London Arrhythmia Program

Academic Year in Review

Sept 2014 – Aug 2015
The London Arrhythmia Program takes pride in its excellent patient care, world-renowned education program, and ground breaking clinical research.

The London Arrhythmia Program provides comprehensive service to patients with heart rhythm disorders for residents of Southwestern Ontario and the surrounding areas. Referrals also come from all over Ontario, Manitoba and beyond.

The London Arrhythmia group provides undergraduate education to the students of Western University; postgraduate training for Internal Medicine, Cardiology, and other subspecialty residents from Western University and other Universities; highly specialized arrhythmia training for aspiring cardiologists from all over the world; and continued medical education locally, nationally, and internationally.

The Arrhythmia group is heavily engaged in, and is conducting world leading medical research, attracting many research grants with multiple impactful publications.

The Arrhythmia group consists of 8 arrhythmia specialists, all with Western University academic appointments in the Department of Medicine: Drs. Lorne Gula (Associate Professor), George Klein (Professor), Peter Leong-Sit (Assistant Professor), Jaimie Manlucu (Assistant Professor), Allan Skanes (Professor), Anthony Tang (Professor), and Raymond Yee (Professor, Director of London Arrhythmia Program). We welcomed Dr. Jason Roberts (Assistant Professor), who joined the group in Aug 2015.

We are happy to have Katelyn Roberts (Physician Assistant) and three EP fellows: Drs. Umjeet Jolly (Canada), Kevin Ng (Australia), and Tuan Nguyen (Australia) joined us in 2014-5.

The London Arrhythmia Program has very dedicated administrative staff: Emily Fardy, Meghann Hartman, Andrea McCallum, Zoe Moon, and Elizabeth Perkins managed by Heather Weir.

Clinical Services

A. Inpatient Arrhythmia Service at the University Hospital, LHSC

Patients with specific arrhythmia health problems are admitted directly to the Inpatient Arrhythmia Service. These patients have arrhythmia problems without any other active cardiac or medical issues. Patients indicated for more extensive arrhythmia procedures, such as VT ablation and lead extractions, are also admitted to the Arrhythmia Service. Through this year, there were a total of 708 patient encounters in the Arrhythmia Service. In addition, the Arrhythmia Service provided 418 consultations to inpatients in Cardiology, Cardiovascular Surgery, Intensive Care Unit, and the rest of the inpatient services. Occasionally, patients with arrhythmias were seen at the Victoria Hospital and at the Children’s Hospital in London.

B. Outpatient Arrhythmia Service

Patients with arrhythmias were seen for initial assessment of their heart rhythm disorder. In addition, patients were seen at the clinic for ongoing follow-up care. Whenever possible, patients were sent back to their referring doctors for continuing care. Many of these patients were seen at the London Cardiac Institute accounting for 2,434 visits. In addition, 1,207 patient visits were in the Outpatient Clinic at the University Hospital. The wait time for assessment is 4-5 months. Urgent assessment requests from physicians making direct contact can be seen within one to two weeks. Total outpatient visits for the year was 3,641.

C. Outreach Clinic – Windsor

To improve accessibility and enhance healthcare for patients with arrhythmias in the Windsor area, Dr. Lorne Gula conducts arrhythmia clinics in Windsor once every 2 months. Patients with arrhythmia issues, and patients with ICDs from the Windsor region,
are seen. In the year 2014-15, this included 285 consults, follow-ups and ICD checks.

D. Outreach Clinic – Kitchener

The London Arrhythmia Service maintains a close and collaborative relationship with the Kitchener Arrhythmia service. The London Arrhythmia specialists conducted 26 arrhythmia clinics at St. Mary’s Hospital during the year, and cared for 145 patients. In addition, the London Electrophysiologists performed 75 device implantations at St. Mary’s Hospital during this time.

E. Outreach Clinic – Telehealth to Ontario, Manitoba, Saskatchewan

The Arrhythmia specialists conduct remote consultation through the Telehealth Network, providing expedited care to patients with arrhythmia problems. In 2014-15, Telehealth care was provided to 609 patients from 50 Ontario sites including Owen Sound, Sudbury, Thunder Bay, and Windsor. We also connected to 10 patients from Manitoba and Saskatchewan through Telehealth.

