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DIRECTOR’S MESSAGE

The Garron Family Cancer Centre (GFCC) at the Hospital for Sick Children is pleased to present this annual report for 2014-2015, which provides an overview of the clinical, educational and research activities of the Centre during the last year.

Notable highlights of the Centre’s accomplishments in 2014-2015 include:

The Garron Family MIBG Suite opened in October 2013 and has treated 9 patients to date, including children with neuroblastoma referred from Newfoundland, British Columbia, and New Brunswick as well as referrals from other Ontario centres and SickKids. The SickKids MIBG program has been approved as a participating centre by the New Approaches to Neuroblastoma Therapy (NANT) consortium, providing the children of Canada with access to novel clinical trials which seek to improve the benefits of standard MIBG by combining this tumor-targeted therapy with other promising new therapies against neuroblastoma.

Significant progress has been made in the establishment of a precision medicine program at SickKids for children with high-risk cancers. The GFCC has partnered with the Department of Pathology and Laboratory Medicine (DPLM) to implement clinical-grade Nanostring, whole genome and whole exome sequencing technologies for enhanced diagnosis and classification of childhood cancers. These new capabilities provide the foundation for a growing portfolio of molecularly targeted investigational agents, which are already showing early signs of success in children with high-risk or recurrent cancers while avoiding toxicities caused by conventional chemotherapies. SickKids is poised to be a national and international leader in the development and application of precision medicine to treat childhood cancers.

SickKids continues to be a leader in basic and translational cancer research, enhancing our understanding of the root causes of cancer and providing the basis for new therapeutic approaches to treat patients. Among the many discoveries this past year, SickKids researchers Adam Shlien and Uri Tabori determined a mechanism that causes the rapid accumulation of nearly 20,000 mutations in children with biallelic mismatch repair deficiency (a rare cancer predisposition syndrome) and identified a unique genetic signature within their tumours. These insights will undoubtedly lead to improvements in the diagnosis and treatment of patients with this syndrome.

The Continuous Improvement Process (CIP) has expanded across the clinical units in Haematology/Oncology, with regular CIP rounds now occurring on 8A (Oncology inpatient unit), 8B (BMT inpatient unit), the Day Hospital and the Sears Cancer/hematology clinics. The CIP initiative has supported ongoing improvements in key quality initiatives such as chemotherapy start times, the early admission process, and length of stay.

On September 16, 2014 the Division of Haematology/Oncology and the Garron Family Cancer Centre hosted a Childhood Cancer Awareness & Sickle Cell Disease Awareness Month event at SickKids, in collaboration with 14 external partners. The event was a big
success, drawing patients and families from
the inpatient units and the Sears Cancer and
haematology clinics.

SickKids is profoundly grateful for a generous
gift from the Women’s Auxiliary, which will help
us address the important issue of pain control
for children receiving cancer care. Together with
the Pain Centre and the Paediatric Advanced
Care Team (PACT), the GFCC will implement new
clinical, educational and research initiatives that
will lead to improvements in pain management
and maximize comfort and quality of life for
patients with cancer.

We are grateful to the many patients and families
from across Ontario and Canada whom our Centre
is privileged to serve and to our devoted team of
clinicians, educators and researchers who are
dedicated to SickKids vision, Healthier Children,
A Better World. Thank you to our generous donors,
and to our many members and supporters who
are making the aspirations and achievements
of the GFCC a reality.

Sincerely,

James A. Whitlock, MD
Director, Garron Family Cancer Centre
Division Head, Haematology/Oncology/BMT
Women’s Auxiliary Millennium
Chair in Haematology/Oncology/BMT
Senior Associate Scientist,
Child Health Evaluative Sciences, Research Institute,
Professor of Paediatrics, University of Toronto
VISION, MISSION, PRIORITIES & GOALS

Vision
Better outcomes for children with cancer through multi-disciplinary collaboration, discovery and innovation.

Mission
The mission of the Garron Family Cancer Centre (GFCC) is to facilitate and catalyze innovation in multi-disciplinary research, clinical care and education. Discovery and translation of new knowledge will transform clinical practice and improve clinical outcomes and quality of life for children and their families affected by cancer.

Priorities
The GFCC leadership has identified three strategic priorities that align with and leverage existing institutional and programmatic strengths. These priorities provide a framework for the centre’s activities and investments arising out of our strategic plan.

The three strategic priorities are:
- Innovative Cancer Therapies
- Personalized Cancer Care
- Cancer Stem Cell Biology

Goals
The three broad goals of the GFCC are:
- to facilitate and promote innovation in multi-disciplinary cancer research.
- to facilitate and promote innovation in multi-disciplinary evidence-based cancer care.
- to facilitate and promote innovation in multi-disciplinary cross program cancer education.

The GFCC fosters innovative, novel and collaborative research that will transform our understanding of how cancer arises and progresses, and how we diagnose, treat and care for children with cancer.
LEADERSHIP & NEW APPOINTMENT

GFCC Leadership
Executive Council:

Chair
James Whitlock, MD
Director, Garron Family Cancer Centre
Division Head, Haematology/Oncology/BMT
Women’s Auxiliary Millennium Chair in Haematology/Oncology/BMT
Senior Associate Scientist, Child Life Evaluative Sciences

Brent Derry, PhD
Senior Scientist, Developmental and Stem Cell Biology Program, Research Institute

Meredith Irwin, MD
Clinician-Scientist, Division of Haematology/Oncology/BMT, and Senior Scientist, Cell Biology Program, Research Institute

David Kaplan, PhD
Senior Scientist, Neuroscience and Mental Health Program, Research Institute

David Malkin, MD
Clinician-Scientist, Division of Haematology/Oncology/BMT, Senior Scientist, Genetics & Genome Biology Program, Research Institute

Michael Taylor, MD, PhD
Neurosurgeon, Division of Neurology
Garron Family Chair in Childhood Cancer Research
Senior Scientist, Developmental and Stem Cell Biology Program, Research Institute

Judy Van Clieaf, RN, BScN, MN
VP Clinical

Sue Zupanec, NP, MN
Nurse Practitioner, Division of Hematology/Oncology/BMT

Ex officio:
Colin Hennigar, Director, Major Gifts, SickKids Foundation

New Appointment
Vice Chair for Fundamental Cancer Research
The GFCC Executive appointed Dr. Brent Derry as Vice Chair of the GFCC for Fundamental Cancer Research. Dr. Derry will work with the GFCC Research Advisory Council and SickKids research community to drive the development of new basic and translational research initiatives, enhance communication within the Centre and promote collaborations between basic scientists, clinician-scientists and clinical programs. The addition of this new position will further bolster SickKids’ role as a world leader in translating basic research findings to improved clinical outcomes for children with cancer. Dr. Derry is a senior scientist in the Developmental and Stem Cell Biology program and is cross-appointed to the Department of Molecular Genetics at the University of Toronto.
A $1 million gift was donated from the Women’s Auxiliary to the GFCC to support initiatives for Cancer Pain. Representatives from the GFCC, Pain Centre and Paediatric Advanced Care Team (PACT) developed a strategic plan to utilize this generous gift. The funds will be used to support new multi-centre clinical, research and education initiatives to address the pain associated with cancer and its treatment. Specific initiatives include expansion of the GFCC/Pain Centre collaborative seed grant program, educational symposia, the purchase of automated dispensing cabinets to support timely drug delivery, CADD pumps (used to deliver medications to patients) for use by PACT to facilitate home administration of pain management, and equipment to promote comfort in kids with cancer.
FUNDING INNOVATIVE PROJECTS

The Garron Family Cancer Centre (GFCC) is committed to funding initiatives to support the Centre’s vision “Better outcomes for children with cancer through multi-disciplinary collaboration, discovery and innovation”. The GFCC provided funding for two innovative projects in the past year.

