The future of Solid Organ Transplantation in Toronto has never looked brighter.

Gary Levy, Director, University of Toronto Transplantation Institute
executive summary

We are very proud of our Transplant Centre (TC) team’s accomplishments and pleased to report further progress towards our vision of becoming the model of an international pediatric transplant centre.

Since official designation as a SickKids Centre of Excellence, we have raised almost $2 million in donations from the public and corporate sector. This money is now being invested in our academic pursuits (Page 7).

Through our team’s strong commitment to the creation of new knowledge, recruitment of new team members, incorporation of GIFT, and increased interdisciplinary collaboration we have seen a significant growth in publications (Page 7).

Other notable achievements during the past 2-3 years include:

- Establishment of the inaugural Transplant Centre International Symposium on Viral Diseases in Paediatric Transplantation (Dr. Upton Allen, Dr. Vicky Ng, July 2011)
- Award of the first Canadian Transplant Society Research Fellow to Dr. Darren Yuen who will work in Dr. Lisa Robinson’s laboratory (2011)
- Launch of the University of Toronto Composite Tissue Transplant Committee Co-Chaired by Dr. Ron Zucker (2011)
- Launch of the Transplant Centre Biobank, moving us towards our goal of leadership in personalized transplantation medicine (Dr. Seema Mital, 2010)
- Launch of the I-HOPE (Information on Health Outcomes and Pediatric Experience) information technology platform for GIFT and transplantation (Dr. Rulan Parekh and team, 2010)
- Recognition of our international leadership in the Pediatric Clinics of North America edition published in April 2010, “Optimization of Outcomes for Children after Solid Organ Transplantation”, co-edited by Dr. Vicky Ng and co-authored by many of our Transplant Centre staff
- Pioneering use of the Novahang® artificial lung support device as a bridge to lung transplantation.
- Advocacy for infants and children awaiting transplantation through SickKids’ representation on the key Boards and Committees of Trillium Gift of Life, Canadian Society for Transplantation, International Intestine Transplant Association; International Pediatric Transplant Organization; and the International Society for Heart & Lung Transplantation
- Recruitment of a Data Analyst (Chris Battiston) and Project Manager (Katie Brockhill) for the Transplant Centre
- Restructuring of the Transplant Centre with principles for working together; formal committees with objectives, greater opportunities for input by team membership, and improved communication

Our highly committed inter-professional team share a common goal of moving the Transplant Centre to the forefront of solid organ transplantation and regenerative medicine internationally.
Inaugural TC Research Competition: An open research competition was held in June 2009 and supported in part by funds from Liam’s Light and TC unrestricted funds. Dr. Lisa Robinson chaired a Funds Allocation Review Committee, which included Anita Babu, Robin Deliva, Natalie D’Amato, Emily Ghent, Dr. Miriam Kaufman, Dr. Valerie Langlois, Dr. Simon Ling, Stacey Pollock-BazZiv, PhD, Miranda Vermeer and Dr. Paul Wales. The Committee reviewed 11 applications representing cross-sections of innovative and interprofessional research in the TC, and awarded three projects:

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Astellas TC Research Competition: A second research competition was held in October 2009 to allocate research funds provided by Astellas Pharma Canada, Inc. Lisa Robinson chaired the Funds Allocation Review Committee (described above) which reviewed nine applications and allocated two research awards:

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We provide an unsurpassed, measurable patient experience using expert interdisciplinary teams in a family-centered environment that integrates efficient, innovative and practice-changing health care, education, research and advocacy.

- Elevate clinical care through innovation and evidence-based practice
- Enhance knowledge discovery and dissemination
- Build our brand through advocacy, outreach and fundraising.

We put patients and their families first.
We support individual and team initiatives.
We do what we say we will do.

- SickKids Research Institute
- Trillium Gift of Life
- Toronto Transplant Institute

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Enabling research: TC Investments cont’d

2010-11 Liam’s Light Research Award: Dr. Binita Kamath and Dr. Norman Rosenblum, awarded $190,000 over two years. Title: Translational studies of liver disease in autosomal recessive polycystic kidney disease

2010 Regenerative Medicine TC Awards: A mini-retreat in Regenerative Medicine was held in 2008 which identified projects of intersecting interest with the TC. After consultation, members of the regenerative medicine and stem cell communities in the SickKids Research Institute — with the support of the TC Executive — named two novel and cutting-edge pilot projects winners of regenerative medicine research awards. This is a vital investment in our future for many reasons. First, SickKids has been identified by the University of Toronto Transplant Institute as the site leader for the application of regenerative medicine and stem cell technologies to the field of transplantation. Second, stem cell therapies and regenerative medicine have fantastic potential for future fundraising. Third, these awards will help build partnerships with basic scientists to develop novel technologies for the treatment of organ failure that are safer and more effective than current therapies.