F. Pacemaker Clinic

All patients implanted with a pacemaker receive regular follow-up care in a Pacemaker Clinic. Residents in the London region are seen in the Pacemaker Clinic at University Hospital, LHSC. Pacemaker patients from surrounding areas are being followed at PM clinics in Owen Sound, Sarnia and Windsor. Our PM clinic staff and EP staff serve as resources for these clinics and provide consultative advice for them. Our PM clinic staff, comprised of Katelyn Charlebois, Sheila Lucas and Sharon Sunderland, conduct this clinic. Clinical issues identified by the pacemaker staff are assessed and reviewed by EP physicians with the assistance of the physician assistant and EP fellows. EP physicians are always available for urgent needs. PM related issues arising from other PM clinics have received expert advice by the EP physicians. In 2014-5, 4,107 pacemaker visits took place at the University Hospital Clinic.

G. Implantable Cardioverter-Defibrillator (ICD) Clinic

All patients, with an ICD from the London region, are followed and seen regularly in the ICD clinic at University Hospital, LHSC. Patients from the Windsor region are seen at the Windsor ICD clinic by Dr. Gula, or by the Windsor ICD staff with a direct link to the Electrophysiologists in London for support when requested. In the year 2014-15, there were 2,116 ICD clinic visits at the University Hospital. Patients received superb nursing care at the University Hospital by Marg Foran, Sheila Lucas, and Julie Smith.

Some PM and ICD patients are being followed with remote monitoring, which is more convenient and enhances care for some. In 2014-15 1,264 patients were followed remotely with 8,264 remote monitoring sessions.

H. Atrial Fibrillation (AF) Clinic

AF Clinics are conducted at the London Cardiac Institute. This clinic is primarily to follow patients after catheter ablation of atrial fibrillation, but it also assesses appropriateness of antithrombotic therapy and provides ongoing patient support. A cardiac nurse, Lynn Nyman, and an EP consultant assess all patients. In
2014-15, 298 patients were seen at the AF clinic.

I. Inherited Arrhythmia Clinic

Patients with inherited arrhythmia conditions, such as Long QT Syndrome, Short QT Syndrome, Brugada Syndrome, Arrhythmogenic RV Cardiomyopathy, Catecholaminergic Polymorphic Ventricular Tachycardia and Hypertrophic Cardiomyopathy are seen in this clinic. The family members at risk are also seen and assessed with both cardiology work-up and genetic counselling. In the year 2014-15, 179 patients were assessed in this clinic by the genetics team, which includes a genetic counsellor, Susan Conacher and Electrophysiologists (Klein, Tang, Yee). We are now fortunate to have Dr. Jason Roberts, who has joined us, to provide state-of-the-art care and conducting research in this area.

J. EP Laboratory Service

Investigation and interventional EP procedures are conducted in a well-equipped EP laboratory with a radiation safe fluoroscopy unit, electrical monitoring and recording system, 3-D mapping systems, radiofrequency ablation and cryo-ablation units. In 2014-15, 38 diagnostic studies, 280 SVT ablations, and 255 ablations for atrial fibrillation or ventricular tachycardia were performed. We thank Cathy Bentley who coordinates the referrals for EP laboratory procedures, and EP laboratory staff: Marilyn Braney, Jane Schieman, and Paul Purves.

A number of research projects arose from the electrophysiology laboratory, including studies to evaluate techniques to improve catheter ablation procedures. Technology assessments of new ablation catheters were also performed. (See Research Section)

K. Device Implantation

All pacemakers, ICDs, and Cardiac Resynchronization Therapy devices (CRT) were implanted in two procedure labs by the Electrophysiologists. In 2014-15, 591 pacemakers, 459 ICDs and CRTs were implanted. We thank Marilyn Anger who coordinates the referrals for device implants, and device lab staff: Karen Palmer, Andrew MaCarthy, Mary Jo Can Strien, Marb Pruhomme, and Nancy LaFleche.

Patients requiring lead extractions were referred from all over Ontario and Manitoba. In 2014-15, 31 patients had lead extraction procedures.

L. General Cardiology Service

The London Arrhythmia specialists also participated in the General Cardiology Service at LHSC. The Arrhythmia group completed 11 weeks of CCU at the Victoria Hospital, and 2 weeks of General Cardiology Ward Service at University Hospital in the year.

Education Overview

The Electrophysiologists provide all levels of medical education. Drs. Skanes and Manlucu are directors of Graduate and Undergraduate Education of Cardiology.

