



Princess Margaret Cancer Program

2010 Annual Report

Message from Princess Margaret Cancer Program Medical Director and Vice President

We are pleased to present to you the 2010 Annual Report for the Princess Margaret Cancer Program at the University Health Network (UHN). This is the second annual report and we hope that you find it informative. We have expanded the report to include highlights from the disease site groups, in addition to the departmental reports.

This report puts emphasis on the scope and depth of our programs, richness of innovations and extent of engagement of our staff in pushing forward our strategic agenda.

The program, one of the largest of its kind in the world, provided care to over 18,000 new patients who were seen for diagnosis, treatment and supportive care over the past year. To facilitate delivery of care to even more patients, we continued to build our infrastructure. In 2010, we opened the first phase of our new chemotherapy facility, enabling us to provide care to more patients in a safe, patient-centred environment. Another key initiative has been the establishment of our cancer survivorship centre, ELLICSR (Electronic Living Laboratory for Interdisciplinary Cancer Survivorship Research), to address the needs of growing populations of cancer survivors. This innovative new centre offers support to cancer survivors and their families through holistic, evidence-based approaches.

To improve timely access to care, we continue to develop rapid diagnostic programs at the Princess Margaret, building upon strong interdisciplinary, collaborative approaches to the delivery of service. The new Lung Rapid Assessment and Management Program (LungRAMP) and the Gattuso Rapid Diagnostic Centre have facilitated efficiency in the provision of diagnoses in the shortest possible timeframe.

Another novel initiative is the After Cancer Treatment Transition (ACTT) Clinic at Women's College Hospital, that offers follow up care and addresses issues specific to the transition of patients from active treatment to the community.

With the support of the Princess Margaret Hospital Foundation, our research programs continued to grow. In 2010, we accrued over 3,000 patients to clinical trials, and achieved over \$100 million in external funding for our research.

We want to thank our staff and leadership team for their continuing efforts to provide the best care to our patients and develop novel approaches to cancer treatment. We want to extend our most sincere gratitude to our patients, partners, and donors for their ongoing support.



Sarah Downey,
MHA, CHE

Vice President and Site Lead,
Princess Margaret Hospital



Mary Gospodarowicz,
MD, FRCPC, FRCR (Hon)

Medical Director,
Princess Margaret Cancer Program

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vision, mission, s

Princess Margaret Cancer Program

Our vision:

“To achieve global impact as one of the top five comprehensive cancer programs in the world”

Our mission:

As innovators in cancer care, we will lead and partner to deliver top quality care to our patients by translating the science of cancer into practice.

Strategic themes

Transforming Patient Care

We will establish innovative models of care, integration of treatment and supportive care, and will engage patients and their families as partners in cancer care.

Correlative Cancer Biology

To facilitate the development of novel therapies, we will develop a leading-edge program of correlative biological research.

Guided Therapeutics

We will create a state-of-the-art clinical and research facility for molecular and nanotechnology-based imaging, and image-based assessment of clinical response.

Novel Therapeutics

We will support a robust clinical trials infrastructure and the implementation of enabling technologies for conception and translation of new therapeutics for cancer.

Outreach and Partnerships

Working within the context of our regional and national systems, we will be a value-added partner at the regional, provincial, national, and international levels, and will improve standards of cancer care through leadership and collaboration.

Strengthening Core Programs and Infrastructure

We will establish the infrastructure (resources, processes and systems) needed to facilitate delivery of high quality patient-centred, comprehensive cancer care.

strategic themes

Our program

The Princess Margaret Cancer Program at the University Health Network (UHN) in Toronto, Ontario, is the largest cancer program in Canada. It consists of over 2,900 employees, 130 inpatient beds, and 373,000 square feet of research space based in the Princess Margaret Hospital site on University Avenue. The neuro-oncology program is at the UHN's Toronto Western Hospital, and surgical oncology is based at the Toronto General Hospital.

Together with its research arm, the Ontario Cancer Institute (OCI), the Princess Margaret has achieved an international reputation as a global leader in the fight against cancer. Our clinical and research staff includes many of the world's leading experts in oncology (Appendix A).

With its proven record in research, education, and patient care, the Princess Margaret is a world-class program. It has the largest radiation treatment centre in Canada and one of the largest treatment facilities in the world. It ranks among the top centres in the world for bone marrow transplantation, and has established a solid international reputation for having some of the longest surviving bone marrow transplant recipients in the world. We offer comprehensive, multidisciplinary cancer care and have expertise across the spectrum of cancer services. The clinical program is organized as a matrix of modality-based departments and disease site-specific interprofessional groups.

Many clinical departments and professions are engaged in the delivery of services across the Cancer Program; this report presents highlights from all areas. We offer cancer care in all major disease sites; key achievements in 2010 from each of our Disease Groups are summarized in this report.

Table 1: Clinical Departments

Surgical Oncology
Medical Oncology
Radiation Oncology
Psychosocial Oncology and Palliative Care
Oncology Nursing
Medical Imaging
Laboratory Medicine

Among the services provided this past year, we delivered **6,191** cancer surgeries¹, as well as **29,801** outpatient chemotherapy treatments, **10,058** courses of radiation treatment, and **257** stem cell transplants².

¹SOURCE: UHN SURGICAL SCORECARD

²SOURCE: UHN STATISTICAL GENERAL LEDGER – FUNDED VOLUME REPORT

As the figure on the right illustrates, the Princess Margaret's ability to continue achieving excellence and transforming patient care depends upon nurturing our core programs, and the continual monitoring and upgrading of our infrastructure.

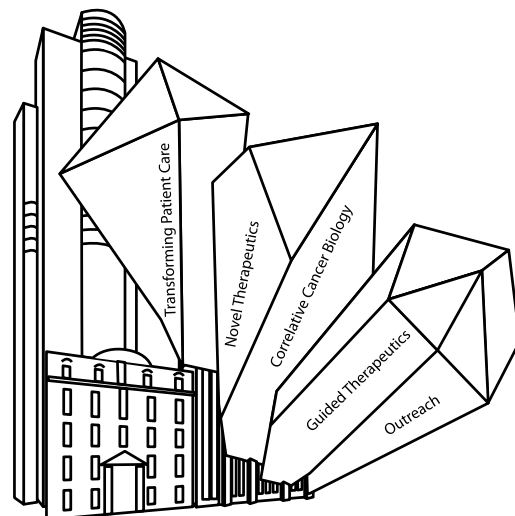




PHOTO: DONNA SANTOS

In 2010, we saw **18,103** new patients, as outlined in Table 3, below.