**Cancer Diagnosis Reporting System**
Led by Dr. Lillian Sung, Staff Physician, Division of Haematology/Oncology, Scientist, Child Life & Evaluative Sciences

The Cancer Diagnosis Reporting System was developed to improve the quality of information collected on patients with cancer. Data related to diagnosis, staging, cytogenetics, and treatment are validated by attending physicians on all newly diagnosed patients. This automated process will lead to efficiencies in the existing paper-based system and is unique world-wide to the best of our knowledge. The information is used to report incidence data to the ministry and to calculate survival data for quality assurance purposes. The project team is composed of experts from the Division of Haematology/Oncology and Information Services. This innovative reporting system has been trialed over the past year and training provided to front line care team. This project has exemplified how enhancing the linkage of various internal data systems can lead to improved efficiencies, enhanced patient safety and quality of care.

**iPOG Network**
Led by Lee Dupuis, Health Clinician Scientist, Pharmacy, Associate Scientist, Child Life & Evaluative Sciences

The International Pediatric Oncology Guidelines in Supportive Care (iPOG) Network is an international collaboration of organizations which are actively developing or endorsing clinical practice guidelines (CPGs) for the supportive care of children with cancer or undergoing bone marrow transplant.

The iPOG Network website is currently being finalized and is anticipated to go live before the end of 2015.
NEW AGENTS AND INNOVATIVE THERAPIES (NAIT)

The vision of the New Agent and Innovative Therapy Program (NAIT) supports the GFCC and SickKids’ commitment to innovation and providing Canadian children living with cancer and their families with greater access to the best and newest treatment that will help to improve clinical care and quality of life.

The GFCC currently has 53 open clinical trials including 14 Phase 1 clinical trials. 265 patients from across Canada were enrolled during 2014/15. The program continues to grow and demand to open new trials continues as evidenced by the 33 trials currently in the queue to open as of June 30, which include 14 Phase 1 clinical trials, 11 leukemia & lymphoma trials, 1 solid tumor, 4 ancillary and 3 neurooncology trials.
CLINICAL TRIAL HIGHLIGHTS

BRF116013 – Phase I Dabrafenib Trial
The phase I dabrafenib trial exemplifies the growth of the NAIT program and our goal to be the national referral centre for innovative cancer clinical trials in children. The study aims to determine the safety, tolerability and pharmacokinetics of oral dabrafenib in children and adolescents with advanced BRAF V600 mutations in solid tumors. This first-in-children study has become a pan-Canadian trial in paediatric precision medicine, with subjects enrolled from Ontario, Manitoba, Quebec and Newfoundland.

TOPAZ Trial
The GFCC is supporting the TOPAZ trial, led by Dr. Sylvain Baruchel. This study aims to determine the best dose combinations of Topotecan and Pazopanib in paediatric patients with recurrent or refractory solid tumours, including rhabdomyosarcoma, neuroblastoma and those of the central nervous system. The multi-centre study, which will include 8 sites in Canada, opened at SickKids in March of this year.
COLLABORATIONS TO IMPROVE PATIENT CARE

The GFCC has initiated a Post-Transplant Lymphoproliferative Disorders (PTLD) Task Force in collaboration with SickKids Transplant & Regenerative Medicine Centre (TRMC). PTLD is a common cancer-related complication of solid organ transplantation that can resemble an aggressive lymphoma. The aim of this collaborative task force is to streamline care for PTLD patients, enhance clinical and translational research, and coordinate PTLD education initiatives for healthcare providers at SickKids. The task force is comprised of broad representation from the two centres and the Division of Infectious Diseases. On June 12, 2015 the Task Force hosted a Case Based Education Session which was attended by well over 60 healthcare providers.
TORONTO HOSTS INTERNATIONAL PAEDIATRIC ONCOLOGY CONFERENCE

The world’s brightest minds in childhood cancer gathered in Toronto October 22-25, 2014 for the International Society of Paediatric Oncology’s (SIOP) annual meeting.

“Toronto was the centre of the childhood cancer world for these few days in October,” said Dr. Jim Whitlock.

Dr. Eric Bouffet, Director of the Brain Tumour Program and Head of Neuro-oncology, Haematology/Oncology at SickKids, chaired the meeting’s local organizing committee, which consisted entirely of SickKids members. Deborah Tomlinson, Research Project Nurse at SickKids served as the committee’s nurse representative.

More than 1,900 health-care professionals from 92 countries attended SIOP’s 46th annual congress to exchange information on current findings relating to a variety of paediatric cancers. Workshops leading up to the meeting were held at The Peter Gilgan Centre for Research and Learning (PGCRL) to cater to smaller, more focused groups.

Leveraging the tremendous platform that the 26th Congress of the International Society of Paediatric Oncology (SIOP) provided, the Garron Family Cancer Centre (GFCC), SickKids International (SKI) and the SickKids Centre for Global Child Health (CGCH) joined forces to share with conference delegates the many ways in which SickKids is striving to improve the care of children with cancer in Toronto and around the world.

Throughout the course of the four-day congress, interdisciplinary staff members from SKI, GFCC and CGCH worked together to manage a booth within the exhibition space of the conference.

In addition to providing a venue for building new connections, the world’s largest annual paediatric cancer meeting also provided a backdrop for the continued growth of existing relationships between SickKids and its partner organizations.
July 2015 marked the second anniversary of the opening of Emily’s House, a project of the Philip Aziz Centre for Hospice Care. The staff team at Emily’s House works in close partnership with the Paediatric Advanced Care Team (PACT) at SickKids and includes physicians, nurses, personal support workers, therapists, chaplains and volunteers. The first paediatric residential hospice in Toronto, Emily’s House provides an alternate to hospital or home care for patients facing life-threatening conditions, including cancer. Emily’s House focuses on respite for families of children with complex medical needs, symptom management, and palliative and end-of-life care for these young patients when no further treatment options are available.