A. Undergraduate Education

Dr. Lorne Gula is the chair of the Medical Student Admission Committee for the Schulich School of Medicine and Dentistry. This entails chairing monthly committee meetings and establishing admission standards. He has collected and analyzed 6 years of interview data examining trends in applicants and examiners and ensuring a valid, robust interview process. This has also entailed
statistical comparison of the Western interview process with the new MMI approach to interviewing, adopted by many other schools. This has led to an ongoing evidence based approach to Western’s interview process.

The Arrhythmia specialists participated in undergraduate education by lecturing on arrhythmia at medical school, small group tutorials, and OSCE revaluations for a total of 213 hours.

B. Postgraduate Education

Dr. Gula is a member of the Western Cardiology Resident Training Committee, responsible for the research curriculum and annual interviews of Cardiology applicants.

Western cardiology residents attended their EP rotation on a regular basis. They were integrated to the inpatient and outpatient arrhythmia consult service, and were involved in the EP lab with the procedures. They benefitted from an excellent experience with regular interaction with the Electrophysiologists and fellows.

C. EP Fellow Education

Dr. Gula is a member of the Royal College Areas of Focused Competence (AFC) Diploma Program Committee for Adult Cardiac Electrophysiology. He helped develop the accredited AFC program, and is the incumbent Chair of the committee.

The London EP Fellowship Training Program was the second program in Canada accredited by the Royal College. Our trainee, Dr. Umjeet Jolly was the first, of two, to have successfully completed the AFC program and receive an AFC diploma.

The London EP Fellowship Training Program has trained 80 fellows over the past 30 years. The training program provides a broad range of experience in diagnostic and therapeutic techniques including permanent pacemaker, CRT and ICD implantation, electrophysiology studies, catheter ablation, signal averaged ECG, arrhythmia device programming and troubleshooting, and laser lead extraction. The research aspect of the program has been very successful with each fellow completing at least one research project which has been presented at a scientific meeting and/or published in a peer reviewed journal.

The EP fellow formal teaching program consists of twice-weekly case-based electrogram rounds and a weekly EP didactic round; monthly journal clubs of literature review; monthly device feature rounds; and weekly ICD and ablation case selection rounds. The fellows experience hands-on training in the EP lab during all EP procedures, including device implants.

EP fellows are strongly encouraged to engage in clinical research. Several research projects were completed and presented at national and international meetings (see Research Section).

In 2014-15, we are pleased to have Drs. Guy Haber from Israel and Leonardo Ribeiro from Brazil completed a one-year fellowship in Sept 2015. Dr. Umjeet Jolly, from Canada, will be completing his two-year fellowship in Dec 2015 and will be taking on a staff position at the St. Mary’s Hospital, Kitchener. Drs. Kevin Ng and Tuan Nguyen, both from Australia, are remaining with us for another year of EP fellowship.

The London Arrhythmia group, headed by Dr. Klein, wrote a textbook - “Electrophysiological Manoeuvres for Arrhythmia Analysis” teaching tachycardia mechanisms.

D. Continuing Medical Education (CME)

The London Arrhythmia group is heavily engaged in continuing medical education, and are invited speakers in many national and international symposia:

The London Arrhythmia group held several symposia in the year:

Intra-Cardiac Echo (ICE) course for Canadian EP Fellows - Drs. Gula and Leong-Sit are the
co-directors of this annual course. Other faculty include Drs. Manlucu, Skanes, and Tang. Sept 19-20 2015

The 15th Annual London Arrhythmia Symposium – Dr. Skanes was the symposium director, faculties also included Drs. Gula, Klein, Leong-Sit, Manlucu, Tang and Yee. May 23 2015

Arrhythmia Service Nurses’ Education Day Feb 9 2015. Drs. Klein, Leong-Sit, Tang and Yee presented

In addition, the London Arrhythmia group participated at the Schulich Medicine & Dentistry, London, Ontario, Canada, Cardiology Refresher Day: Dr. Leong-Sit presented “A Short Guide to ECG.”