Table 3: New Patients

Disease Status	Disease Site	2010 ¹
Malignant	Genitourinary	1,713
	Gastrointestinal	1,566
	Breast	1,548
	Lung	896
	Gynaecology	874
	Leukemia	607
	Head and Neck	568
	Lymphoma	537
	Melanoma	419
	Thyroid	398
	Central Nervous System	315
	Sarcoma	278
	Eye	181 ²
	Other	968
Benign ³		2,625
Non-Neoplastic ⁴		4,756
Total		18,103⁵

Our visit activity in 2009/2010 was as follows:

Table 4: Visit Activity 2009-10

Program	Visits 2009-2010 ⁶
Haematologic Malignancies	35,182
Genitourinary	27,729
Head and Neck	20,877
Breast	19,087
Gastrointestinal	17,564
Gynaecology	17,440
Central Nervous System and Eye	11,250
Lung	8,388
Skin	5,388
Radiation Treatment ⁷	172,690
Chemotherapy	39,225
Radiation Therapy	22,727
Surgical Oncology (Dental Clinic)	11,474
Transfusion	10,661
Symptom Management	3,659
Other	908
Total	419,532

¹SOURCE: PMH CANCER REGISTRY

²EYE INCLUDES MELANOMA IN EYE AND SARCOMA IN EYE

³NON-MALIGNANT TUMOURS

⁴NO SUSPICION OF CANCER; PRIMARILY BENIGN HAEMATOLOGY (E.G. APLASTIC ANAEMIA)

⁵TOTAL ADJUSTED TO ACCOUNT FOR CASES SHARED BETWEEN SITE GROUPS AND REFLECTED THE TOTAL OF NEW CANCER PATIENTS ACROSS SITE GROUPS

⁶SOURCE: UHN STATISTICAL GENERAL LEDGER AND CHEMO DAYCARE STATISTICS

⁷INCLUDES EXTERNAL BEAM AND BRACHYTHERAPY

The research institute at the Princess Margaret, Ontario Cancer Institute (OCI), conducts research in genomics, proteomics, structural biology, molecular biology, biophysics, stem cell biology and behavioural sciences. OCI researchers employ state-of-the-art tools to analyze cancerous cells at the molecular level, test gene and cellular therapies for cancer and other diseases, develop new technologies for diagnosing and treating cancer, determine the effects of diet and behaviour on cancer risks, and to develop and test informatics tools for the large-scale analysis of patient populations.

The Campbell Family Institute for Breast Cancer Research in the OCI focuses on developing the next generation of treatments for breast cancer patients. Led by internationally recognized scientist Dr. Tak Mak, the institute joins basic, translational and clinical research and focuses on developing new drugs and therapies that are more effective, less toxic and can increase a patient's quality and length of life.

The newest addition to OCI, the Campbell Family Cancer Research Institute will accelerate the pace of

breakthrough cancer research, facilitating the translation of cancer discoveries into new life-saving therapies and more personalized cancer treatments for each patient. This institute is headed by Dr. Benjamin Neel, a leading authority on cancer cell research.

The Cancer Clinical Research Unit (CCRU) at the Princess Margaret is aimed at enhancing the quality and productivity of cancer clinical trials and promoting a culture of responsibility and accountability in clinical trials. The CCRU includes a Clinical Trials Support Unit, Quality Assurance and Metrics, Cancer Registry, and Biostatistics. The CCRU is the backbone of our clinical research enterprise and enables more patients to access new treatments through clinical trials by continuing to attract and develop exciting and innovative trials to the Princess Margaret.

This report outlines key 2010 accomplishments in our clinical, research, educational and other activities.