This unique hospice allows the medical needs of complex paediatric illness to be addressed, but in a decidedly more comfortable environment than that of a hospital. In addition to excellent around-the-clock medical care, activities and play therapy enhance quality of life for patients and grief support is available for siblings and parents. “Emily’s House offers SickKids patients and families the opportunity to receive expert end-of-life care with 24/7 support on-site, but in an environment that feels like home. It’s been a privilege working together with their dedicated staff.” Adam Rapoport, MD, Physician and Medical Director, Paediatric Advanced Care Team (PACT) SickKids, and Emily’s House.

“We are so grateful for the positive relationship we have established with SickKids Hospital, Dr. Rapoport and the entire Paediatric Advanced Care Team. Their leadership and expertise in palliative care is critical to the success of our clinical programs. Their support is foundational in strengthening and guaranteeing consistency with the exceptional quality that families at SickKids have come to know.” Rauni Salminen, CEO Emily’s House and Philip Aziz Centre for Hospice Care
SICKKIDS RECRUITS NEW RESEARCH TALENT

The GFCC welcomed Dr. Xi Huang to SickKids and the Developmental & Stem Cell Biology Program in April of 2015. Prior to joining SickKids, Dr. Huang received his PhD at Vanderbilt University and completed a very productive post-doctoral fellowship in the laboratory of Dr. Lily Jan at the University of California San Francisco. A member of the Arthur and Sonia Labatt Brain Tumour Centre, Dr. Huang brings to SickKids considerable expertise in the study of ion channels and their function in normal neural development and roles in cancer development. The Huang lab is interested in ion channels as potential therapeutic targets and is exploring how they regulate tumour initiation, progression and metastasis. Before arriving at SickKids, Dr. Huang had established a successful collaboration with GFCC Research Chair, Dr. Michael Taylor, studying the EAG2 potassium channel and its role in medulloblastoma progression. Work from that collaborative effort was recently published in Nature Neuroscience, and a case is being made to use a FDA-approved potassium channel blocker as a treatment for medulloblastoma.
The GFCC is supporting the development of a collaborative program within the Department of Paediatric Laboratory Medicine and the Division of Haematology/Oncology, which will implement clinical grade genome sequencing for cancer patients at SickKids. Through Next Generation Sequencing (NGS), the genetic profiles of tumours can be determined, and this information will be used to identify the very best, individualized treatment options for children with cancer. This will be particularly beneficial to patients with high risk disease, including those whose cancer has relapsed. Precise diagnosis and genetic stratification of these tumours from patients will inform care decisions, identify patients who are genetically predisposed to cancer, and point to clinical trials that provide access to the most innovative experimental therapies. Led by Dr. Adam Shlien, Associate Director of Translational Genomics, Dr. David Malkin, Senior Oncologist, Division of Haematology/Oncology, Dr. Gino Somers, Head of Pathology, and many others at SickKids, the implementation of NGS technology represents the third phase in an ambitious initiative that has already implemented targeted molecular diagnostics using microarray and Nanostring technology.
NEW PROMISE FOR PATIENTS WITH RARE BRAIN TUMOUR

Atypical teratoid rhabdoid tumours (ATRTs) are rare, highly malignant tumours of the central nervous system that develop in very young children. Until now, the disease was treated with combinations of surgery, chemotherapy and radiation with toxic side effects. Even with aggressive therapy, ATRTs often carry a poor prognosis, but a team of researchers led by Dr. Annie Huang, Staff Oncologist and Senior Scientist in the Cell Biology Program, is looking to change that. Their recent study, in The Lancet Oncology describes a strategy to characterize ATRTs into molecular subgroups, which will allow for more targeted treatment for these young patients, leading to improved outcomes with fewer side effects. Analysis of 259 ATRTs from 37 international health care centres was performed and the genetic profiles and pathological features of the tumours were compared with clinical outcomes for each case. Their research identified subgroups of patients based on expression of genes in 3 signaling pathways: NOTCH, BMP and MAPK. They found that patients in a subgroup with high expression of the ASCL1 gene (a NOTCH pathway component) can be effectively treated with surgery and chemotherapy and can be spared radiation, which can have devastating effects on developing brains. The work also highlights the urgency to develop new therapies for other ATRT subgroups that have poor outcomes despite the most extensive and punishing treatments.

Dr. Annie Huang, Staff Oncologist, Haematology/Oncology and Senior Scientist, Cell Biology.
CLONAL POPULATIONS IN GLIOBLASTOMA PRESENT A TREATMENT CHALLENGE

It has long been acknowledged that cancer is not just one disease, rather it is many diseases, each with its own treatment challenges. Even within the same tumour type, there exists great variability in prognosis based on the tumour’s location, stage at diagnosis and genetic makeup. Adding further to this complexity are relatively recent discoveries that show cancer cells within the same tumour can be as different from each other as cells from two different tumours. These differences, termed intra-tumoural heterogeneity, create another layer of complexity when designing treatment strategies. Dr. Peter Dirks and collaborators recently devised a method to isolate and profile distinct clonal cell populations from within patient glioblastoma samples. They demonstrate that individual clones from the same tumour have distinct properties and behaviours and they identify the genes and signaling pathways associated with these differences. Most strikingly, they show that some cell populations within an untreated tumour are already resistant to temozolomide, a conventional treatment for glioblastoma. Further research will enhance our understanding of these clones and will lead to new, targeted therapies that can overcome the clinical challenge of drug resistance.

Dr. Peter Dirks, Staff Neurosurgeon, Senior Scientist, Developmental & Stem Cell Biology.
RESEARCHERS USE GENOMICS TO UNLOCK MYSTERY OF CANCER PREDISPOSITION SYNDROME

Children born with a rare syndrome called biallelic mismatch repair deficiency (bMMRD) are likely to develop many different types of cancer, often multiple cancer types at one time. In healthy cells, DNA damage due to external stressors is a common occurrence that can be easily repaired, in part by proteins called mismatch repair enzymes. The cells of children with bMMRD have a reduced capacity to repair DNA damage and this increases their propensity to develop cancer. Mutations in the mismatch repair enzymes are in part to blame for this susceptibility, but a recent study led by a team of researchers at SickKids, has shed further light on the rare syndrome by identifying a second, “driver” mutation that leads to the rapid accumulation of nearly 20,000 mutations in the tumour DNA of children with bMMRD.

Through genomics, a team of researchers, which includes SickKids Drs Uri Tabori, Adam Shlien, Cynthia Hawkins, David Malkin, Christopher Pearson, Stephen Meyn and others have discovered a mutation in another enzyme called DNA polymerase episilon or delta, which renders the cells of bMMRD patients unable to repair the DNA and leads to this great flood of mutations, which are responsible for development of multiple cancer types.

“We were able to describe how many mutations develop, how fast they occur, how many mutations the tumour can sustain, and the type of mutation that occurs, which we found is unique to bMMRD cancers,” says Dr. Adam Shlien, lead author of the paper and Associate Director of Translational Genetics and Scientist in Genetics & Genome Biology at SickKids. “Additionally, by studying a rare cancer syndrome we were able to have an unobstructed view on how cancer develops and learn not only about how we can help these patients, but also about cancer progression in general.”