Each of the individual EP physicians were very active with local, national and international CME activities:

**Dr. Lorne Gula** was the invited Lecturer for the following:

At the Chatham-Kent Health Alliance Medical Grand Rounds on “Perioperative Pacemaker and ICD Management” Apr 24 2015

At the Heart and Stroke Clinical Update 2014, Toronto, Ontario “A Practical and Interactive Approach to the Abnormal ECG” Dec 6 2014

At the Canadian Journal of Cardiology symposium at CCC, Toronto, “Should advanced age be a contraindication to defibrillator implantation?” Oct 25 2015

**Dr. George Klein** was the invited Lecturer for the following:

He was the Program Director of the 15th Annual Canadian EP Fellows Course and presented on “EP Workshop - Unknown EP Tracings/Cool ICD and Pacing Behavior” Oct 18—19 2014

At the Asia Pacific Heart Rhythm Society, New Delhi, India “Learn From the Experts: EP Approach to the ECG” and “Interpretation of Intracardiac Recordings” Oct 30-31 2014

At the 40th Annual Cardiovascular Conference at Snowbird, Utah, USA - “ECG Diagnosis of Wide QRS Rhythm: Three Best Tips; Ventricular Arrhythmia Syndromes: The New and the Old” and “Debate: LA Appendage Occlusion is the Preferred Stroke Prevention Strategy” Feb 14-15 2015

At Washington, DC, USA Fellows Course, Electrogram Diagnosis, Apr 18 2015

At Las Vegas, Nevada, USA “Clinical Arrhythmia Management, Clinical Arrhythmia Management” Mar 21 2015

At the Heart Rhythm 2015, Boston, USA “Meet the Experts - Fellows Course” May 13 2015

He was the Director of the Medtronic course at Bloomington, Minnesota, USA “Electrophysiology Cornerstone” and presented on “Electrogram Interpretation: Guided Practice, Part 1 and 2” Sep 19-20 2015

**Dr. Peter Leong-Sit** was the invited Lecturer for the following:

At the Canadian Heart Rhythm Society, Montebello, Quebec “Unipolar and Bipolar VT Substrate Targeting - What’s new? What now?” Sep 12 2014

At Woodstock Medical Grand Rounds “ICD and CRT - In who and when?” Sept 16 2014

At the 1st Annual Clinical Trials Workshop, Ottawa, Ontario “Lessons learned from CSPIN-Bayer research scholars” Jan 22 2015

At the University of Western Ontario Grand Rounds “LAA Closure: The Good, The Bad & The Ugly” Jan 26 2015

At Cardiology Services, Exeter Ontario “Advances in the Delivery of Care, Implantable Cardiac Defibrillators” Mar 4 2015

At the University of Western Ontario, Department of Medicine Grand Rounds “Device Management of Heart Failure - A Penny Spent is a Penny Earned?” April 16 2015
At St. Mary’s General Hospital, Cardiology Grand Rounds Kitchener, Ontario on “AF and HF: A Bad Combination” May 7 2015

At the Osler Cardiology Rounds, Brampton, Ontario on “Heart Failure and AF - A Bad Combination” Jun 17 2015

**Dr. Jaimie Manlucu** was the invited Lecturer for the following:

At London, Ontario “Real World Data GP Talk, Moving Beyond Clinical Trials” 2014 Dec 2

At the Heart and Stroke Clinical Update 2014, Toronto, Ontario “A Practical and Interactive Approach to the Abnormal ECG” Dec 6 2014

At the Baylis Medical Company, Mississauga, Ontario, “Endocardial CRT” May 29 2015

**Dr. Allan Skanes** was the invited Lecturer on the following:

At the 2014 Canadian Hypertension Congress, Gatineau, Quebec “Primary Care Track - Update on the management of hypertension related complications: AF” Oct 17 2014


At the Electrophysiology 2015: Straight Talk From the Experts, Vail, Colorado, USA “Arrhythmia in Adult Congenital Heart Disease / Cases: An EP Nightmare” Feb 28 2015

At St. Thomas, Ontario “Real World Data: Moving Beyond Clinical Trials?” Mar 5 2015

At the ACC Rockies 2015, Banff, Alberta “Dinner Workshop: Canadian Cardiovascular Society Workshop - AF” 2015 Mar 10

At Sarnia, Ontario “Managing Complex Cases in AF” May 19 2015

At the AF Stroke Prevention London, Ontario “What’s new with the Guidelines” Jun 18 2015

18th International Toronto Ottawa Heart Summit, Toronto, Ontario “Atrial Fibrillation & Anticoagulants” Jun 19 2015

**Dr. Anthony Tang** was the invited Lecturer for the following:

At Medical Grand Rounds, St. Mary’s Hospital Kitchener, Ontario “Anticoagulation During Cardioversion and X-VeRT Trial Results” Oct 2 2014