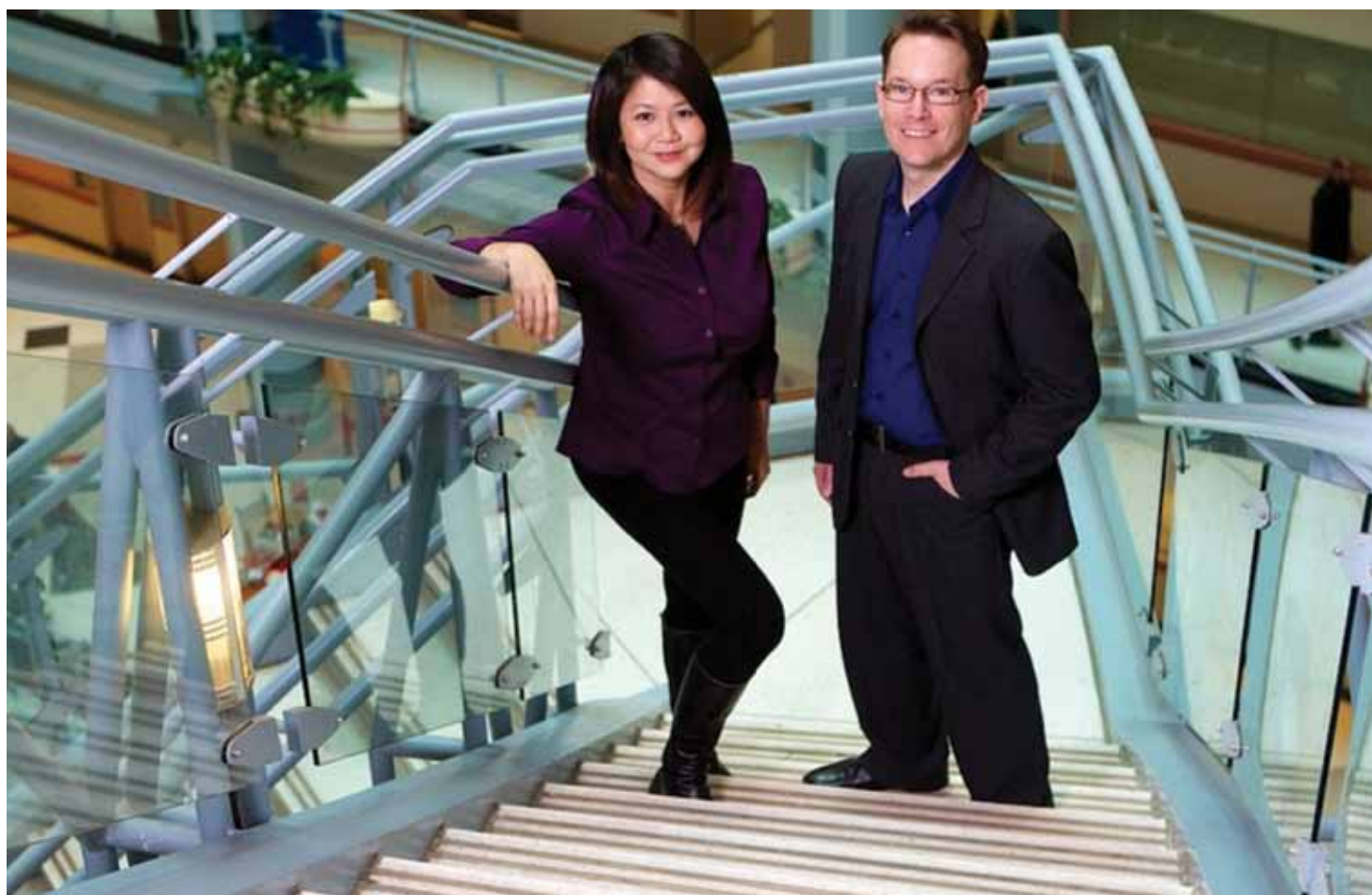


PHOTO: DONNA SANTOS

Highlights

ELLICSR: Health, Wellness And Cancer Survivorship Centre

The Electronic Living Laboratory for Interdisciplinary Cancer Survivorship Research (ELLICSR): Health, Wellness and Cancer Survivorship Centre launched in June 2010, on National Cancer Survivors' Day. This unique, 12,000 square foot research facility is the result of a Canada Foundation for Innovation grant to create an environment to support cancer survivorship research by positively impacting on:

- the quality and quantity of survivorship research conducted;
- the delivery of survivorship care; and
- the health of cancer survivors.

This initiative is the first of its kind in Canada and represents the Princess Margaret's leadership role in addressing issues associated with our growing population of cancer survivors. Several survivorship related studies are currently being conducted from ELLICSR, including exercise studies for patients on androgen deprivation therapy, healthy eating studies for survivors of colorectal cancer, and psycho-educational interventions for managing fear of recurrence and to support male spouses of female breast cancer survivors. Drop-in programs and education programs have also been initiated, including a popular support group, *Surviving and Thriving*, facilitated by Dr. Robert Buckman. Plans are well underway for the continued expansion of research initiatives and programming for all cancer survivors.

Gattuso Rapid Diagnostic Centre

The Gattuso Rapid Diagnostic Centre (GRDC) is an innovative new program that provides a patient-centred approach to care for patients with breast abnormalities. The Princess Margaret is uniquely positioned to offer the rapid diagnosis centre model and serve as a provincial and regional resource. In 2010, the GRDC operated three days/week, with the ability to see 750 new patients per year. Further expansion is planned for 2011. Critical to the success of the GRDC is a dedicated interprofessional team focusing on highly integrated processes to provide comprehensive and compassionate assessment, diagnosis and treatment plans within 24 hours. A nurse practitioner guides patients through the journey and ensures that



patients have access to specialists from radiology, pathology, surgery, medicine and allied health.

The GRDC model of care reduces unnecessary healthcare system wait times and improves efficiency across the breast cancer treatment continuum. The model also helps address patient/family anxiety throughout the process; by providing quality benchmarks, patient outcomes should continue to improve. It is expected that the GRDC platform will enhance education and research opportunities. The future success of the GRDC will be measured by effective knowledge translation across breast centres regionally, provincially and nationally. Opportunities for rapid diagnostics across other cancers will continue to be explored.

Lung Rapid Assessment And Management Program (LungRAMP)

The Lung Rapid Assessment and Management Program (LungRAMP) is an outpatient diagnostic and treatment service that launched in 2010. The goal of this virtual “diagnostic assessment program” is to assess and manage patients with presumed lung cancer in the shortest possible timeframe, by streamlining diagnosis, as well as facilitating and standardizing treatment. The LungRAMP aims to improve patients' quality of care by making the process of diagnosis and treatment efficient and supportive, reducing multiple visits, clarifying steps, providing information on demand, and reducing patient anxiety.

A target of 24 hours was established for an initial assessment by a member of the thoracic team (involving collection of patient information from the referring physician and a patient telephone interview), and a target of less than two weeks was set for the time from a first consult to a biopsy. Standardized forms and patient care pathway plans were

implemented to systematize care. Referrals were assigned to staff thoracic surgeons based primarily on availability of Operating Room (OR) time, with consideration of patient-specific issues and areas of surgeon expertise; the goal was to assign an OR date within 24 hours of receipt of referral, using an online OR scheduling system. The program is available locally and to patients from other LHINs, using Telehealth and imaging resources in the patients' home communities. In 15 months, LungRAMP processed 477 referrals, 99% of which were contacted within 24 hours. Preliminary results have showed a reduction in time from referral to first consult from an average of 14 days to 7 days, and a reduction in time from a first consult to decision to treat from 17 days to 12 days. These exciting results support the continued development of the diagnostic assessment program model for cancer care.

ACTT: After Cancer Treatment Transition

In an innovative new collaboration, Women's College Hospital and the Princess Margaret have joined forces on a pilot project for patients who have completed cancer treatment and are at low to moderate risk of recurrence. The After Cancer Treatment Transition (ACTT) Clinic is a dedicated, post-cancer treatment clinic run by an Advanced Practice Nurse, Shari Moura, and Dr. Carol Townsley. ACTT was initiated by a successful Academic Health Science Centres Alternate Funding Plan proposal led by Dr. Malcolm Moore and Barbara Fitzgerald.

The goal of ACTT is to establish a process for the delivery of high quality, safe, and integrated post cancer treatment follow-up care with engagement of patients, their families, oncologists, and primary care physicians. Services provided include ongoing surveillance for the physical and psychosocial needs of patients transitioning back to a cancer-free lifestyle.

Opened in March 2010, ACTT has focused on: assessment and monitoring post cancer treatment; education; supportive care; late and long term effects of cancer treatment; and flexible access to interventions designed to maximize health and quality of life. The pilot phase of the project has centred on transitioning patients from the Princess Margaret to the ACTT Clinic following diagnoses of melanoma, testis,

colorectal, breast or gynaecologic cancer. 450 patients have transitioned to date. The model of care in this program will be evaluated with the hope of expanding the role of ACTT in the future.

Partnership With Kuwait Cancer Control Centre

In September, 2010, the University Health Network (UHN) signed an agreement with the Ministry of Health of the State of Kuwait, which will see UHN providing clinical expertise to the Kuwait Cancer Control Centre (KCCC), Kuwait's foremost cancer institution serving the nation's population of 3.5 million people. This partnership is the first of its kind for UHN, and is aimed at strengthening cancer service delivery at the KCCC, with a focus on areas such as radiation medicine, medical oncology, surgical oncology and laboratory medicine, offering the citizens of Kuwait access to the highest level of internationally-recognized cancer services, while ensuring continuous improvement of cancer outcomes in both Kuwait and Canada. A major focus will be placed on improving nursing and physician education, administration and information technology.

For us, this partnership provides an exciting new opportunity to gain international experience, share knowledge with others, and develop systems that we need to benefit both UHN and Kuwait. The relationship will also offer significant support to UHN so that we continue to invest in innovative approaches to care that will benefit our patients.