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We are proud of our significant investment in 2009-10 in innovative research in Transplant and Regenerative Medicine endeavors, keeping us in the forefront of clinical, basic and translational research.
The GIFT program at SickKids began in November 2002 and remains the only formal intestinal rehabilitation program in Canada. The introduction of GIFT has almost eliminated mortality from intestinal failure associated liver disease since 2007. Prior to GIFT the rate of mortality from liver failure was 22%. From 2006 to 2010 there has been one death from liver failure and one isolated liver transplant for advanced cholestasis in the intestinal failure population out of 107 (1.8%) new patients during that time. Successful rehabilitation of intestinal failure patients has reduced the need for intestine transplantation, as shown below.

Intestinal failure in children: retrospective review by the pediatric intestinal failure consortium. NIH R Squares, Site, Wales PW (PI). ($454,872 2008-10)


The Impact of Intestinal Rehabilitation Program on the Intestine Transplantation Waiting list CREMS Summer Program, Faculty of Medicine, U of T. Avitzur Y (PI), Wales PW. ($39,950 2008-10)

The Role of Crohn’s Disease Genes in Intestinal Failure and Allograft Rejection SickKids TC, Astellas Award. Munse AM (PI), Avinashii V, Wales PW, Avitzur Y, Wine E, Walters T, Griffiths A. ($125,000 2010)

Markers of Parenteral Nutrition (PN) Associated Metabolic Bone Disease in Children on Long-Term PN for Intestinal Failure, Grant from Rare Disease Foundation. Courtney–Martin G (PI), Wales PW, Avitzur Y. ($3,500.00 2011)

Challenges include: the ongoing organ donor availability crisis and waitlist mortality, particularly in the infant group. Future directions include strengthening our clinical research program, especially for high-risk transplant patients and health-related quality of life.

The Heart Transplant Program at SickKids began in 1990 and is one of the busiest in the world in clinical, research and educational activities. 2010 was a landmark year for academic publications. There has been an increasing focus on the role of antibodies and rejection in newly transplanted patients. Many team members have become actively involved in a number of national and international transplant organizations and societies. An annual highlight of the year is our Continuing Medical Education-accredited day-long symposium for health-care professionals focusing on community collaborations. Challenges include: the ongoing organ donor availability crisis and waitlist mortality, particularly in the infant group. Future directions include strengthening our clinical research program, especially for high-risk transplant patients and health-related quality of life.

Quality of Life Following Paediatric Heart Transplantation. Anthony SJ (PI), Dipchand AI, Nicholas D, Mc-Crindle BM, Labatt Family Heart Centre Innovation Fund ($20,000 2008-2010)


Other accomplishments include: the implementation of Omeg-3 lipid therapy in 2006; leadership of a multicentre SMOFlipid® trial to prevent cholestasis; funding of our novel porcine model of short bowel syndrome; and completion of our health-related quality of life study for home PN patients compared to intestinal transplantation. The recruitment of Dr. Yaron Avitzur and our highly successful annual GIFT gala to celebrate our patients and families will contribute to our future planning. Goals for next two years are to complete a study on cost-effectiveness of intestinal failure management, launch a multicentre trial of ethanol lock versus heparin for prevention of catheter related blood stream infections, evaluate the role of genetic polymorphism on outcome of intestinal failure patients, and advance studies exploring metabolic bone disease due to chronic parenteral nutrition.

Grants


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Kidney Transplantation

The Kidney Transplant Program remains the highest volume service in the Transplant Centre. In 2010 we continued to work very closely with our Ontario partners in Hamilton, London and Ottawa, to optimize the renal transplant care for children of all regions in Ontario. In April as part of the 2010 Sick Kids Paediatric Update Subspecialty Day on Nephrology there was a plenary session on renal transplant, the first plenary presentation on transplantation ever at this conference. Moira Korus was the recipient of a RNAO Nearing Research fellowship. Dr. Denis Geary was the recipient of the Claus Wirsig Humanitarian award of the SickKids Foundation. Our multidisciplinary team members have continued to focus their clinical and research activities on the adolescent population, and on the quality of life of the renal transplant recipients. Our clinical researchers are involved with renal transplant multi-centre studies with the Midwest Pediatric Nephrology Research Consortium. Our Basic Researchers have continued successful research in inflammation (Dr. Lisa Robinson) and development (Dr. Norm Rosenblum). Basic Researchers have continued successful research in inflammation (Dr. Lisa Robinson) and development (Dr. Norm Rosenblum).