At the Karolinska Institutet, Karolinska, Hjartkliniken, Sweden on “Lessons from the RAFT trial” Sep 8 2014

At the Medicine Grand Rounds, London, Ontario “Growing Epidemic: Atrial Fibrillation and Heart Failure” Jan 29 2015

At the Cardiovascular Grand Rounds, London “What is NCE? What is CANet?” Feb 2 2015

At the 12th Annual Winter Arrhythmia School, Collingwood, Ontario “How to be a successful researchers in cardiology?” Feb 6 2015

Chair “Hot Topics in ICDs” Heart Rhythm 36th annual scientific sessions, Boston, May 14 2015

At the Heart Rhythm 36th annual scientific sessions, Boston, May 14 2015 – The Impact of CRT on hospitalization in RAFT”

At Windsor Medical Grand Rounds, Windsor, Ontario “Recent Advances in Atrial Fibrillation” June 23 2015

**Dr. Raymond Yee** was the invited Lecturer for the following:

At the University of Ottawa Heart Institute - Cardiology Residents Device Training Program, Ottawa, Ontario “Indications for Pacing: Case Studies” Nov 28 2014

At the Medical Grand Rounds U. of Calgary, AF Ablation and MR Imaging Jan 31 2015

At Western University, “ICD & Pacemaker Troubleshooting” Feb 9 2015
At the New Horizons in Heart Failure, Amsterdam, “MRI is all you need: Case presentation and update” Mar 6 2015

At the Cardiovascular Grand Rounds, London, Ontario “Travels to Alberta: In Search of Scarred Landscapes” March 30 2015

At the SAC-MDUCS / Health Canada Ottawa, Ontario on “LV only pacing and LA & LV only pacing - what are the benefits and how should this be studied?” Jun 26 2015

Research Overview

In addition to clinical care, the Arrhythmia group strongly supports, and is actively engaged, in both industry-sponsored and academic-driven clinical research. Drs. Roberts, Leong-Sit, and Tang are clinician-scientists. Drs. Gula, and Skanes are clinician-researchers.

The EP physicians conduct their research through the Arrhythmia Research Office, in conjunction with the services of the Lawson Research Department, the Schulich School of Medicine and Dentistry Research Office, the Western University Research Office, relevant LHSC clinical services and the Western U. Health Science Research Ethics Board.

The Arrhythmia physicians not only conduct their research locally, but also lead national and international multicentre research projects. In addition, the research are multi-disciplinary and has included epidemiologists, engineers, imaging, and heart failure specialists. Dr. Gula is cross-appointed to the Department of Epidemiology and Biostatistics at Western University. Furthermore, the arrhythmia researchers supervise medical and graduate studies, cardiology and EP trainees’ research.

The Arrhythmia Research Enterprise has very strong support from The Arrhythmia Research Office, which consists of Heather Weir (Administrative Manager), Lynn Nyman (Clinical Manager), Kathy Blackler, Patricia Burrows, Lindsay Hillock, Kate Relou, Michelle Shillington, and Rosanna Turner.

Clinical Research Studies

In 2014-5, the Arrhythmia group was involved in 49 studies, 10 of which were activated during this year. Of these, 42 are investigator-initiated and 7 are industry-sponsored.

Industry-Sponsored Studies

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<td>A Genotype-Directed Comparative Effectiveness Trial of Bucindolol and Toprol-XL for Prevention of Symptomatic Atrial Fibrillation/Atrial Flutter in Patients with Heart Failure</td>
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<td>GLORIA-AF (BI)</td>
<td>Global Registry Program on Long-Term Oral Anti-thrombotic TReatment In PATients with Atrial Fibrillation</td>
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<td>ICY-AVNR (Medtronic)</td>
<td>Assessment of safety and effectiveness of Medtronic's Freezer® Xtra Cardiac CryoAblation Catheter for the cryoablation of the conducting tissues of the heart in the treatment of patients with AVNRT.</td>
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<td>LV-DDD lead Model 20105 (Medtronic)</td>
<td>Assessment of safety and evaluation of implant procedure of Medtronic's Model 20105 lead</td>
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<td>OPTISURE (St. Jude)</td>
<td>Post approval observational study of St. Jude Optisure family of high voltage RV leads</td>
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<td>SONR-ECHO (Sorin)</td>
<td>Clinical Assessment of the SonR Algorithm in the PARADYM RF SonR CRT-D (Sorin) by Echocardiography</td>
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<td>SPACE (Medtronic)</td>
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London Investigator-Initiated Studies