Clinical Programs



Surgical Oncology

Jonathan Irish, Program Head

Overview

With 57 surgical oncologists practicing across our hospital sites, we offer the most comprehensive surgical cancer care in the province, with the broadest scope of surgical oncology services. Approximately 80% of patients require surgical services during their cancer care.

In 2010, we completed implementation of the prostate cancer and gynaecologic cancer robotic programs. Robotic surgery has evolved as a minimally invasive technique aimed at improving clinical outcomes, as it has the potential to minimize human error, allow a broader range of instrument movement, and facilitate 3D imaging during surgery. As the technology evolves and increasing numbers of surgical specialties incorporate robotics into practice, there is a growing need for surgeons to become adept in robotic surgery; our educational fellowship programs in prostate and gynaecologic cancers are now offering trainees the opportunity to gain exposure to this technique, which marks a shift in the way in which surgical oncology services will increasingly be delivered.

We implemented our Peritoneal Membrane Malignancy Program in 2010, and completed our first Hyperthermic Intraperitoneal Chemotherapy (HIPEC) surgical

procedures. Peritoneal membrane malignancy is the expression of a spectrum of diseases involving the peritoneum, either primary or secondary to gastrointestinal and gynaecological tumours. Aggressive cytoreductive surgery with hyperthermic intraperitoneal chemotherapy has been shown to improve survival and is a promising step forward in the management of these cancers.

Another key initiative in 2010 has been our development of the guided therapeutics GTx-surgery program, with transfer of our GTx-Lab to the MaRS Discovery District, and completion of a tender process for construction of TRIGOR-A operating rooms at the Toronto General Hospital. Additionally, we opened the Menkes Family Interventional Thoracic Surgery Suite. Growth in GTx will support the application of new technologies in cancer surgery, including novel imaging technology like biophotonics, and novel interventional therapeutics like robotics, merged with minimal intervention surgical techniques, facilitating our continued innovation and leadership in leading edge surgical oncology services.



Clinical Services

- **Robotic surgery** for prostate and gynaecologic cancers
- Multidisciplinary clinic for **Peritoneal Membrane Malignancy and Cholangiocarcinoma**
- First **HIPEC** surgical procedures
- **Digital intraoral and panoramic radiology program** for dentistry
- Lung Rapid Assessment and Management Program (**LungRAMP**)
- Toronto Central LHIN **Quality Improvement Events** in prostate and colorectal cancers

Research and Innovation

- **Intra-operative cone beam CT scan** imaging clinical trial
- **GTx-Surgery Program**
- **Radioguided seed localization** for intraoperative localization of non-palpable breast cancers
- Comprehensive **biobank** for GU tumours

Education

- 51 post-residency fellows
- Continuing education programs:
 - General Surgical Oncology Update
 - Breast Cancer Symposium
 - Colorectal Surgical Oncology Symposium and General Surgery Update
 - 39th Annual Thoracic Surgery Update
 - Current Concepts in the Management of Thyroid Cancer
 - World Congress on Thyroid Disease-Toronto
 - Wharton Head and Neck Annual Research Day
 - Annual Update in collaboration with MD Anderson and Memorial Sloan Kettering
 - UroOncology Update, UofT Urology Update
 - Management of the Dental Oncology Patient: Faculty of Dentistry, University of Toronto
 - Management of the dental oncology patient: University of the Western Cape, Cape Town S. Africa
 - Toronto Central District Dental Society - The Cancer Patient -Considerations for Safe Dental Care



Medical and Haematologic Oncology

Malcolm Moore, Program Head

Overview

Medical Oncology and Haematology includes 53 medical oncologists and haematologists, 12 general practitioners and internists, and 30 clinical fellows. We provide care and conduct research into all types of malignant disease, with a particular focus on complex cancer care and new therapeutics development. Our systemic therapy program is the exclusive provider of stem cell transplants (both allogeneic and autologous) and acute leukemia treatment in the Greater Toronto Area. We expanded our systemic therapy unit in 2010 from 11,000 to 22,000 square feet, to accommodate larger patient volumes.

Our Phase I clinical trial program is the largest of its kind in Canada and has been rated by sponsors as one of the top such programs worldwide. It is supported by the National Cancer Institutes of the United States and Canada, as well as many pharmaceutical partners, and has a portfolio of trials to evaluate some of the most sought after novel anti-cancer agents. In collaboration with the Ontario Institute for Cancer Research (OICR) and the UHN Advanced Molecular Diagnostic Laboratory, our Phase I Program launched a feasibility study to rapidly perform genomic sequencing of patients' tumours and to utilize

such genomic results towards personalized cancer care. This effort will also be supported by a Cancer Care Ontario (CCO) Advanced Cancer Research Unit grant to evaluate personalized medicine at the Princess Margaret.

Our allogeneic stem cell transplant (SCT) program is a regional resource; it is the largest in Canada and has recently been accredited by FACT, the international body that sets standards for the practice of SCT. This will allow us to continue to perform unrelated donor transplantation, as well as to introduce new technologies that will increase the number of patients eligible for the procedure and further improve access for Ontario patients. We have developed the SCT telemedicine program, which allows subspecialty care to be delivered to Northern Ontario.

To support our research and treatment of multiple myeloma, the new Bloom Chair for Myeloma Research has been awarded to Dr. Donna Reece.

We have developed formal partnerships with a number of the GTA hospitals delivering systemic oncology services, and have eight team members who are jointly appointed at the Princess Margaret and another centre within the GTA.

Clinical Services

- **FACT accreditation** of allogeneic stem cell transplant (SCT) program ▶ unrelated donor transplantation and introduction of new technologies to improve access
- **SCT telemedicine program** allowing delivery of subspecialty care to remote regions
- **Formal partnerships with GTA hospitals** delivering systemic oncology services ▶ eight joint appointments
- Partnership with Department of Nursing to develop **After Cancer Treatment Transition (ACTT) Clinic**

Research and Innovation

- Over 20% of patients enrolled in therapeutic **clinical trials**
- **Phase I evaluation** of some of the most sought after novel anti-cancer agents
- Phase I feasibility study to rapidly perform **genomic sequencing** of tumours ▶ personalized cancer care (CCO Advanced Cancer Research Unit grant)
- Creation of **Bloom Chair for Myeloma Research** ▶ awarded to Dr. Donna Reece
- **CCO Research Chairs** awarded to Dr. Geoff Liu and Dr. Lillian Siu
- **Research Innovation of the Year** award to Dr. Frances Shepherd and colleagues

Education

- 36 fellows
- 22 PGY4 & PGY5 Med Onc & Haematology residents
- 8-9 PGY1-3 residents per month
- 10 elective students

- Annual Drug Development Program Retreat
- Annual University of Toronto Research Day
- Annual DDP phase II conference
- Annual research rotation month for residents (January)



Radiation Medicine Program

Mary Gospodarowicz, Program Head
Padraig Warde, Deputy Program Head

Overview

A large, multiprofessional program with 36 radiation oncologists, 30 physicists, and 160 radiation therapists, the Radiation Medicine Program (RMP) saw over 8,000 patients in consultation and delivered over 9,600 courses of radiation therapy in 2010. RMP continues to expand access to image-guided radiation therapy, with all 16 linear accelerators now equipped with this technology.