The signature of mutations is so specific to bMMRD syndrome that researchers are now able to detect the syndrome in children by sequencing the tumour. “If the child has a very high number of mutations then we know immediately that they have this cancer predisposition syndrome,” says Shlien.
SENSITIZE CANCER CELLS

Alkylating agents are a common class of chemotherapeutic drug used to treat aggressive forms of cancer, including glioblastoma, a brain tumour with poor prognosis in children. These drugs work by causing DNA damage, something that rapidly dividing cells are particularly sensitive to. One of the downsides of alkylating agents is that while they are usually adept at killing cancer cells, they also cause toxicity to normal cells that are also rapidly dividing – classic examples include cells of the gastrointestinal tract, bone marrow and reproductive organs. Unintended damage to normal cells leads to toxic side effects, which include nausea, immunodeficiency, and a permanent reduction in fertility. Additionally, cancer cells have an uncanny ability to adapt to the drugs, rendering them resistant to their effects. A group of researchers at SickKids, led by Dr. Cynthia Hawkins, Neuropathologist and Senior Scientist in Cell Biology, is looking for ways to increase the sensitivity of cancer cells to alkylating agents, while leaving normal cells unharmed. A screen of over 240 genes performed in Dr. Hawkins lab identified several novel sensitizers to these drugs and also discovered a new link between two players in the base excision repair (BER) pathway, ATM and MPG. In the study, published in Cancer Discovery, they demonstrate that inhibiting both ATM and MPG sensitizes brain tumor cells to alkylating agents with no toxicity to normal cells. Taking a clinical problem, such as this, to the laboratory is an effective means to drive discoveries that will lead to new and improved therapies for children with cancer.
UNIQUE CANCER PROTEIN SIGNATURES HAVE PROGNOSTIC VALUE

Genes carry our genetic information and are the blueprint for building proteins that carry out the work of our cells. Mutations in genes can lead to faulty proteins, which cannot function properly and may lead to cancer development. Many cancer gene mutations and tumour specific genetic signatures have been discovered through work in the field of genomics, and experts of proteomics are now looking to expand our understanding of how unique protein signatures can also predict tumour behavior and treatment prognosis.

A recent study led by Dr. Michael Moran of SickKids and colleagues at Princess Margaret Cancer Centre compared protein profiles from lung tumour samples to healthy lung samples to determine how these profiles could inform us about the molecular causes of cancer and predict patient outcomes. To accomplish this large-scale study, the research team used protein mass spectrometry, a technology that can identify and measure the full complement of proteins in a sample. The team discovered sets of proteins, involved in controlling cellular metabolism, that were distinct in subsets of tumours and could be correlated to survival. It is hoped that this new information will help more precisely classify lung tumours and could lead to treatments tailored to each cancer’s unique protein profile.

Dr. Michael Moran, Senior Scientist, Molecular Structure & Function program
SUPPORTING PAEDIATRIC CANCER PATIENTS OUTSIDE CANADA

Over 80% of children with cancer live in low- and middle-income countries (LMICs); their cure rates lag far behind those of children in high-income countries (HICs). National Childhood Cancer Strategies hold the potential to increase childhood cancer cure rates across large LMIC populations, but are in place in only a handful of LMIC. Barriers to adoption include a lack of health policy, health economics and implementation research relevant to LMIC paediatric oncology. The GFCC in partnership with the Centre for Global Child Health is providing support to the newly developed Policy and Economics Research in Childhood Cancer Unit (PERCC), which will help to overcome these barriers. Led by Drs. Sumit Gupta, Avi Denburg and Susan Horton, PERCC will drive health policy and health economics research relevant to the care of children with cancer in LMICs and use the results to inform advocacy and policy efforts at various national and international levels.
THOUGHT LEADERS

The Garron Family Cancer Centre (GFCC) at SickKids is an innovative and collaborative initiative that brings together scientists, clinicians and educators from across the hospital to advance treatment of paediatric cancer. This year, we asked some of the GFCC thought leaders about what makes the GFCC a unique place to care for paediatric oncology patients, educate future oncologists and investigate new methods to treat cancer.

Dr. Sylvain Baruchel
Director, New Agents and Innovative Therapies Program and the Garron Family MIBG Facility
The Hospital for Sick Children is an institution where expertise and innovation excel. The Garron Family MIBG Suite is the largest Therapeutic Nuclear medicine facility (in size) in North America. It allows for the safe and proficient administration of targeted radio-isotopes to children suffering from relapsed Neuroblastoma, while allowing one caregiver to safely stay close to the child. The facility uniquely integrates a state of the art radio-nuclear pharmacy while maintaining safe, protective isolation for health care professionals and parents. This targeted nuclear medicine facility allows us to offer this innovative therapy to all Canadian children as well as international paediatric patients.

Dr. Sarah Alexander
Staff Oncologist, Clinical Director, Division of Haematology/Oncology
The Sears Cancer Clinic provides state of the art space for the care to children with cancer. The clinic is a hub of activity for patients and their families and members of the inter-professional staff with activities every day including complex clinical care, conduct of research studies and educational endeavors and for those children who have longer visits, often some cool crafts and the occasional clown. The Sears Cancer Clinic is a place where the goal is to maximize the chances for each child to be cured of their disease and where work is focused on attempting to continuously improve on all aspects of care.

Dr. Gino Somers
Staff Pathologist, Division Head, Pathology
I came to SickKids from Australia in 2003, and was impressed with the collaborative and supportive environment fostered by leaders in cancer research. The Garron Family Cancer Centre has built upon that spirit, and it’s exciting to see the opportunities that have arisen as a result. The GFCC has provided support for improving many different facets of childhood cancer treatment, from implementing cutting edge cancer diagnostics to improving clinical practice guidelines for clinicians on the front lines. I am very excited to be part of a team that strives to make children healthier and happier, every day.
Sonia Lucchetta and Wendy Sharma
Division of Haematology/Oncology Social Workers, Sibling Day Organizers

The Annual Sibling Appreciation Day event is an opportunity to acknowledge the impact childhood cancer has on the siblings. Caring for a sick child has an impact on the whole family dynamic. Parents may be away more often, spending time in the hospital. Siblings may miss out on regular activities they would have done before the diagnosis. They deserve recognition for what they have had to go through as well. Sibling Appreciation Day is a special and fun event that showcases how special and important they are in the family too.

Sue Zupanec
Nurse Practitioner, Division of Haematology/Oncology

This past year I’ve become immersed in the complexities of opening and coordinating clinical trials. Although it has been overwhelming and a tremendous amount of learning, I’ve grown in my appreciation of the importance of this hard work. Along with obstacles and heart breaks there has also been great hope and I will even say miracles. It is a true privilege to be part of a dedicated team that works at every step to ensure we have exciting and innovative clinical trials for our patients and families.