Grants


Comprehensive Multidisciplinary Approach to Reduce Overweight and Obesity Post-renal transplantation. Langlois V, Cornelius V, Southmayd D (TC), The Hospital for Sick Children ($8,653 2009-10)

Control of Kidney Cell Determination and Morphogenesis by BMPs and beta-catenin in the normal and dysplastic kidney. Rosenblum N. Canadian Institutes of Health Research ($155,828 per year 2008-13)


Regulation of the Membrane-Anchored Chemokine, Fractalkine, by thrombotin A2. Robinson L. Heart and Stroke Foundation of Ontario ($268,452 2007-2010)

Silt and Roundabout: New Players in Vascular Injury. Robinson L. Canadian Institutes of Health Research ($100,000 2009-10)

The Role of MVI49 in Renal Transplantation. Parekh RS (co-investigator) Johns Hopkins University-Institute for Clinical and Translational Research (ICTR) Accelerated Translational Incubator Pilot (ATIP) Program ($100,000 per year 2010-11)

Liver Transplantation

The SickKids Liver Transplant (LT) program began in 1986, and has grown to become the largest pediatric program in Canada. Our outcomes after liver transplantation are unsurpassed worldwide – a remarkable accomplishment given our key role as a quaternary referral centre for the most complex pediatric cases. This combination of excellence in both case volumes and survival rates amidst a strong academic presence has made the SickKids LT program a most desirable partner for international clinical research collaborations and clinical trials. SickKids is the only Canadian site in NIH funded trials studying innovative treatments and outcomes in pediatric acute liver failure, immunosuppression withdrawal in stable pediatric liver transplant recipients, and medical complications after pediatric liver transplant. Thanks to a SickKids TC 2009-2010 Fellowship Award, Dr. Scott Nightingale came from Sydney, Australia to SickKids for an Advanced Hepatology and Liver Transplant Fellowship in the Division of GI/Hepatology/Nutrition and the LT program, and was the recipient of the prestigious First Prize at the 22nd Annual Canadian Pediatric Residents and Fellows Research Competition for his work entitled “Predicting native liver survival after Kasai portoenterostomy for biliary atresia.” In 2011, SickKids celebrates its 25th anniversary of performing life-saving liver transplants in infants and children with end-stage liver failure.

Acknowledgments and highlights

Thanks to a SickKids TC 2009-10 Fellowship Award, Dr. Scott Nightingale joined SickKids as an “Advanced Hepatology and Liver Transplant Fellow”, and under the supervision of Dr. Vicky Ng, received 2 awards for his research: the prestigious First Prize at the 22nd Annual Canadian Pediatric Residents and Fellows Research Competition for his work “Predicting native liver survival after Kasai portoenterostomy for biliary atresia,” and a 2010 International Pediatric Transplantation Association (IPTA) Fellow Award for his work on “Factors associated with bone mineral densitometry in children and adolescents following liver transplant, presented at the 2010 IPTA Fellows conference in Germany (in press). Glenda Courtney-Martin, LT attending, received a Canadian Society for Transplant (CST) Associate Members Grant for her study on factors that predict growth before and after a liver transplant. This work was presented at the CST Annual Meeting in Quebec in March 2011.

Grants

BAFF and APRIL expression in de-novo autoimmune hepatitis and chronic rejection after pediatric liver transplant. Avitzur Y (PI). Jones N, Sokollik C. Pediatric Consultants Creative Professional Activity Grant ($7647 2010). Determining the number and suppressive function of Foxp3+ T-regulatory cells in pediatric liver transplant recipients who are receiving calcineurin-based immunosuppression. Kamath B, SickKids site investigator). NIH multi-center (R01 DK087270-01) ($25,000 2009)

NHI: Lindblad A, Ng V, Fectue A. Studies of pediatric liver transplant (SPLIT) ($875,000 2005-10).

NHI: Feng S, Bucalos J, Ng V. Immunosuppression withdrawal after pediatric liver transplant (WITH) ($60,000 2005-12).

NHI: NIHROI HD405694-01A1: Alonzo E, Ng V, Fectue A. Functional outcomes after pediatric liver transplant (FOG) ($180,000 2006-10).

Patient Survival–5 Year Post-Transplant

Overall Liver Transplant Actuarial Recipient Survival
Lung Transplantation

The Lung Transplant Program is the largest paediatric lung transplant program in Canada and has performed over 35 lung transplants since its inception in 1995 with recent one- and three-year survival rates of 85% and 75% which match or exceed the best programs world-wide. Paediatric lung transplantation is most commonly performed for cystic fibrosis and pulmonary vascular disease. These highly complex patients benefit from our enthusiastic, dedicated team whose expertise and passion for transplant enables them to provide outstanding care.

Accomplishments and highlights

• Continued use of an external lung device (Novalung®) as a bridge to lung transplantation.
• Use of ex-vivo lung perfusion to increase the number of viable lungs for donation.
• Continued collaboration with the International Paediatric Lung Transplant Collaborative.
• Full-time lung transplant fellow who completed research project on nitric oxide in solid organ transplant patients (collaborating with other solid organ transplant groups).
• Natalie D’Amato, R.N. was the recipient of the Ruth Duncan McCamus Award for Family-Centred Care.