One of the key initiatives in 2010 was the establishment of a multidisciplinary brain metastasis clinic. The team of radiation oncologists, neurosurgeons, neuro-oncologists, radiation therapists and nurses works to optimize treatment strategies and test experimental therapies through clinical trials. This novel approach is designed to provide patient-centred care in a timely and supportive manner, offering patients access to cross-disciplinary consultation. Advances in radiation therapy and neurosurgical techniques have made it possible to focus more aggressive treatment on multiple well-defined lesions, offering the possibility of better control of brain metastases, improved neurological functioning and quality of life, as well as longer survival. Clinic team members hold weekly debrief sessions to ensure seamless, multi-professional care delivery. 204 new patients and 314 follow up patients were seen in the clinic in 2010.

Southlake Regional Cancer Centre in Newmarket has one of 13 programs in Ontario that provide radiation treatment; the Stronach Regional Cancer Centre at Southlake officially opened in 2010, after a three-year collaboration with RMP to plan and develop its services. The centre will provide cancer patients from York Region and south Simcoe County with access to advanced cancer diagnostics, radiation treatment, and follow-up care. The new program opened with Image Guided Radiation Therapy, and RMP offers mentoring and support in the application of precision radiation therapy techniques. RMP and Southlake have a combined physics program and cross appointments. Dr. Woodrow Wells has been appointed as the Head of Radiation Oncology at Southlake, and will remain on active staff in RMP.

As part of our commitment to continuing education, RMP supported a University of Toronto Department of Radiation Oncology (UTDRO) and Cancer Care Ontario event called “IMRT Insights: Transforming Practice through Collaboration”. With over 190 attendees, the program addressed key issues in the implementation and adoption of IMRT and other new technologies, as well as interprofessional issues associated with adoption of IMRT, and evaluated the state of evidence for IMRT. The event recognized the importance of multidisciplinary collaboration in the continuing development of radiation oncology. The “RTi3” (Inspire, Inquire, Innovate) conference highlighted the importance of evidence to inform and stimulate clinical practice. This annual conference, which has been held for the past 7 years, has become the premiere scientific meeting for radiation therapists in Canada. In 2010, the conference had its largest registration to date, making it the most successful session since the event’s inception.

As part of the Accelerated Education Program (AEP), we hosted several IMRT and IGRT Education Courses. Since 2005, our expert faculty have been educating radiation medicine professionals from around the globe. The IGRT and IMRT Education Courses in 2010 welcomed international audiences to this executive-style interactive program. Employing a series of lectures, hands-on exercises and practical demonstrations, the program conveys the principles of high quality, interdisciplinary practice and illustrates strategies to build such a culture in their home centres. More than 100 oncologists, physicists and therapists from around the world participated in our IGRT or IMRT Education Courses this past year.

Clinical Services

- Automated treatment planning and delivery of **same-day tangential treatment fields for breast patients**
- **MRI guided prostate cancer HDR brachytherapy program** for improved tumour localization and avoidance of treatment of normal tissues
- New interventional MR guided treatment planning simulation (**MRiSim**)
- **Accelerated Intensity Modulated Radiation Therapy** to improve precision of treatment
- **MR guided radiation therapy treatment suite**
- **Cardiac sparing breast IMRT**
- **Multidisciplinary brain metastasis clinic**

Research and Innovation

- **Volumetric modulated arc therapy**
- MR Guided Radiation Therapy (**MRgRT**)
- MRinterventional Simulation Program (**iMRSim**) expansion
- **Clinical specialist roles** in radiation therapy – palliative radiation oncology program (PROP); target segmentation; breast RT planning

Education

- 24 fellows
- 25 residents
- 15 Radiation Medicine Science BSc students
- **RTi3 Conference** in radiation therapy skill building and knowledge sharing
- **Target Insight** event on IMRT





Psychosocial Oncology And Palliative Care

Gary Rodin, Program Head

Overview

Psychosocial Oncology and Palliative Care (POPC) is a multidisciplinary program with 9 palliative oncology physicians, 7 psychiatrists and 4 psychologists. We are a leading centre of early and integrated psychosocial and palliative care, and provide care to patients with cancer and to their families at all stages of their journey. Approximately 2,500 new patients are seen annually in daily outpatient psychosocial oncology and palliative care clinics, and psychosocial staff is integrated into each of the disease site-based cancer teams. In addition, more than 400 patients are treated annually in a 12-bed acute palliative care unit and a 10-bed longer-stay residential hospice is now under construction, in partnership with the Kensington Health Centre.

We have implemented a computerized, touch-screen Distress Assessment and Response Tool (DART) to enhance the detection of physical and emotional distress in cancer

patients. This innovative tool employs standardized and validated measures of physical distress, anxiety, depression and social difficulty and provides easy-to-read print-outs for the patients and for the oncology team to draw attention to areas of difficulty or distress for patients. DART screening is intended to facilitate conversations between clinicians and patients, to enhance relief of physical and emotional distress and to identify patients who would benefit from referral to the specialized psychosocial oncology or palliative care services.

Based on longitudinal research identifying the burden of disease and the predictors of distress in patients with metastatic cancer, we have developed a novel psychotherapeutic intervention called Managing Cancer and Living Meaningfully (CALM). This is a brief, manualized intervention delivered by trained staff and designed to assist patients with advanced disease and their partners to manage the practical and profound problems associated with this condition. The effectiveness of CALM is now being examined in a large, randomized controlled trial funded by the Canadian Institutes of Health Research (CIHR).

Appropriate early palliative care and advance care planning has been expanded. Palliative care clinics now take place daily and we plan to consolidate the palliative clinics into a single palliative and supportive care clinic. The effectiveness of such early team palliative care interventions is being examined by Dr. Camilla Zimmermann.

In June, 2010, the Al Hertz Centre for Supportive and Palliative Care was unveiled at the Princess Margaret. The focus of the centre is research and education in palliative and supportive care, which enhances our capacity to support patients and families facing advanced disease and the end of life. The Centre is expected to be transformative at the local, regional and international levels, and underscores our commitment to ensuring that patients receive comprehensive, innovative and compassionate treatment and support.