Dr. Angela Punnett
Staff Oncologist, Director, Undergraduate Medical Education

The GFCC Education Committee supports oncology education across all levels of learners. Our research fellowship programs provide the opportunity for undergraduate, graduate and postgraduate trainees from multiple disciplines to participate in and contribute to the vibrant research community within the GFCC. Trainees and clinical staff are supported to attend and present their scholarly work at national and international meetings through the GFCC travel award competition. We host our own annual symposia, cross talks and conferences to foster collaboration in translational research, in the development of innovative cancer therapies and personalized cancer care, and in defining best practices in paediatric oncology care across disciplines.

Dr. Paul Nathan
Staff Oncologist, Director, Aftercare Program
Haematology/Oncology

Garron Family Cancer Centre initiatives are helping to bring together people from across SickKids, from nursing and allied health professionals to basic scientists, to get to know each other and to develop completely novel ways to look at and study childhood cancer. Often, this is how innovation starts: getting people with very different perspectives to connect.
Denise Mills
Nurse Practitioner, Division of Haematology/Oncology

As a Nurse Practitioner on the MIBG therapy team I have a unique opportunity to provide innovative therapies to patients diagnosed with neuroblastoma at SickKids and across the country. I am able to guide patients and their families through the decision process of MIBG therapy and continue to support them and their home institution after therapy. Over the last 2 years I have had the amazing opportunity to establish a collaborative relationship with the SickKids nuclear medicine team to build a multidisciplinary MIBG program.

Dr. Ana Guerreiro Stucklin
GFCC Research Fellow

As a physician and scientist dedicated to paediatric oncology, I find being at SickKids truly inspiring – families and a wealth of health care professionals work together every day to provide excellent care for children with cancer. At the same time, there is a large collaborative effort with scientists seeking to understand how cancer works and to develop new therapies. Through the Garron Family Cancer Centre, I have the opportunity to work with leading experts in pediatric cancer research and join them in the search for answers. Bringing together basic scientific research and medical expertise, SickKids and GFCC develop state of the art cancer research, pursuing better outcomes for children with cancer.

Diana Merino
SickKids Graduate Student, former SickKids Cancer Patient

The collaborative research environment at SickKids is key for the development of innovative ideas that integrate different disciplines and approaches with the goal of improving patient care and survival. As a cancer survivor treated at SickKids, I have been personally benefitted from the leading discoveries made at SickKids, and by the indomitable determination of SickKids scientists, with whom I have the honour of working beside. SickKids is making a massive imprint in the research landscape of paediatric cancer, and I am so proud to call the Garron Family Cancer Centre my home.

Donna Berry and Katie Breckbill
GFCC Program Managers

As Program Managers for the GFCC, we drive research, clinical and educational programs and initiatives within the Centre. Our role allows us to work with the many dedicated researchers and clinicians in the GFCC who all have the same goal; to end childhood cancer. Working with this team makes our day to day efforts rewarding as we help support this talented group achieve their goals through funding opportunities to research childhood cancer, training opportunities to train tomorrow’s leaders in oncology care and coordinating educational events to ensure this committed team is up-to-date on cutting edge research and medical advancements in childhood cancer.
OPTIMIZING ANTIBODY STRUCTURES TO IMPROVE CANCER TREATMENT

The use of therapeutic antibodies against B-cell specific markers such as CD19 and CD22 are currently being investigated as targeted treatments of B-cell Acute Lymphoblastic Leukemia (B-ALL). Researchers in the Molecular Structure and Function Program at SickKids are interested in solving the atomic structures of these and other cell surface proteins and to leverage that structural information to engineer additional and improved therapeutic antibodies. To handle such small pure amounts of protein, a nano-volume crystallization robot is required to carry out the studies. The GFCC was able to purchase the nano-robot through funds raised at the Annual Boat Rally for Kids with Cancer this past summer.
PITBLADO CLINICAL AND BASIC/TRANSLATIONAL DISCOVERY GRANT COMPETITION

The GFCC awarded a total of 5 clinical and 6 basic/translational research grants in the 2014/15 academic year for a total of $533,000 in funding. The grants support innovative research projects across a broad spectrum of interests and disciplines with the common goal of improving treatment of paediatric cancers.
Andrea Doria, MD
Tumour hypoxia or oxygen deprivation is a feature of some solid malignant cancers, and it occurs when tumours rapidly outgrow their own blood supply. The cancer cells can adapt to hypoxia and develop survival mechanisms that make them resistant to radiation treatment. A team led by Andrea Doria will test hypoxia-targeted diagnostic methods called 18F-FAZA PET-MRI, Blood Oxygenation Level Dependent (BOLD) and Diffusion-Weighted (DW) MRI, which will be used to help identify associations between hypoxia/necrosis and corresponding molecular pathways that could lead to new treatment strategies for patients with these tumours.

Brent Derry, PhD
Project title: Modulation of oncogenic Ras by DAF-16/FOXO mediated regulation of 3'UTR length.
The Derry lab will examine the insulin-like growth factor receptor (IGF1R) signaling pathway and how it cross-communicates with the oncogenic Ras pathway, utilizing the nematode worm, C. elegans as a model system. How the IGF1R pathway promotes tumorigenesis is poorly understood but it has emerged as an important drug target in cancer therapy. Use of a simple model organism such as C. elegans greatly expedites the pace of discovery and provides a powerful and tractable system for gaining much needed mechanistic insight. In this model system, a specific phenotype (Muv) will serve as a simple read out for Ras activation to test the effects of altering gene expression in the IGF1R pathway. This innovative study will lead to a better understanding of how these pathways cooperate in human cancer and may lead to novel strategies for treating patients.

James Drake, BSE, MBBCh, MSc
Project title: Magnetic resonance-guided high intensity focused ultrasound for palliation of painful metastases in children.
Bone metastases are common in patients with advanced cancer and can be very painful, with significant impact on quality of life. A research team, led by neurosurgeon James Drake will conduct a pilot study to test the efficacy of the specialized technique, magnetic resonance-guided high intensity focused ultrasound, to destroy these tumours and thereby reduce the pain experienced by these patients. This technique uses a MRI to guide high intensity ultrasound waves to the bone tumour, destroying it without surgery. A team at SickKids, with collaborators at Sunnybrook, successfully performed this technique to treat a benign bone tumour last year.

Sumit Gupta, MD
The impact of paediatric palliative care on quality of life for cancer patients is an understudied area. Sumit Gupta will leverage available data from health records to answer important questions related to palliative care in children with cancer and its relationship to low-intensity end-of-life care. Analysis of these large sets of data will help support efforts to increase funding for paediatric palliative care services, and therefore help improve the care of children with cancer at the end of their lives.
Cynthia Hawkins, MD PhD
Diffuse Intrinsic Pontine Glioma (DIPG) are devastating pediatric tumours with very poor prognosis. They are particularly difficult to treat due to their location in the brain and the fact that different regions of these tumours display distinct morphological and genetic features. A more thorough understanding of the genetic alterations that drive DIPG development is required to improve treatment strategies for these patients. Cynthia Hawkins’ lab will investigate the evolution of DIPG development by performing deep sequencing on five distinct anatomic regions in DIPG. Information gained from this study may lead to improved biopsy strategies, targeting multiple regions of the tumour, and ultimately to improved therapies.