Grants


Ex-vivo Repair of Injured Donor Lungs for Transplantation. Keshavjee S (PI). Wyeth Pharmaceuticals/CIHR. Chair in Transplantation Research ($1,100,000 2008-2013)

CF Transplant Centre Grant. Singer L (PI), Keshavjee S (PI). Canadian Cystic Fibrosis Foundation, Lung Transplant ($55,596 2009-10)


Molecular Diagnostic Strategies for the Selection of Donor Lungs Transplantation. Keshavjee S (PI). Roche Organ Transplantation Research Foundation (RonTRF) ($300,000 2009-2012)


Molecular and Genomic Diagnostics to Improve Lung Transplant Outcomes (Gl:20/019). Keshavjee S (PI), M Liu (PI). ($1,750,000 2010-15)

RESULT Trial-Reflux Surgery in Lung Transplantation. Davis R, Keshavjee S for Toronto. National Heart, Lung, and Blood Institute, NIH USA ($1,455,601 2010-2012)

Research Committee

Committee: Liza Robinson (Renal), Richard Parchik (Renal), Norman Rosenbloom (Renal), Upton Allen (Infectious Diseases), Nicola Jones (GI), Stacey Pollock-BarZiv (Interdisciplinary), Robin Delriva (Heart/Lung, Reha), Samantha Anthony (Social Work) and Serena Mital (Heart) Council approved $375,000 of funding over three years to the Research Committee to support small and large grants programs. In the next year the Research Committee is greatly looking forward to enhancing scientific endeavors in the SickKids transplant community. We have already posted a request for proposals, termed the Catalyst Grant. This request seeks to encourage cross-organ scientific collaborations and use of the Transplant Biobank. The overriding mission is to promote a project of high scientific excellence. We look forward to a significant number of proposals by the end of July (grant application deadline). A total of 8 Catalyst Grant Applications, and 6 pilot applications were received in the competition and they are currently being reviewed. Applications will be adjudicated by an external panel of reviewers. The successful applicant(s) will be awarded $75,000 annually for two years. In addition, we have posted a second request for proposals aimed at awarding one or more smaller grants of up to $25,000 per year. These may be projects that require limited funds, but equally should be of high scientific quality and will be reviewed by the Research Committee. Overall, the committee is dedicated to promoting scientific excellence and cross-organ research endeavors that impact clinical care in a meaningful way. We look forward to engaging our community to achieve these goals through the research funding opportunities.

Clinical Practice Committee

Committee: Anna Babu (Pharmacy), Maria Debagiris (GI), Natalie D’Amato (Lung), Emily Ghent (Social work), Anna Gold (Psychology), Paul Kantor (Heart), Christina Kron (GIFT), Stephanie Larenies (IA), Kathy Martyn (Heart), Rita Pool (Kidney), Alaine Rogers (OT/Physiotherapy), Mirna Sofriti-Hansen (Heart), and Angela Williams (Kidney) The Clinical Practice Committee initiates and performs quality improvement projects to facilitate and support excellence in clinical care. The committee strives to create a uniform clinical approach to common clinical problems and health-related issues associated with solid organ programs. The committee includes health-care professionals who represent all organ transplant programs and interdisciplinary groups and comprises strategic working groups. Each group is chaired by a committee member and is composed of members of the clinical committee and ad hoc experts. Our objectives are to identify and promote existing and potential collaborative initiatives and to improve the flow of patient care and communication within the hospital, and with patients and community partners. Three quality improvement projects have been initiated:

1. Transplant Centre immunization protocol – Standardize immunization protocols across the different organ groups in order to improve pre- and post-transplant rate of immunization. Chairs are Dr. Diane Hebert and Anita Babu
2. Transition and transfer of care portfolio – To provide continuing comprehensive clinical care for transition and transfer to adult health-care services, an ongoing challenge for adolescents and their families. Chairs are Dr. Diane Hebert and Anita Babu
3. Communication portfolio – To improve communication, flow of information and transplant knowledge amongst TC medical staff. Chairs are Drs. Paul Kantor and Yaron Avitzur.
The Quality Committee has been active since December 2008 with the mission to lead the way for quality care in pediatric transplant through quality assurance initiatives. The committee leads the mortality and morbidity process, helps define and implement metrics of care for our TC, and continues to ensure recipient safety, optimal transplant outcomes and most effective use of hospital resources as they pertain to organ retrieval and distribution.

The Quality Committee has established the following objectives for the next few years:

1. Organize a self-sustaining system to review M&M: this goal has been achieved with a mechanism for keeping track of mortalities. The Quality Committee has set a process for reviewing significant safety reports and is developing organ-specific datasheets for specific post-transplant morbidities.

2. Improve the TC Database so that it can be easily queried for patient care, organ specific outcomes and research: This is a large project that involves many committees but will be vital to continued improvement of patient care and research.

3. Attain patient and graft survival superior to benchmarks: With an improved database we can focus on areas of improvement and initiate rapid cycle improvement projects.

4. Reduce rates of nosocomial infections: The Quality Committee has reviewed our infection rates and antibiogram for the last year and is setting prospective monitoring and projects to improve our infection rate.

In line with these objectives, we have had exceptional success with our TC Educational Rounds in 2010, with a host of renowned internal and external speakers and presentations over the year. Topics ranged from seminars on ethics, quality of life, regenerative medicine, morbidity and mortality reviews, and fellows’ research updates. Looking forward to 2011, we will continue to attract high quality, expert local, national and international educational speakers. Our fellowship program has seen tremendous growth thanks to investment by the TC. We were fortunate to have six TC fellows in 2010 whose clinical and research interests span the breadth of clinical, basic and translational projects.