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<td>Brady Torsades (Self funded)</td>
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<td>Lorne Gula</td>
<td>RCT of segmental versus circumferential antral ablation in paroxysmal AF</td>
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<td>CAF Database</td>
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<td>CIRCA-DOSE</td>
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<td>CAFCAS</td>
<td>Peter Leong-Sit</td>
<td>Assessment of the efficiency of the SmartTouch catheter ablation of AF</td>
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<td>DAPPAR-AF</td>
<td>Allan Skanes</td>
<td>Dabigatran as a peri-procedural anticoagulation for catheter AF ablation</td>
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<td>EP Database</td>
<td>Allan Skanes</td>
<td>Arrhythmia Service database for EP Studies/Ablations at LHSC</td>
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<td>Quantitative assessment of lifetime exercise on severity of ARVC</td>
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<td>ARVC</td>
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<td>Impact of exercise on arrhythmia in ICD in patients</td>
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<td>MVP STUDY</td>
<td>Raymond Yee</td>
<td>Analysis of % vent. pacing over to characterize history of AV Block</td>
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<td>RAFT-AF</td>
<td>Anthony Tang</td>
<td>RCT of ablation-based AF rhythm vs rate control in patients with HF and high burden AF</td>
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<td>RAFT-PermAF</td>
<td>Anthony Tang</td>
<td>RCT of CRT-D vs ICD to reduce mortality and HF hospitalization in patients with permanent AF</td>
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<td>RASP</td>
<td>Raymond Yee</td>
<td>Right ventricular apical versus septal pacing in patients with significant bradycardia</td>
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<td>RCT of Apixaban vs. Aspirin to reduce thromboembolism in patients with device-detected AF</td>
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<td>ARVC Registry</td>
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<td>ASSERT II</td>
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<td>Assessment of prevalence of Sub-Clinical AF using ILR in Patients with CV Risk Factors</td>
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<td>BRAIN-AF</td>
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<td>BRUISE 2</td>
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<td>CAPCOST</td>
<td>Peter Leong-Sit (Atul Verma)</td>
<td>Efficiency of using PVAC technology vs traditional RF catheter ablation in patients with paroxysmal AF</td>
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**EP Fellow/Resident Research Projects**

London EP Fellows are strongly encouraged to perform research projects. In 2014-15, the EP fellows conducted several research projects. Cardiology and internal medicine residents have also participated in research activities. Many of these projects were presented at national and international scientific meetings.

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<td>CHASM-Cardiac Sarcoid (HSF funded)</td>
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<td>CREDO (HSF funded)</td>
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<td>Exercise &amp; ARVC (self funded)</td>
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<td>ICD Sports Registry (device companies)</td>
<td>Raymond Yee (Rachel Lamper)</td>
<td>Assess safety of sports in ICD patients</td>
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<td>PADIT (CIHR funded)</td>
<td>Jaimie Manlucu (Andrew Krahn)</td>
<td>A Cluster RCT of Conventional vs. Incremental Antibiotic for the Prevention of Device Infection</td>
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<td>POST IV (CIHR funded)</td>
<td>Peter Leong-Sit (Robert Sheldon)</td>
<td>RCT of midodrine vs placebo to suppress syncope recurrences in patients with vasovagal syncope</td>
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<td>REACT.COM (Medtronic funded)</td>
<td>Peter Leong-Sit (Rod Passman)</td>
<td>Assessment of the feasibility of implantable monitor-guided intermittent anticoagulation in patients with non-continuous AF</td>
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<td>REFINe-ICD (CIHR funded)</td>
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<td>SMAC-AF (CIHR funded)</td>
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<td>Aggressive BP regulation to prevent recurrence of AF for persistent AF + HTN</td>
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<td>SPRITELY (CIHR funded)</td>
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<td>VANISH (CIHR funded)</td>
<td>Lorne Gula (John Sapp)</td>
<td>Aggressive ADD therapy vs catheter ablation for VT in patients with prior MI</td>
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<td><strong>Simple Rate Control</strong></td>
<td>Umjeet Jolly (George Klein)</td>
<td>12 lead ECG vs. Holter to assess rate control for chronic AF</td>
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<td><strong>Signal Average ECG</strong></td>
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<td>Exercise SAECG to identify patients with gene positive ARVC at risk of developing signs and symptoms of disease</td>
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<td><strong>RV matters</strong></td>
<td>Umjeet Jolly (Raymond Yee)</td>
<td>RV dysfunction predicts ICD shocks</td>
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<td><strong>AF termination in ER</strong></td>
<td>Kevin Ng (Anthony Tang)</td>
<td>Network meta-analysis of drug to terminate AF in ER</td>
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<td><strong>Heart Block after AVR</strong></td>
<td>Kiran Sidhu (Anthony Tang)</td>
<td>Heart block and subsequent recovery after surgical and transcatheter AVR</td>
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<tr>
<td><strong>PACED QT</strong></td>
<td>Mahmoud Bokhari (Peter Leong-Sit)</td>
<td>Assessment of a relationship between QT intervals during sinus rhythm and QT intervals during right ventricular pacing</td>
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<tr>
<td><strong>NOAC drug level</strong></td>
<td>Markus Guilllat (Richard Kim/Tang)</td>
<td>Variation in plasma concentration of NOAC in AF patients</td>
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</table>
Peer-reviewed Research Grants