Sevan Hopyan, MD PhD
Project title: Standardisation of self-report measure of physical function in paediatric sarcoma patients.
Surgery for sarcomas located in the limbs of patients is essential for cure but functional consequences of the procedure are life-long. Often there are multiple, and vastly different surgical/reconstruction options that must be considered by patients and families. Orthopedic surgeon, Sevan Hopyan, is developing a self-report tool for patients to measure functional considerations of these surgical options. The aim is to standardize the clinical research data and adopt this report widely to help families make these difficult decisions.

Ran Kafri, PhD
Project title: RAS: Is it possible to drug the undruggable?
The Ras oncogene is one of the most commonly mutated genes in human cancers and has proven difficult to target via drug therapy. Ran Kafri’s lab will use an innovative inference method, via two-colour single cell imaging to identify compounds that target not only Ras activity, but also the specific molecules that relay or perturb its cancer causing effects. This award is co-funded by the Younger Foundation.

Stephen Meyn, MD PhD
Project title: Identification of novel genes involved in ALT telomere maintenance in cancer cells.
Telomeres are specialized nucleoprotein structures that protect the ends of chromosomes. Telomere length must be maintained for tumour cells to continue to divide and cancer cells accomplish this through a mechanism known as Alternative Lengthening of Telomeres (ALT). Stephen Meyn’s research lab will investigate mechanisms that are responsible for maintaining telomere length in cancer cells. The team will use a novel high throughput functional screening assay to identify and validate targets that affect ALT in osteosarcoma cell lines. This work will deepen our understanding of telomere biology and may identify potential therapeutic targets.

Jane McGlade, PhD
Project title: Activation of CBL tumour suppression in leukemia.
Inactivating mutations in the Cbl proto-oncogene result in deregulated tyrosine kinase signaling and cytokine hypersensitivity, and have been implicated in the development of many types of cancer, including juvenile myelomonocytic leukemia (JMML). Recent insights from Jane McGlade’s lab into the protein structure of Cbl will be used by her research team to screen for compounds that can target and activate mutant Cbl to shut down oncogenic signaling in JMML. This work will provide new information about how tyrosine kinase signaling networks are perturbed.
in leukemia, and identify potential therapeutics that target elements of this network to restore normal regulation.

**Olivia Rissland, PhD**

**Project title: Therapeutic regulation of cancer’s vulnerabilities in gene regulation.**

Much of the success in developing effective new cancer therapies relies on identifying differences between normal cells and cancer cells, so that we may devise ways to target the cancer cells and leave normal cells unharmed. Cancer cells are unique not only in the genes that they express, but also in changes to the gene expression machinery itself. The enhanced expression of certain genes in cancer is driven by increased levels of translation initiation factors that bind to regulatory regions, such as eIF4E. Olivia Rissland’s research team will use a screening approach to identify other translational regulatory regions, unique to neuroblastoma cells, and will exploit the differences to target cancer cells.

**Greg Wells, PhD**

**Project title: The pathophysiology of exercise intolerance in children following hematopoietic stem cell transplant.**

Stem cell transplants can be an effective treatment for paediatric cancer, but often have long-term effects on the health of patients. Greg Wells’ research group will investigate the causes of these long-term effects, in particular by measuring muscle function in children post-stem cell transplant. The long-term goal of these studies is to develop a randomized control trial that can test the effectiveness of incorporating exercise as a component of post-transplant care.
GFCC RESEARCH TRAINING

The GFCC fellowships support clinicians, scientists and graduate students on an annual basis who are looking to advance their knowledge of cancer care and research. Through a competitive selection process the following fellowships were awarded for the 2015/16 academic year:

**GFCC Research Fellows**

**Sears Childhood Cancer Fellowship:**
  **Dr. Nicolas Waespe**
  **Supervisor:** Dr. Yigal Dror, Staff Physician, Division of Haematology/Oncology, Director, Marrow Failure and Myelodysplasia Program, Senior Scientist, Genetics & Genome Biology

**The Impact of Genetic Mutations on the Phenotype of Patients with Inherited Bone Marrow Failure and Aplastic Anemia**

Bone Marrow Failure is a life threatening condition with severely low blood counts due to insufficient production of blood cells in the bone marrow. Inherited Bone Marrow Failure Syndromes are associated with mutations
in more than 70 different genes. Some gene mutations harbor a very high risk of developing leukemia and other cancers. Standard testing methods identify these mutations in only some patients. Aplastic Anemia is an acquired insufficiency of the bone marrow which also carries an increased risk of developing cancer. Dr Waespe and colleagues will simultaneously analyze 72 genes in these patient populations using Next Generation Sequencing. They will then study the effect of different gene mutations on risk for development of cancers and treatment response. It is the expectation that identifying the genetic cause in patients with Inherited Bone Marrow Failure and Aplastic Anemia will lead to improved cancer risk assessment and lead to better treatment options for children with these syndromes.

Scotiabank Clinician Scientist Fellowship: Dr. Ana Guerreiro Stucklin
Supervisor: Dr. Michael Taylor, Neurosurgeon, Division of Neurology, Garron Family Chair in Childhood Cancer Research, Senior Scientist, Development & Stem Cell Biology

Identification of mediators of chemo resistance in recurrent paediatric medulloblastoma using functional genomics

Medulloblastoma is an aggressive brain tumour that affects young children and teenagers. Tumour spread within the central nervous system is common and a remarkable challenge for paediatric oncologists. Conventional treatment consists of a combination of surgery, chemotherapy and radiation therapy, which often successfully shrinks the primary tumour but is less effective at controlling metastases. Understanding why medulloblastoma sometimes fails to respond to chemotherapy is key to developing novel and meaningful therapies. Dr. Stucklin and colleagues will conduct studies to address this neglected area of neuro-oncology by searching for genes that render tumour cells and metastases resistant to chemotherapy. This work will unveil mechanisms of chemoresistance and contribute to the development of better treatments and improve the outcome of children with medulloblastoma.

Northbridge Fellowship in Cancer Research:
Dr. Deepak Chellapandian
Supervisor: Dr. Lillian Sung, Staff Physician, Division of Haematology/Oncology, Scientist, Child Life & Evaluative Sciences

Organ toxicities and infectious complications among childhood acute lymphoblastic leukemia (ALL) and acute myeloid leukemia (AML) in Ontario: A population-based cohort study.

The survival rates for childhood leukemia have improved significantly in the last two decades mainly as a result of improvements in cancer treatment, risk stratification and supportive care. Unfortunately, treatment related toxicities and mortality have also been trending up and are expected to be responsible for an increasing proportion of deaths. It is extremely important to understand the epidemiology of treatment-related toxicities that occurs from the point of diagnosis to late following completion of therapy. Clinically, the organs most likely affected by toxicity include heart, lungs, brain, liver, kidneys and toxicity related to infections. The aim of Dr. Chellapandian’s research is to determine the incidence of organ toxicities in children diagnosed with ALL and AML that occurs on and off treatment. This work will be important in evaluating the magnitude of each problem and identifying the risk factors associated with these toxicities related to therapy. This work will identify the most promising avenues for future research.
along the lines of preventable options for these toxicities and improving overall survival rates.