- **Dr. Vishal Avinashi** is a third-year fellow in Gastroenterology, Hepatology and Nutrition.
- **Dr. Michelle Bridge** completed pediatric and infectious disease subspecialty training at the SickKids and is enrolled in a research fellowship and a master’s program in clinical epidemiology. Her research interests are in infections in immune-compromised hosts and she is working on a guideline for RSV prophylaxis in organ transplant recipients and a protocol for the use of interferon-gamma-release assay as a diagnostic tool for tuberculosis in immune-compromised patients.
- **Dr. Ian Chen** is a Clinical Fellow in the TC and Adolescent Medicine. His research interests are on adolescent development, transition of teenagers with chronic medical conditions, (transplant), and incorporation of e-tools into clinical and research areas.
- **Dr. Jennifer Conway** is a fellow with the Heart Transplant Program whose current research interests include the effects of donor factors and management on outcomes and immune development of infants following heart transplantation.
- **Dr. Swasti Chatuvedi** did a Clinical Fellowship year in Pediatric Nephrology at SickKids in 2008 prior to her current Research Fellowship working in Dr. Lisa Robinson’s lab. She is also enrolled in a master’s program at the Institute of Medical Science, University of Toronto. Her research project in Robinson’s lab involves the role of inflammation in acute kidney ischemia reperfusion injury and novel ways to prevent leukocyte influx into injured tissue.

The academic contribution of the fellows continues to grow as we look to 2011!
1. The TC Strategic Initiatives Working Group, in Key Initiatives and 2011 objectives:

Chair
Strategic Initiatives Working Group
Working Group Reports

Chair
Strategic Initiatives Working Group

2. On Thursday, April 28, 2011, the SickKids TC hosted Professor Estela Alonso, from Northwestern University and Children’s Memorial Hospital, to give an inaugural Transplant Keynote Lecture at Paediatric Update 2011 held at the Toronto Board of Trade: Entitled Paediatric Solid Organ Transplantation in 2011: What Every Paediatrician Ought to Know; this keynote lecture was extremely well-received by over 175 paediatricians, family practitioners, physician trainees, and allied health professionals involved in community paediatric care. This keynote was followed by a case-based interactive workshop entitled Paediatric Transplantation: It’s More Than Just About the Solid Organ! directed by our own TC members (Maria De Angelis, Kathy Martin, Angela Willams and Vicky Ng) with Dr. Alonso, providing an overview of immune-suppressive agents, answers to most frequently asked questions as well as highlight concise approaches to the most common clinical issues confronting these children.

Key Initiatives and 2011 objectives:

1. The TC Strategic Initiatives Working Group, in collaboration with the Division of Infectious Diseases, hosted an inaugural SickKids Hot Topics Transplant Symposium on “Post-Transplant Lymphoproliferative Disorders” on Friday, July 8, 2011 in the Daniels Hollywood Theatre. This one-day symposium covered current topics in the field of Epstein-Barr virus-related PTLD delivered by an internationally acclaimed panel of speakers from Canada, United States and Europe. Speakers included Drs. Michael Green and Steve Webber (University of Pittsburgh); Dr. Jutta Periksaitis (University of Alberta); Dr. Martina Sester (University of the Saarland Homburg); Dr. Tom Gross (Ohio State University); Dr. Stephen Gottschalk (Baylor College of Medicine); and Drs. Upton Allen, Cliff Lingwood and Sheila Westman (University of Toronto).

Accomplishments
The Strategic Initiatives Working Group has worked hard to accomplish these two Year 1 key initiatives. We are actively working on our key initiative for Year 2, that of a high school program to bring transplant and organ donation talks into high schools of the Greater Toronto Area, in collaboration with the Trillium Gift of Life Network and University of Western Ontario Liver Transplant Program.

Working Group Reports

Transplant Biobank Working Group

Chair
Dr. Seema Mital

Committee Membership:
Upton Allen (ID), Hartmut Graesemann (Liver), Rulan Parekh (Renal), Stacey Pollock-BatZev (Interdiscip), Binita Kamath (Liver), Miranda Vermeer (Nursing), David Grant (Director).