The following peer-reviewed operating grants were obtained to fund research projects in 2014-15:

“Ventricular Tachycardia Ablation versus Enhanced Drug Therapy in Structural Heart Disease: the VANISH Trial” Nominated Principal Investigator: J Sapp; Principal Investigators: A Tang, and G Wells; Co-investigators: D Coyle, R Parkash, and WG Stevenson. CIHR Grant 2010-5 ($953,998)


“Atrial Substrate Modification with Aggressive Blood Pressure Control to Prevent Atrial Fibrillation” Principal Investigators: R Parkash, A Tang, G Wells; Co-Investigators: J Sapp, JC Tardiff, J Healey CIHR grant 2011-4 ($585,609)

“MRI Allocation of Pacing Targets in Cardiac Resynchronization Therapy (MAPIT-CRT)” Principal Investigator: J White; Co-investigators: M Friedrich, E Larose, B Thibault, L Gula, R Yee, A Dick, D Birnie, A Tang, HSF Grant for 2012-5 ($353,274)


“Double Short vs Standard Exposure Duration During Cryoballoon Pulmonary Vein Isolation: The DOSE Study” Principal Investigator: J Andrade; Co-investigators: A Tang, G Wells HSF Grant 2013-6 ($207,911)

“CHRS Cardiac Implantable Electrical Device Surveillance System (CDSS) – A Pilot Study” Principal Investigator: R Parkash; Co-investigators: J Healey, A Krahn, D Exner, R Yee, C Simpson, E Crystal, P Nery, B Thibault, E Stephenson, V Essebag, F Philippon, A Tang, G Wells. HSF Grant 2013-6 ($161,201)


“Frequent Ventricular Premature Contractions in Heart Failure: Prevalence and Prognosis” Nominated Principal Investigator: M Deyell; Principal Investigator: A Tang; Co-Investigators: J Sapp, G Wells. CIHR Grant 2014 ($63,008)

“Resynchronization/defibrillation for Ambulatory Heart Failure Trial in patients with Permanent AF (RAFT-PermAF)” Nominated Principal Investigator: A Tang; Principal Investigator: D Exner, J Healey, R Parkash, M Talajic, G Wells; Co-Investigators: D Birnie, D Coyle, V Essebag, A Krahn, G Newton, F Philippon, D Redfearn, B Thibault, R Yee. CIHR Grant 2014-9 ($3,265,595)

Canadian Arrhythmia Network-Network of Centre of Excellence (CANet) Scientific
Director and CEO – A Tang  NCE Grant 2014-9 (NSERC $14,374,000; SSHRC $2,951,000; CIHR $8,937,024)

“Reverse Remodeling in CRT Patients with Intermediate QRS duration using Transseptal Endocardial LV Leads” Principal Investigators: J Manlucu, A Tang AMOSO Innovation Fund 2014-6 ($79,144)

“Atrial Imaging-based Clinical Decision Tool to Optimize Outcomes following AF ablation-AID AF study” Principal Investigator: A Skanes AMOSO Innovation Fund 2014-6 ($162,614)