Clinical Services

- Kensington Hospice established
- Distress Assessment and Response Tool (DART) implemented
- Healing Beyond the Body Volunteer Support Program expanded
- Ambulatory palliative care services expanded for enhanced early palliative care
- **Al Hertz Centre for Supportive and Palliative Care** launched

Research and Innovation

- Novel psychotherapeutic intervention - Managing Cancer and Living Meaningfully (CALM)
- **Predictors of distress** in women completing adjuvant treatment for early breast cancer
- The **role of the oncologist** in palliative care: maintaining the will to live of patients with advanced cancer
- **Predictors of symptom severity and response** in patients with metastatic cancer

Education

- 11 fellows
- 34 residents
- 17 graduate students (medicine, social work)
- 4 other undergraduate students

- Masters and doctoral training programs in **research in palliative and supportive care** through the Institute of Life Course and Aging, University of Toronto





Oncology Nursing

Barbara Fitzgerald, Director

Overview

With over 500 registered nurses, Oncology Nursing has been working to ensure that nurses are working to their full scope of practice and impacting access, wait times, quality, and safety, as the organization works to redesign its ambulatory care program.

In collaboration with the de Souza Institute, we initiated a pilot research study to evaluate how an educational program on the solid tumour inpatient unit would impact nursing practice, skills and competencies, health services systems performance, and most importantly, patient

outcomes. Data from this pilot study will be used as a foundation to launch multi-site nursing education studies across the province. This exciting initiative signals the beginning of an increased emphasis on standard oncology nursing education and professional development to support the delivery of top quality service to our patients.

To further the transformation of patient care, we initiated innovative disease site interprofessional teams with co-site leadership roles for nurses in our gynaecologic and gastrointestinal disease site groups, as a component of the Princess Margaret's ambulatory care redesign initiative. This pilot has been a first step in the development and implementation of a new model of care in our ambulatory clinics that is aimed at addressing increasing cancer patient volume and complexity issues, as well as health human resource challenges. Nursing roles and responsibilities will be transformed through this new model to empower nurses to be full partners in service delivery. Nurses will be disease site specialized and will have the opportunity to engage in collaborative practices. Advanced Practice Nursing roles will be planned and utilized based on improving access, wait times, safety, and quality. This exciting new direction in oncology nursing is a key development in the way in which we deliver cancer care.

Clinical trials nursing is an essential component of our program at the Princess Margaret. To increase nursing engagement in clinical research quality, a collaborative initiative was undertaken with our Cancer Clinical Research Unit (CCRU), which led to the alignment of nursing leadership resources to implement and manage clinical trials processes that impact on quality improvement initiatives. These initiatives will ensure best practice standards for both nursing and clinical research across our cancer program.

Summary of Princess Margaret nurses participating in de Souza education and research activities (December 2010)



de Souza Programs	Princess Margaret Nurses
Oncology Certification Study Group	78
Palliative Care Certification Study Group	5
Chemotherapy	42
Psychosocial Train the Trainer	17
Genetic Train the Trainer	11
Graduate Fellowship	15
Patient Navigation	7
Interprofessional psychosocial oncology distance education (IPODE)	7
de Souza Unit pilot (PMH 17A/B)	40
Other courses (pain, critical appraisal)	2
Total	224
Total number of unique nurses	177

Clinical Services

- **Disease site interprofessional teams** in ambulatory care setting
 - New nursing leadership role (co-site leadership)
 - Disease site aligned nurses
 - Collaborative practices
- After Cancer Treatment Transition (**ACTT**) clinic collaboration with Women's College Hospital
- Nurse practitioner-led models of care and standards in **acute care management** (REACH and Radiation Nursing Clinic)

Research and Innovation

- “Integration of a **Disease Self-Management Approach** in the Cancer System to Optimize Health and Living with Cancer: A Road Map for Implementation” (CIHR Partnership for Health System Improvement grant)
- Pilot research study on solid tumour inpatient unit (17A/B) in collaboration with de Souza Institute to evaluate impact of an **in-depth nursing educational program** on nursing practice, skills and competencies, health services systems performance, and patient outcomes

De Souza Institute (Dr. Mary Jane Esplen)

- **eLearning** for all de Souza courses
- de Souza **website, Twitter, blog and Facebook** sites to attract a new demographic of nurses
- **Expanded curriculum topic areas** with a broader reach to nurses across the province: Paediatric Oncology Certification Study Group; Health Informatics; Foundations in Oncology Nursing (101); Sexual Health (IPODE); Leadership in Oncology Nursing; Critical Appraisal and Patient Communication (existing study areas: Pain, Chemotherapy, Psychosocial Oncology, Patient Navigation and Oncology/Hospice Palliative Care)
- “**de Souza Nurse**” designation
- Systematic evaluation of **clinical impact** of a de Souza Nurse equipped unit
- **Postgraduate diploma** program in oncology pilot (collaboration with University of Windsor)

Education

- 10 graduate students
- 100 undergraduate nursing students
- 4 other undergraduate students
- **Foundational Oncology Nursing Education** for nurses (now includes 10 modules)



Medical Imaging

Patrice Bret, Program Head

Martin O'Malley, Site Director

Overview

The Joint Department of Medical Imaging encompasses five hospitals, including the Princess Margaret, Toronto General, Toronto Western, Mount Sinai and Women's College. Its clinical, research and educational programs are spread across these sites in an integrated fashion. The clinical priority at the Princess Margaret is to provide and maintain appropriate access for our patients to the full spectrum of oncology imaging and intervention, including General Radiography, Mammography, Nuclear Medicine, Ultrasound, CT, and MRI.

We have initiated a joint venture with the Centre for Probe Development and Commercialization, "CanProbe", to secure funding for a facility to: produce PET probes; support a cyclotron-radiochemistry laboratory; and develop a molecular imaging program. This venture is supported with both federal and provincial funding. Molecular imaging continues to transition increasingly from the anatomic to functional level, to facilitate imaging of biochemical processes at the cellular level; this includes MRI, PET, spectroscopy, etc.

Dr. Nathalie Duschesne, Head of Breast Imaging, has been leading the implementation of new technologies to strengthen our breast cancer diagnostics. With the support of the Princess Margaret Hospital Foundation, we now have three new breast mammography systems equipped with tomosynthesis, a breakthrough technology poised to revolutionize how breast cancer is detected.

We also implemented new ultrasound supersonics machines for breast, which offer high spatial resolution for differentiating indeterminate lesions. The use of these new systems is associated with increased specificity and fewer benign biopsies, improving our ability to detect cancer and deliver increasingly patient-centred care. We worked with our Breast Group to study the effect of breast MRI on local recurrence after breast conserving surgery and radiation. The Princess Margaret is one of the first centres to conduct this research. In addition, the use of Automated Whole Breast Ultrasound (AWBUs) with mammography has been associated with improved accuracy of breast cancer detection, and increased confidence in call-backs for dense-breasted women. AWBUs can detect lesions as small as 1cm that are undetected by mammography alone. We have initiated a link to a multicenter trial looking at the impact of AWBUs on breast cancer diagnostics.