In the last 10 years, the life expectancy after solid organ transplantation has increased. However, post-transplant complications can limit survival and quality of life. The Transplant Biobank was established in 2010 to apply emerging knowledge of genomics and pharmacogenomics to improve the health of children after solid organ transplantation (PI: S Mital). This is the first cross-organ paediatric transplant biobank in Canada. Of 374 transplant patients being followed at SickKids, 240 patients have been successfully recruited to the biobank with availability of DNA and serum samples (Project Coordinator: Tanya Dalkevic). The biobank is supporting several ongoing externally funded studies. The biobank is directed by a Steering Committee consisting of members from all solid organ transplant groups (S Mital, B Kamath, R. Parekh, Hartmut Graesemann, D Grant, nursing (M Vermeer), and multi-disciplinary (S Pollock-BatZev) groups. More recently, the biobank is undergoing an expansion to a cross-Canada effort under the auspices of the Canadian Society of Transplantation Pediatric Research Group. Through collaborative genomics and biomarker research, we hope to identify early genetic predictors of post-transplant complications and develop safer and more effective therapies that are individualized to the genetic make-up of the patient. This will eventually improve post-transplant survival and quality of life. Another important aim of this research effort is the use of stem cells derived from patient skin cells in order to screen drugs for safety and efficacy, which is being led by J Ellis and F Müller. We hope these efforts will deliver on the promise of personalized medicine through investment in efforts to translate research findings to patients’ bedside. www.transplantbiobank.ca

HOPE Working Group

Chair
Dr. Rulan Parekh

Group Membership:
Stacey Pollock-BatZev, Christopher Battiston and Kathy Breckhill

The iHOPE initiative is a Solid Organ Transplant Center program-wide working group consisting of managerial, clinical and analytical team members who are dedicated to the improvement of paediatric transplant outcomes with regular data reports, quality assurance and research. Under the direction of Dr. Rulan Parekh, in collaboration with Dr. Stacey Pollock-BatZev; Chris Battiston and Miranda Vermeer this project has three major aims: establishing standardized clinical performance measures and reports, creating analytical datasets, and, ultimately, assessing healthy outcomes after transplant. We have commenced with the pilot phase using the Kidney Transplant Program as a model and initially focused on developing standardized clinical performance measures. This will allow for a tool to create standardized reports that can ultimately be obtained across all organ groups, as well as organ-specific reports.

The analytical datasets will include development of a data dictionary, establishing core data, data cleaning and, once implemented, allow for automated data requests. The final aim is to develop standardized outcome measures to assess outcomes prospectively across the clinical database. Through close collaboration with the other committees, iHOPE aims to improve data management, analysis and database infrastructure for the Transplant Centre at an accelerated pace. In 2011 we aim to have a complete examination of the transplant database done, with documentation such as a data dictionary, database flow charts complete, and an updated User Manual and Standard Operating Procedures made available.
The SickKids Transplant Centre is a leader in the transplant community in the process of transitioning adolescent transplant recipients from pediatric to adult care. Advances in transplant care have led to enhanced survival of pediatric organ transplant recipients into adulthood. Consequently, the issue of transitioning from pediatric to adult care is a relatively recent area of focus in solid organ transplantation. Transition is more than just the transfer of care from one institution to another. Transition is a process that begins with teens learning about their care and parents gradually supporting them to take increasing responsibility for their medical care and follow-up. The SickKids TC supports the transition process with a variety of tools and activities. We partner with the SickKids Good2Go transition program and adapt many of their tools to the transplant patient. TC staff focus on transition readiness with increasing emphasis as the teen approaches adulthood. Several Transplant Centre staff are involved in the development of transition resources and research into the transition experience for pediatric transplant recipients. Our research and experience has been published and presented around the world. Many Transplant Centre adolescent patients have their care transitioned to Toronto General Hospital (TGH). The TC collaborates with the TGH Transplant Program to provide a bi-annual Transition Orientation Day to better acquaint adolescent transplant recipients with the TGH staff and environment and to provide tips for successfully navigating adult care. Carefully planned transition processes result in teens who are more knowledgeable about their medical history and care requirements and parents who are better able to foster their child’s independence. This leads to more confidence and better adherence to follow-up in adult care. A focus on transitional care is one of the ways that the TC promotes optimal medical outcomes and quality of life for transplant recipients.

Communications Committee & Interdisciplinary Team Report

Communications Committee Membership: Stacey Pollock-Bar-Ziv (Chair), Christine Garner (Transplant), Moira Korus (Renal), Julia Maxwell (GIFT), Tanja Daihervic (Biobank), and Kathy Martin (Cardiac)

Kathy Martin
CNS/NP

Stacey Pollock-Bar-Ziv
Chair

Optimizing internal communications in the Transplant Centre was an important focus in 2009-2010. We revitalized our internal website, enhanced content in our monthly e-newsletter, and are working on the external website for the year ahead.

Our cross organ interdisciplinary teams have had a stellar year with clinical activity, research productivity and leadership roles. Although organ transplantation is standard of care therapy for pediatric patients with end-stage organ disease, we are not achieving the goal of returning children to a normal quality and duration of life. Enhancing the lives of patients is a critical part of the TC mandate. To that end the interdisciplinary staff of the TC has made tremendous strides this past year with a range of activities, initiatives and academic recognition in terms of awards and presentations, as well as an increase on endeavors around advocacy. Some notable areas include: Patient Education Day, organized by the interdisciplinary Heart Transplant Program; educational resources, such as continued use of the MyHealth Passport; development of a transplant educational website for adolescents (Moira Korus et al); activities designed to enhance the transition of care to adult services; and a clinical research focus across the organs exploring health-related quality of life, adherence, psychosocial adjustment to life after transplantation, and physical activity and rehabilitation following transplant by various members of the Transplant Centre interdisciplinary teams.