“Cardiac Sarcoidosis Multicenter Prospective Cohort” Principal Investigators: DH Birnie, R Beanlands, Pa Nery; Co-Investigators: S Aaron, S Chakrabarti P Cox, R De Kemp, V Essebag, M Friedrich, L Gula, A Ha, J Healey, T Hruczkowski, P Liu, F Quinn, L Rivard, J Sapp, A Tang, G Wells, G Wisenberg. HSF Grant

“Structural, functional and autonomic imaging of the atrium in AF-START IMAGING AF” Program lead: A Skanes CANet Strategic Research Grant 2015-7 ($496,200)

“Impact of Aerobic Fitness and Sedentary Behaviour on Immediate Risk of Ventricular Arrhythmia Following Episodes of Physical Exertion” Supervisor-L Gula, Masters Student-H Chahal CIHR 2015 ($6,000)

Peer-reviewed Research Publications


Risk stratification and stroke prevention

When it comes to atrial fibrillation recurrence, perhaps we should look both left and right. Ng KK, Skanes AC. Can J Cardiol. 2015 Jan;31(1):17-9.


When it comes to atrial fibrillation recurrence, perhaps we should look both left and right. Ng KK, Skanes AC. Can J Cardiol. 2015 Jan;31(1):17-9.


Research Abstract Presentation

The following were presented at the Annual HRS Meeting, Boston, May 2015 and published in the Heart Rhythm Journal:

Pulmonary vein isolation with incomplete antral ablation lines – Is more ablation necessary? Results of a randomized trial. L. Gula, P. Leong-Sit, J. Manlucu, R. Yee, A.S. Tang, G. Klein, A. Skanes Heart Rhythm Vol. 12 Issue 5S


The following were presented at the CCS Annual Scientific Meeting, Toronto Oct 2015 and published in the Canadian J. of Cardiology:


Delayed AV conduction predicts outcome in the resynchronization-defibrillation for ambulatory heart failure trial (RAFT). D. Chew, D.V. Exner, E. Yetisir, E. Yee, D.H. Birnie, J.S. Healey, J.L. Sapp, M.T. Bennett,
A.S. Tang and others *CJC, Vol. 31, Issue 10, S90–S91*


**Other Academy Activates and Achievement**

Drs. Gula, Skanes, Tang, and Yee were abstract reviewers for the scientific session of the Heart Rhythm Society and the Canadian Cardiovascular Congress 2015.

Dr. Klein is the deputy editor of the Journal of Cardiovascular Electrophysiology, and editorial board of HR.

Dr. Skanes is the associate editor of the CJC and on the editorial board of HR and JCE.

The Arrhythmia group reviewed many manuscripts for top medical journals such as Circulation, JACC, Heart Rhythm, Journal of Cardiovascular Electrophysiology, Canadian Journal of Cardiology.

Dr. Gula is a member of the JCE editorial board, and a member of the CCS guidelines committee.

Dr. Yee is the chair of the international ISO Technical Committee of surgical implants.

Dr. Gula is a Faculty Scholar at the Western site of the Institute for Clinical and Evaluative Sciences (ICES). This is a 2-year program co-funded by the Department of Medicine and ICES, with the intention of becoming an ICES Scientist upon completion.

Dr. Manlucu is enrolled in the McMaster University Epidemiology Master Program, taking courses there.

Dr. Peter Leong-Sit is the winner of a CSPIN young investigator salary support of $75,000 a year for 2014-6.

Dr. Tang is the Scientific Director and CEO of the newly NCE funded Cardiac Arrhythmia Network of Canada. This is a research network with a vision to invent, prove, and implement innovative solutions to transform arrhythmia care to achieve effective, accessible, and sustainable healthcare to reduce arrhythmia burden to society.
London Arrhythmia Program is committed to our mission to provide, to discover, and to educate so that the best possible solutions can be applied to those who have heart rhythm disturbances. Heart rhythm disturbances can impact life quality, longevity, and sufferings. Left untreated, they may lead to stroke, heart failure, or sudden death.

Our goal as a clinical and research program is to work towards finding advanced treatment options, with the best outcomes, to help our patients who suffer from cardiac arrhythmia.

Donor support from our community will help us work towards our mission and ensure our patients receive the best care possible.

Join us in our mission. Visit www.lhsf.ca or contact Jackie Ellefsen, Development Officer, London Health Sciences Foundation, at jacqueline.ellefsen@lhsc.on.ca or 519.685.8823 to help us save lives and change lives for the better.