Clinical Services

- New **ultrasound supersonics** in breast imaging
- Breast mammography with **tomosynthesis**
- **MRI-guided breast biopsy**
- Provincial **MRI Process Improvement Project** in support of improved access to MRI services completed
- **Interventional Radiology** transformation - two new interventional suites; staff engagement project; new processes for managing add-on requests

Research and Innovation

- **\$2,000,000** in industry funded clinical trials support to promote translational research
- **CanProbe** Centre for Probe Development and Commercialization
- Three **multicenter trials** in Core Imaging Lab services
- Link to automated whole breast ultrasound (**AWBUs**) in a multicenter trial
- **Effects of breast MRI on local recurrence** after conserving surgery and radiation

Education

- 35 fellows
- 35 residents
- 10 research fellows
- 4 graduate students
- 56 medical students

- **Organ Imaging** Review Course
- Advanced **Imaging Education** Centre
- **Research 101 Workshops** for Trainees, Physicians and Allied Health staff
- **Manuscript Preparation** Workshop for Trainees



Laboratory Medicine

Sylvia Asa, Program Head

Overview

With over 425 staff, including 60 medical and scientific staff, Laboratory Medicine is the largest diagnostic laboratory in Canada and one of the largest academic laboratories in the world. Every patient in the UHN is impacted by the tests performed in our program. We provide medical leadership to several other hospital laboratories in Ontario, including Lakeridge Health and Sault Ste. Marie Hospitals, as well as clinical service to more than 150 hospitals in Canada.

We have now established the first ever global Centre of Excellence in digital pathology - GE PICOE (Pathology and Imaging Centre of Excellence) – a collaboration between UHN, GE Canada, Ontario Institute for Cancer Research (OICR) and the Health Technology Exchange (HTX). This project serves as the next generation of telepathology and will play a central role in the transformation of digitalized

slide readings, improving speed and enhancing patient safety and care.

Our pathologists are part of Best Doctors Canada, which connects seriously ill Canadians and their treating physicians with world-renowned specialists to confirm the right diagnosis and the right treatment options. Our program was listed in the Top Four international cancer pathology programs by Best Doctors. Through this initiative, any pathology involved in a patient's diagnosis is retested at a Centre of Excellence – including ours – using the latest technologies and best practices.

We have invested in personalized medicine and multiple biomarker testing, such as *k-ras* and EGFR testing, allowing physicians to better predict the most effective and responsive therapy for each patient. By looking at an individual patient's genome, treatments and diagnoses can be applied more rationally to improve outcomes, decrease toxicity and increase the overall effectiveness of treatment and patient care.

Clinical Services

- **Improved turnaround time** for creatinine and complete blood count (CBC) – less than 60 minutes for CBC and less than 70 minutes for creatinine during peak patient hours
- Phase two of **discrete synoptic pathology reports** initiative for Cancer Care Ontario to standardize and improve pathology data extraction and analysis ► data will be used for automated stage capture, tumour registration and other pathology indicators
- **Rapid on-site evaluation (ROSE) of cytologic material** to improve utility, accuracy and cost-effectiveness of routine diagnostic procedures using fine needle aspiration (FNA) ► immediate assessments reported directly to endoscopist
- **Cytolopathology Ultrasound** – FNA biopsies using ultrasound for initial assessment of a mass and if necessary for accurate placement of the needle that will take the sample ► more informative samples, fewer repeat biopsies
- Deploying **electronic tools and infrastructure** to implement and transmit, in real-time, CCO-mandated synoptic checklists
- **Best Doctors Canada** Centre of Excellence
- **Joint Department Head** of Anatomic Pathology for UHN and Sunnybrook

Research and Innovation

- CellaVision digital blood film imaging for efficient blood cell analysis ► quality of morphology; confirmed med-tech proficiency
- New markers within molecular diagnostics (*k-ras* and EGFR testing)
- Multi-jurisdictional telepathology project for sustainable and scaleable digital pathology network across Ontario, Manitoba and Newfoundland (collaboration with Canada Health Infoway)
- Global Centre of Excellence in digital pathology - **GE PICOE** (Pathology and Imaging Centre of Excellence)

Education

- 43 residents
- 22 clinical fellows
- 2 general surgical oncology fellows
- 6 research fellows
- 2 medical students
- 17 electives
- Clinical placement/training for 6 **MLT** students (Michener Institute, UOIT)
- Clinical placement/training for 6 **MLA** student (Centennial and St. Lawrence College)
- Monthly **cytopathology education sessions** for senior endocrinology residents and fellows ► ultrasound scanning of the thyroid, perform aspirates, and immediate cytology review
- **Ultrasound biopsy technique** training in South Africa and Kenya

Disease Groups

Breast

Lead: David McCready

In collaboration with the University of Toronto and the Perioperative Interactive Education (PIE) program, Dr. Tulin Cil has led a group that has developed a unique educational tool – a 9-minute computer animation to highlight anatomical and surgical aspects that are important in teaching and learning axillary lymph node dissection. This is being used in the training of future surgeons and may be adapted for patient education as well (<http://pie.med.utoronto.ca/ALND/index.htm>).

The basic and translational scientists in the breast pathology group, led by Dr. Naomi Miller, have been examining early events in BRCA1 tumorigenesis, the molecular basis behind invasion of ductal carcinoma in situ (DCIS), and the characterisation of early molecular events in metastasis. They are also validating a cellular senescence signature in non-tumoural epithelium as a prognostic biomarker in invasive breast cancer. Dr. Michael Reedijk's team has shown that activation of the “Notch” signal transduction system results in breast cancer progression through up-regulation of the plasminogen activator system, directly linking these two poor prognosis pathways. Working with Dr. Peter Lovrics from Hamilton, the group has demonstrated the clinical utility of a novel surgical technique called radioguided seed localization, which allows precise intra-operative localization of non-palpable breast cancers. Over 1,000 patients have participated in another translational study that uses fine needle aspiration and DNA microarrays to determine genetic changes in cancer cells. These patients will be followed to see if specific genetic patterns of cancer can predict response to specific treatments and prognosis. It is one of the largest cohort studies of its kind.

Dr. Tony Fyles has developed a rapid automated treatment planning process that significantly decreases wait times. This new process has also spawned the development of a heart sparing radiation protocol. The program has implemented weekly Quality Assurance (QA) for all radiation treatment plans, resulting in improved treatment delivery and strengthened interprofessional team functioning. The group has also demonstrated equivalent outcomes for hypofractionated radiation for early breast cancer and DCIS, which has led to widespread adoption of shorter radiation times around the world.

