
- iv) Neuroradiology – Dr. Eugene Yu

The final year students have had access to a series of notes, the MCCQE Study Guide. The medical imaging portion of this lecture series and syllabus were updated and revised by the participating radiologists.

Other Teaching Activities and Involvement

Physiotherapy Student Seminars

A series of seminars are given to the physical therapy students at the University of Toronto by radiologists at the various Academies each year.

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 of 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 medical imaging 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.

The Internet and Undergraduate Education in Radiology

Under the direction of Dr. Nasir Jaffer, the Department of Medical Imaging hosts an internet web site on which various program descriptions are posted. This web site is also playing an expanding role in the Internet delivery of imaging seminars and programs as well as in the evaluation of undergraduate Medical Imaging teaching programs.

The Future Direction of the Medical Imaging Undergraduate Teaching Program

Medical Imaging is playing an expanding role in modern medical practice and as a result, there is an increasing demand for undergraduate teaching in this field. In response to this need, efforts have been under way to standardize the major components of the undergraduate medical imaging teaching program through the development and implementation of standardized curriculum and electronic teaching tools. This ongoing effort has and will continue to further optimize the efficiency, scope and value of the undergraduate teaching program in Medical Imaging at the University of Toronto.

CONTINUING EDUCATION PROGRAM

Organ Imaging Review September 11 - 14, 2005

Course Description

This four day course focuses on aspects of primary interest to both radiologists and radiologists-in-training. The course content includes general concepts of diagnostic imaging with emphasis on recent advances. The participant learns new ideas and has the opportunity to enhance their knowledge in selected common clinical situations. The participant is also able to participate in problem-solving with daily case reviews in each of the organ systems.

Course Chairman: Walter Kucharczyk, M.D.
Course Director: Paul Hamilton, M.D.

University of Toronto Faculty

Atri, Mostafa, M.D., Associate Professor
Aviv, Richard, M.D., Assistant Professor
Betel, Carrie, M.D., Lecturer
Burns, Peter, M.D., Professor
Chawla, Tanya, M.D., Assistant Professor
Chung, Tae-Bong, M.D., Assistant Professor
Crystal, Pavel, M.D., Assistant Professor
Curpen, Belinda, M.D., Assistant Professor
Fong, Katherine, M.D., Associate Professor
Haider, Masoom, M.D., Assistant Professor
Hamilton, Paul, M.D., Assistant Professor
Hanbidge, Anthony, M.D., Assistant Professor
Ibach, Deborah, M.D., Associate Staff
Jhaveri, Kartik, M.D., Assistant Professor
Jong, Roberta, M.D., Associate Professor
Keller, Anne, M.D., Assistant Professor
Khalili, Korosh, M.D., Assistant Professor
Kim, Tae Kyoung, M.D., Associate Professor
Kulkarni, Supriya, M.D., Assistant Professor
Laughlin, Suzanne, M.D., Assistant Professor
Lazinski, Dorothy, M.D., Lecturer
Margolis, Myles, M.D., Assistant Professor
Marotta, Tom, M.D., Assistant Professor
McGregor, Caitlin, M.D., Lecturer
Mikulis, David, M.D., Associate Professor
Muradali, Derek, M.D., Assistant Professor

O'Malley, Martin, M.D., Assistant Professor
Paul, Narinder, M.D., Assistant Professor
Probyn, Linda, M.D., Lecturer
Roberts, Heidi, M.D., Associate Professor
Salem, Shia, M.D., Associate Professor
Sarrazin, Josee, M.D., Assistant Professor
Shumak, Rene, M.D., Assistant Professor
Toi, Ants, M.D., Associate Professor
Weisbrod, Gordon, M.D., Professor
Willinsky, Robert, M.D., Professor
Yu, Eugene, M.D., Lecturer
Wu, Louis, M.D., Assistant Professor

Guest Faculty

Silverman, Stuart, M.D.
Professor
Department of Radiology
Harvard Medical School
Brigham and Women's Hospital
Boston, Massachusetts

Wilson, Christine, M.D.
Professor
Department of Medical Imaging
University of British Columbia
Vancouver, British Columbia

INVITED LECTURERS AND VISITING PROFESSORS

September 26-27, 2005

Dr. Marc Levine
Department of Radiology
Hospital of the University of Pennsylvania

“Radiology of the Esophagus: A Pattern Approach”

“Radiology of the Small Bowel: A Pattern Approach”

“Peptic Ulcer Disease, Helicobacter Pylori, and Beyond”

October 31-November 1, 2005

Dr. Peter Munk
Department of Radiology
University of British Columbia

“Arthroplasty Failure”

“Vertebroplasty”

“Biopsy”

January 9-10, 2006

Dr. David Lynch
Department of Radiology
University of Colorado Health Sciences Center

“Pulmonary Manifestations of Collagen Vascular Disease”

“Imaging of Occupational and Environmental Lung Disease”

“Imaging of Idiopathic Interstitial Pneumonias”

February 7-8, 2006

Dr. Nolan Altman
Department of Radiology
Miami Children’s Hospital

“Neuroimaging of Metabolic Mitochondrial Disease of Children”

“fMR and DTI Imaging and Applications in Children”

March 6-7, 2006

Dr. Robyn Birdwell
Department of Radiology
Brigham and Women's Hospital

“Computer-assisted Detection”

“Breast MRI – Clinical Uses”

“Missed Cancers”

April 3-4, 2006

Dr. Laurie Loevner
Department of Radiology
University of Pennsylvania Hospital

“Skull Base: Normal Anatomy and Nasopharyngeal Cancer”

“PET in the Head and Neck: Normal Variations, Pitfalls, and
Head and Neck Cancer”

“Larynx: Normal Anatomy and Imaging Laryngeal Cancer”

May 1-2, 2006

Dr. Rethy Chhem
Department of Radiology
London Health Sciences Centre – University Hospital

“Imaging in Osteoarchaeology”

“US in Arthritis”

“US of MSK Infection”