**Michael Herman Fellow: Dr. Mohammed Ramzan**  
**Supervisor:** Dr. Maarten Egeler, Section Head, Stem Cell Transplantation, Garron Family Chair in Childhood Cancer Research, Senior Associate Scientist, Developmental & Stem Cell Biology

Dr. Ramzan is currently working on a number of research projects in the Bone Marrow Transplant (BMT) Program. Working alongside Dr. Joerg Krueger, Dr. Ramzan is studying diffuse alveolar hemorrhage, a devastating complication for children after transplant, for which there are few treatment options. Dr. Ramzan is also working with Drs. Tal Schechter-Finkelstein and Muhammad Ali, to improve outcomes for paediatric Acute Myeloid Leukemia patients after hematopoetic stem cell transplant (HSCT). These research projects will give new insights for transplant physicians regarding management in these particular fields of BMT. Dr. Ramzan plans to present all of his research at upcoming international bone marrow transplant conferences.

**Christopher Brundage Leukemia Research Fellow: Emilie Ernoult**  
**Supervisor:** Dr. Jane McGlade, Associate Chief of Research, SickKids Research Institute, Principal Investigator, The Arthur and Sonia Labatt Brain Tumour Research Centre, Senior Scientist, Cell Biology

**Role of GADS adaptor protein in acute lymphoblastic leukemia**

BCR-ABL is a cancer causing gene which is a key factor in chronic myelogenous leukemia (CML) and a significant proportion of paediatric and adult B-cell acute lymphoblastic leukemia (B-ALL). The important role of the BCR-ABL oncogene in CML has led to the development specific drug therapies which target this faulty gene. These drugs are now part of the standard treatment regimen for CML, and can induce complete remission. However, drug resistance has become a major clinical issue in the treatment of CML. In addition these drugs have proven less effective in CML patients in the later phase of disease as well as patients with BCR-ABL positive B-ALL. Thus, there is a critical need to understand the signaling pathways that drive BCR-ABL positive myeloid and lymphoid leukemia and identify alternative drug targets. Dr. Ernoult and colleagues will use a technology called mass spectrometry to identify signaling proteins unique to BCR-ABL B-cell acute lymphoblastic leukemia, with the hopes that this will lead to new and complementary strategies to target the disease.

**Fellowships Co-Funded with the Research Training Centre**

The GFCC continues to provide funding support to graduate students and postdoctoral fellows awarded fellowships through the SickKids Research Training Centre’s RESTRACOMP program.

In the past year, the GFCC has co-funded the following students and fellows conducting cancer research:

Mushriq Al-Jazrawe “Investigating the roles of PDGF and Wnt signalling in Aggressive Fibromatosis” (mentor: Dr. Benjamin Alman, MD)

Samantha Gauvreau “Investigation of the impact of radiation therapy on neurophysiological network connectivity and impact on brain tumour survivors” (mentor: Dr. Donald Mabbott, PhD)
Brian Golbourn “Role of SNF5 in Atypical Teratoid Rhabdoid Tumours” (mentor: Dr. James Rutka, MD, PhD) co-funded by the BTRC

Robin Hallet “Identification and characterization of genes and signaling proteins required for neuroblastoma metastasis.” (mentor: Dr. David Kaplan, PhD) co-funded by the James Fund

Nicole Park “The role of ASCL1 in glioblastoma stem cell lineage commitment” (mentor: Dr. Peter Dirks, MD, PhD)

Julia Plakhotnik “Integrin-linked kinase regulation by alpha and beta parvin in cardiac stress and repair in response to chemotherapy” (mentor: Dr. Jason Maynes, MD, PhD)

Ivette Valencia Sama “Identification of novel therapies for metastatic neuroblastoma” (mentor: Dr. Meredith Irwin, MD) co-funded by the James Fund

Anh Tran “microRNAs Suppress Apoptosis in Caenorhabditis elegans Germline by Antagonizing Translation of BH3-only pro-apoptotic protein EGL1” (mentor: Dr. Brent Derry, PhD)

Man Yu “Comparative Proteomic and RNA Sequencing of DIPGs” (mentor: Dr. Cynthia Hawkins, MD, PhD)

Wen Zhang “Identifying prognostic proteome signatures in human lung cancers” (mentor: Dr. Michael Moran, PhD)

Yangjing Zhang “Role of Numb alternate splicing in tumorigenesis” (mentor: Dr. Jane McGlade, PhD)
SUPPORT FOR CONFERENCES, WORKSHOPS AND CROSS TALKS

GFCC Sponsored Conferences
The GFCC provides support each year for seminars, workshops and symposia focused on clinical care and research relevant to paediatric cancer. In 2014/15 the GFCC provided approximately $50,000 in sponsorships to support events which allow our partners to continue to provide integral education to healthcare providers on paediatric oncology topics ranging from innovative basic cancer research to new clinical care therapies, sponsorships included:

October 2014: International Society of Paediatric Surgical Oncology (IPSO) Education Day
Hosted by Dr. J. Ted Gerstle, SickKids Attending Staff Surgeon, this symposium provided paediatric surgical oncologists with an education day that addressed current topics in paediatric oncology.

April 2015: Frontiers in Development, Cancer & Stem Cell Biology
Hosted by the Developmental & Stem Cell Biology Program at SickKids Research Institute, this symposium had more than 170 attendees and included 8 international speakers.

May 2015: C17 Annual General Meeting
The C17 Council brought together representatives from local and national Centres to identify priorities for paediatric oncology research and clinical trials.

Collaborative Educational Cross Talks
This year the GFCC partnered with three centres at SickKids to host collaborative educational cross talks. Cross Talks are an exciting opportunity to bring together subject matter experts, across a variety of disciplines, to debate and discuss current challenges in paediatric cancer care. Topics included “Obesity and Cardiometabolic Risk in Childhood Cancer – Underlying mechanisms and interventions to improve healthcare”, cohosted with The Centre for Healthy Active Kids, “Neurological Consequences of Methotrexate”, cohosted with the Centre for Brain and Mental Health” and “Post-Transplant Lymphoproliferative Disorder Collaborative Approach to Therapy: a case based discussion” with the Transplant and Regenerative Medicine Centre.
ANNUAL GFCC SYMPOSIA

7th Annual Childhood Cancer Therapy Update
On January 14, 2015 the GFCC hosted a one day symposium, “Childhood Cancer Therapy Update” targeted to multi-disciplinary health care providers involved in oncology care at SickKids and our partner centres throughout Canada. The 2015 event had a record number of attendees with more than 110 multi-disciplinary attendees (physicians, trainees, allied health, and pharmacists) and additional participants via webcast from Alberta Children’s Hospital, McMaster Children’s Hospital and The University of the West Indies. The symposium included three visiting speakers: Dr. Lia Gore from Children’s Hospital Colorado who presented an update on CAR T-cells “CARTs, BITEs, and other strange names in the treatment of refractory leukemias”, Dr. Paul Gibson from London Health Sciences Centre provided an update on asparaginase allergies “Asparaginase Allergies: Is it in the Genes?” and Dr. Lesleigh Abbott from Children’s Hospital of Eastern Ontario facilitated two talks on clinical trials “Phase 1 Trials in Paediatric Oncology and Informed Consent” and a workshop co-led with Denise Mills and Sue Zupanec, Nurse Practitioners in the Division of Haematology/Oncology. Attendees provided positive feedback for the event, including “Overall fantastic speakers, good topics – useful for all participants”. The 2016 Childhood Cancer Therapy Update is currently being planned for February 2016.