Some notable achievements and awards include two prestigious awards by our nurses, including Moira Korus, Renal Transplant Nurse, who was awarded an Advanced Clinical Practice Fellowship from the Registered Nurses'

Association of Ontario and Natalie D’Amato, Lung Transplant Nurse, who won the Ruth Duncan McCallum Nursing Award for Family-Centred Care.

The April 2011 edition of Pediatric Clinics of North America had a dedicated issue “Optimization of Outcomes for Children After Solid Organ Transplantation” which was guest-edited by Dr. Vicky Ng and contained an extensive series of chapters on all aspects of organ transplantation authored by several of our own Transplant Centre staff, demonstrating our international leadership.

TC staff won national awards from the Canadian Society of Transplantation for abstracts and grant funding including Kathy Martin and Samantha Anthony for their research on transitional care needs and experiences in heart transplant patients; Emily Ghent (PI), Angela Williams, Samantha Anthony, Krsta Murch and Stacey Pollock-Bar-Ziv for their research on experiences and perceptions surrounding participation in transplant camp; and Glenda Courtney-Martin (PI), Vicky Ng and Yanos Avituz for their retrospective analysis of nutritional predictors of morbidity and growth in pediatric liver transplantation.

Advocacy

Canadian Liver Transplant Study Network
David Grant, President

Canadian Blood Services Transplant Expert Working Group
David Grant, member

Canadians for Transplantation
David Grant, Treasurer
Alison Dubbeld, Board member and Chair, Associate members

Canadian Society of Transplantation
Robin Deliva, Research Committee Chair

Advocacy Committee

Mindy Solomon, Board member

Annie Dipchand and Upton Allen, Councilors

International Intestine Transplant Society
David Grant, Director, international Registry; Past President

Studies of Pediatric Liver Transplantation SPLIT
Vicky Ng, Co-Chair Research Committee

CanTransplant (www.cantransplant.com)
Co-edited by TC staff (Vicky Ng – liver transplantation; Annie Dipchand – heart transplantation; Melissa Solomon – lung transplantation; Stacey Pollock-Bar-Ziv – psychosocial issues after transplantation)

Tracey Gill of Life
Diane Hebert, Board member

Annie Dipchand, Medical Co-Director

International Pediatric Lung Transplant Committee

Anne Dipchand, Medical Director

CAMP

Another successful camp session for kids with solid organ transplants was held this past August. Thanks to the CNIB Lake Jo Centre camp, 57 children and adolescents with kidney, liver, intestine and heart transplants were able to experience the joy and spirit of summer camp. Camp participants spent an incredible week with new friends engaging in activities such as water tubing, kayaking, canoeing, arts and crafts, campfires and sing-songs, and an amazing talent show and a dance! Of special note was the exceptional volunteer staff who dedicated their time and energy to help make camp run smoothly and the donors and supporters that allowed camp to be offered at no cost. This summer CNIB Lake Jo will once again be hosting camp for up to 60 transplanted children!
The Transplant Centre’s Regenerative Medicine Initiative has taken on new coherence this past year, with the establishment of the SickKids Stem Cell Initiative (SSCI). The SSCI is focused upon the applications of stem cells in disease and regeneration, with the ultimate goal of being the definitive international centre for stem cells in pediatric medicine. This initiative is highlighting three broad-reaching areas. First, since we now know that most of our tissues contain somatic tissue stem cells, we have made it one of our goals to “encourage the body to repair itself” by developing methods to recruit these resident stem cells. This approach is particularly relevant for SickKids, since children contain many more of these resident stem cells than do adults, and since we have internationally recognized scientific expertise in understanding how stem cells build the body during development. Second, the past several years have seen a major collaboration between SickKids clinicians who treat children with genetic disorders and basic stem cell scientists, assembled together to achieve the objectives described above. While the biographies of each of these individuals can be seen on the newly-developed SSCI website (www.transplantbiobank.ca/stem-cell/index.php), these members are organized into groups that are interested in a particular aspect of the initiative, as follows. The main contact person for each of the groups is indicated in italics.

- **Cardiovascular stem cells**: Sonia Mitia, Ian Scott, John Coles, Janet Rossant, James Ellis
- **Lung stem cells**: Christine Ben, James Ellis, Martin Post, Janet Rossant, Tom Waddell
- **Blood stem cells**: Yigal Dvor, Eyal Grunebaum, Priscilla Chiu, Cynthia Guidos
- **Neural stem cells**: Freda Miller, Greg Borschel, Paul Frankland, Peter Dirks, David Kaplan, James Ellis, Norman Rosenblum, Chi-Chung Hui
- **Connective tissue stem cells**: Sevan Hopyan, Ben Alman, Chi-Chung Hui, Freda Miller
- **Tissue engineering**: Waldy Farhat, Greg Borschel, Herman Yeger, Darius Baghi, Christopher Forrest, Peter Kim, Andre Bahorie, Aleksander Hanek, Sharon Cushing
- **Model organism stem cells**: Brent Derry, Ian Scott, Brian Ciruna, Brent Pearson, Gabrielle Boulianne, Julie Bréll
- **Cancer stem cells**: David Kaplan, Peter Dirks, Ben Alman, Sean Egan

This is an extremely well-funded group of investigators who are publishing very high-profile papers in the area of stem cells. For examples of these publications, please see the SSCI website. One of the exciting aspects of this particular group and members’ respective interests is that it provides us with major cross-cutting interactions with a number of the other centres and programs. As one example, the Transplant Centre and the SSCI are currently organizing symposia in collaboration with the Bone Centre, the Centre for Brain and Behaviour, the Cystic Fibrosis Centre, and the Heart Centre. As a second example, we have now established a Stem Cells Journal Club that is co-sponsored by the Program in Developmental and Stem Cell Biology and that is run by Dr. Brian Ciruna. These journal clubs take place every two weeks, and are very well-attended, particularly by students and postdoctoral fellows. In summary, this has been a truly eventful year for this area within the Transplant Centre, and we are looking forward to the future as this new initiative evolves and grows to fruition.
The past fiscal year marked two other firsts for the donation program. In early 2011, we had our first neonatal DCD donor after neurological death. Also in 2011, an infant was the youngest DCD donor in the experience of the hospital. This same donor’s lungs were the first neonatal ABO-mismatch DCD lung transplant. All these accomplishments are further indication of the strength of the organ donation program at SickKids.

While I would thank all those staff and physicians who work in organ donation at SickKids, I would like to make special mention of four individuals. First, I would like to thank Dr. Brian Kavanaugh and Karen Kinnear for their thoughtful leadership of the Organ and Tissue Donation Committee, and the donation program generally. TGLN is very proud of the accomplishments of Jennifer Berry, our organ and tissue donation coordinator at SickKids, and I would like to thank her, and her call team for all their efforts.

I would like to thank as well Dr. Anne Dipchand for serving as a transplant on-call physician to TGLN, giving us advice on the suitability of potential donors, and to Dr. Dianne Hebert, for serving on our Board.

As Director of the University of Toronto Transplantation Institute, I look forward to working with my colleagues at SickKids and other University of Toronto partners to advance the academic and clinical programs in transplantation to the highest level. SickKids will provide the Institute with unique expertise in paediatric transplant issues, expertise in paediatric transplantation, stem cell research including access to the Ontario induced progenitor stem cell facility (iPSC), bio-banking and health-related quality of life measurement.

Working together, the formation of the Transplantation Institute (EDU-C) at the University of Toronto will provide unparalleled academic and clinical opportunities, including the ability to:
• Develop new and innovative national and international education programs, such as a collaborative graduate program in Transplantation and Regenerative Medicine
• Advance research by developing more effective partnerships with members of the basic science Department of Immunology, Department of Laboratory Medicine and Pathobiology and the Institute of Biomaterials and Bio-engineering and Clinical Departments, including Medicine, Surgery and Paediatrics within the Faculty of Medicine, the Faculties of Nursing and Pharmacy, the Joint Centre for Bioethics and fully-affiliated hospitals (University Health Network, SickKids, Sunnybrook Health Sciences Centre and St. Michael’s Hospital) to achieve international stature as the world’s foremost transplant program.
• Recruit and retain the brightest and the best faculty and students
• Increase fundraising through private sector partnerships
• Partner with the ministries of Health of Ontario and Canada to develop health-care policy for significantly enhanced delivery of transplantation services both provincially and nationally
• Advance, commercialize and translate scientific discoveries through the Industrial BioDevelopment Lab, MaRS Innovation and industry.

With the funding of the strategic training program in Regenerative Medicine (2009 to 2015), we will be able to provide cutting-edge training program opportunities to undergraduate and graduate students. Furthermore, we have been invited to submit a proposal to establish a National Centre of Excellence Program in Transplantation and Regenerative Medicine (TransNet) with the University of Toronto and its partner institutions, including SickKids, serving as host institutions. SickKids will lead this initiative through its expertise in stem cells, bio-banking and paediatric clinical trials design. In conclusion, the development of the Transplantation Institute at the University of Toronto will be another important step in achieving international stature as the world’s foremost transplant program. The future in transplantation has never looked brighter in Toronto and I look forward to working with all members of the transplant community to achieve our joint academic and clinical goals.
Selected Publications

Transplant - Crossing All Organ Groups


GIFT


Heart Transplantation


Kidney Transplantation


Liver & Intestine Transplantation


Lung Transplantation


the gift of life

To strive, to seek, to find, and not to yield.

Alfred Tennyson Ulysses

Peyton liver transplant recipient
Suzanne heart transplant recipient
Janel liver transplant recipient
Jahquan kidney transplant recipient
Adam small bowel transplant recipient

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