Inaugural GFCC Trainee Symposium
The first annual GFCC Trainee Symposium was held on January 21, 2015. The symposium included presentations from GFCC research fellows and graduate students with a special keynote lecture by Dr. Jim Whitlock. The aim of the event is to bring together young investigators to present their research and provide a forum to share and exchange ideas. The event received positive feedback and will be expanded next year to include an afternoon poster session open to all trainees, nurses and allied health participating in cancer research at SickKids.
In April of this year the GFCC hosted a private screening of a documentary called “Thank You for Playing”. The film chronicles the lives of the Green family, as they journey through the diagnosis and treatment of a rare brain tumour in their young son, Joel. Upon diagnosis Joel’s father, Ryan Green, begins working on an unusual and poetic video game to honour his son’s life. The film follows the Green family through the creation of the game and the day-to-day realities of Joel’s treatment. The filmmakers and game designers were in attendance for the SickKids screening and participated in a lively discussion with researchers and clinical care professionals and provided a pre-release demo of the video game. Following the success of the screening at SickKids, they are now exploring options to present the film to other paediatric cancer centres and organizations to explore options to use the film and the game as educational tools.

The international premiere of Thank You for Playing was held at the Hot Docs Canadian International Documentary Film Festitval on April 28, 2015
CHILDHOOD CANCER AWARENESS DAY

On September 16, 2014 the Division of Haematology/Oncology and the Garron Family Cancer Centre hosted a Childhood Cancer Awareness & Sickle Cell Disease Awareness month event in the Garden Patio and Garden Terrace at SickKids. Patients and families were invited to take part in a Superhero themed event, in collaboration with 14 external partners. Each partner brought a superhero themed activity for patients to take part in such as making superhero capes, bookmarks and chalk drawings. Kids Science provided an engaging science experiment in which participants extracted DNA from strawberries. The event was promoted throughout the hospital and had a record number of participants with more than 30 patients and families attending. Families commented that the event provided an opportunity for a break from the inpatient unit and to participate in interactive activities between appointments. Parents also connected with external partner organizations such as Gilda’s Club, Young Carers, Ronald McDonald House and Paediatric Oncology Group of Ontario.
On Saturday, June 6, 2015 the 4th annual “It’s All About Me” Sibling Appreciation & Education Day was held at the Hospital for Sick Children.

The event was open to all Haematology/Oncology/Immunology/Stem Cell Transplant families. 24 siblings attended this year’s event, with approximately 80 people attending the day in total. Siblings of both outpatients and inpatients took part in this education day recognizing siblings. Parents and children undergoing treatment joined the siblings for breakfast and then joined the group again after the sibling morning sessions for the recognition ceremony, lunch and afternoon activities. Children came from across the Greater Toronto Area to take part in the day. The event was hosted by psychosocial staff in the Haematology/Oncology Program at SickKids.

The goal of this annual event is to enhance the quality of life of siblings, by providing age-appropriate education to increase knowledge and creative, fun activities that promote the expression of feelings and enhance self-esteem. This goal was met as evidenced by evaluations completed and the feedback that staff received after the event. Siblings felt empowered by the support they received which enhances their overall quality of life.
AWARDS AND ACHIEVEMENTS

CCSRI and Brain Canada Awards
Dr. Uri Tabori and Dr. Michael Taylor were awarded Impact Grants through a Canadian Cancer Society and Brain Canada partnership. With this funding, Dr. Tabori’s research group will be studying “Targeting the telomere maintenance pathway for cancer diagnostics and therapeutics” and Dr. Taylor’s lab will investigate how “Molecular heterogeneity drives the clinical behaviours of childhood medulloblastoma”. The awards were announced on World Cancer Day during a special ceremony at the SickKids Peter Gilgan Centre for Research and Learning, with the Honorable Rona Ambrose, Federal Minister of Health in attendance.

CIHR Grants announced in July 2015:

Foundation grants:
David Malkin, MD - Molecular determinants of Li Fraumeni syndrome

Operating grants:
Peter Dirks, MD, PhD - Functional and genomic clonal analysis of human glioblastoma.
Hans Hitzler, MD - Mechanisms and Risk Stratification for Treatment of Acute Myeloid Leukemia in Children with Down syndrome.
David Kaplan, PhD - Establishment and maintenance of adult neural stem cell pools
Jane McGlade, PhD - Function and regulation of Numb protein isoforms in cancer.
Ran Kafri, PhD - Cell size specification in normal and malignant populations.
**Order of Canada**

Dr. James Rutka, Director of the Arthur and Sonia Labatt Brain Tumour Research Centre, Neurosurgeon and Senior Scientist in Cell Biology, was appointed Officer of the Order of Canada on July 1, 2015. Dr. Rutka was awarded the Order of Canada for his contributions to advancing treatment for paediatric brain tumours and for his leadership in neurosurgery. The Order of Canada is one of our country’s highest civilian honours and recognizes outstanding achievement, dedication to the community and service to the nation.

Lindsay Croal, 8A staff nurse and her co-authors, won best nursing poster at the International Society of Paediatric Oncology Annual Meeting in October 2014 with an entry entitled “The narrative experience of childhood cancer. A systematic review and critical appraisal.”

**CCSRI Innovation grants**

In 2015 the Canadian Cancer Society awarded funding for four projects at SickKids through their Innovation Grant program.

- **Julie Forman-Kay, PhD** - *Modulating disordered protein phase separation to discover novel therapeutic agents for ewing sarcoma and other cancers*
- **Anna Goldenberg, PhD** - *Improving drug response prediction in non-small cell lung cancer*
- **Peter Dirks, MD, PhD** - *Pharmacologic and optogenetic dopamine-directed therapy of glioblastoma stem cells*
- **Jennifer Stinson, PhD** - *Virtual peer-to-peer (VP2P) support mentoring for adolescents with cancer: A pilot pragmatic randomized controlled trial*

Dr. Eric Bouffet, Director of the Paediatric Neuro-Oncology Program at SickKids was elected President of the International Society of Paediatric Oncology (SIOP).