Central Nervous System (CNS)/Eye

Lead: Normand Laperriere

The CNS/Eye Group is evolving state of the art treatment for patients with primary and metastatic cancer of the brain, spinal cord, eye, and orbits, in collaboration with our neurosurgical colleagues at the Krembil Neuroscience Program (KNP). Our unique Ocular Oncology and Radiosurgery programs are a provincial/national resource for our colleagues at other centres.

We have opened a clinical trial of nilotinib for the medical management of acoustic neuromas, a condition for which there is no effective drug available currently. We have implemented integration of Volumetric Modulated Arc Therapy (VMAT) into our Stereotactic Body Radiation Therapy (SBRT) Spine Program. VMAT represents a technology that has a major role in spine SBRT treatments, as these fractions typically require 45-60 minutes to deliver, and now approximately half the time is required.

This not only translates into a better patient experience, but one less cone-beam CT (CBCT), as the need for an intra-fraction CBCT was incorporated to overcome positional drift known to occur after 30-40 minutes of being immobilized. Single-arc VMAT is associated with improved target uniformity and normal tissue sparing compared to conventional plans for SBRT, offering the potential for improved patient outcomes. To further strengthen our SBRT program, we implemented a “Hexapod” robotic couch that allows a full six degrees of freedom positioning correction, to correct translation and rotation. This is a significant technology for improving the accuracy of treatments for small areas to be treated with millimetre precision. The Hexapod, initially implemented for spine SBRT, is being integrated into stereotactic CNS and eye treatments, supporting reductions in margins for inaccuracy and positioning patients as best as possible for high precision radiotherapy.

We expanded our education and training in Ocular Oncology to include rotating retinal fellowships from KNP and St. Michael’s Hospital. Our dedicated Ocular Oncology fellows currently in the adult ocular oncology program will also now gain paediatric experience in retinoblastoma at the Hospital for Sick Children.

Endocrine

Lead: Shereen Ezzat

The Endocrine Group deals with tumours of hormone-secreting cells and tissues. These include two malignancies that are increasing in incidence – thyroid cancer and neuroendocrine carcinomas. Thyroid cancer is increasing in incidence and at a rate comparable to melanoma and affects mainly young women. Optimal management typically involves surgical excision. Traditionally, all patients with this cancer have been treated with adjunctive radioactive iodine; however, the need for this ancillary therapy in low risk patients remains unclear. With support from CIHR, we hosted a one-day workshop on Clinical Trial Design for Well-Differentiated Thyroid Cancer. Participants included representatives from Memorial-Sloan Kettering, MD Anderson, Johns Hopkins, and University of Pennsylvania. This event provided us with an opportunity to share knowledge with our colleagues from other leading centres, reinforcing our role as a top five cancer centre.

We joined efforts with other Ontario cancer centres on a Cancer Care Ontario-sponsored Task Force to examine the potential utility of bringing peptide receptor radiotherapy (PRRT) to Ontario. Expression of somatostatin receptors by neuroendocrine tumors (NETs) of the pancreas and small bowel provides the rationale for the drug therapy that has been proven to ameliorate the symptoms of hormone excess caused by these tumours; however, somatostatin analogues have not proven to be effective in controlling tumour growth and metastasis. The use of somatostatin-labelled radionuclide therapy has been pioneered in Europe as a treatment modality in patients with inoperable or metastatic disease. The most frequently used radionuclides for targeted radiotherapy are indium (^{111}In), yttrium (^{90}Y), and lutetium (^{177}Lu), which differ from one another in terms of emitted particles, particle energy, and tissue penetration. Both the Yttrium and the Lutecium labeled compounds have demonstrated promising activity in NET patients.

Gastrointestinal (GI)

Lead: Eric Chen

The GI Group volunteered to be one of two beta sites for the Princess Margaret's ambulatory care redesign initiative. Innovative models of interprofessional care delivery were tested at the practice level and implemented. This work supports continuing efforts at the Princess Margaret to transform the delivery of patient care.

The combined Mount Sinai Hospital and Princess Margaret GI surgical oncology team was recognized by Colon Cancer Canada for continued achievements in research, treatment and prevention of colorectal cancer.

Dr. Laura Dawson has published several articles on advances in liver cancer radiation therapy, including a comparison of simple and complex liver intensity modulated radiotherapy (IMRT), a study on MRI correlates of intratumoural tissue types in colorectal liver metastases, and advances in imaging for liver cancer radiation therapy.

Dr. Steve Gallinger has been part of a research team which demonstrated that hepatic adenomas are caused by specific genetic mutations in children. The identification of hepatic adenomas in three unrelated children with germline biallelic mismatch repair mutations showed an association between these liver lesions and mutations in a repeat sequence of the HNF1A gene which is susceptible to mutations in subjects with constitutional mismatch repair deficiency. This discovery offers insight into the genesis of this form of cancer and could potentially provide opportunities for genotype-specific therapies.

Genitourinary (GU)

Lead: Charles Catton

Robot-assisted prostatectomy was implemented at UHN in 2010. The *da Vinci* robot, which includes a high resolution camera manipulated through robotic arms, enables surgical oncologists to perform even complex surgery using only 1-2cm incisions. The use of this robot is associated with a reduction in the incidence of positive surgical margins and improved functional outcome, as the system has many safety features designed to reduce human error. Dr. John Trachtenberg has been leading work in the GU Group moving towards minimally invasive prostate ablation therapies such as cryotherapy and high intensity focused ultrasound (HIFU); with maturation of the cryotherapy and HIFU data sets, treatment-specific goals of therapy and a better understanding of side effect profiles, clinicians and patients may be able to increasingly rely on these minimally invasive ablative therapies as a definitive treatment for prostate cancer. Drs. Trachtenberg and Cynthia Ménard have been leading work to establish the role of MRI in identification of intra-prostatic targets for biopsy or treatment.

Dr. Rob Bristow is leading a \$20 million International Cancer Genome Consortium (ICGC) research project, The Canadian Prostate Cancer Genome Network (CPC GENE), that will map the genetic structure of prostate cancer and provide new information that could greatly improve the diagnosis and treatment of the disease. Information about mutations in the DNA sequences of prostate tumours could be used to better detect tumours, determine tumour aggressiveness and identify the best treatment needed to personalize prostate cancer medicine for individual patients. This highly collaborative project will bring together Canadian researchers working in Vancouver, Calgary, Toronto, Kingston and Montreal, with international teams based in the United Kingdom, France and Germany.



Dr. Neil Fleshner's phase III multicenter study, REDEEM (Reduction with Dutasteride of Clinical Progression Events in Expectant Management), showed that in men with early stage prostate cancer on active surveillance, Dutasteride delayed the time to prostate cancer progression, increased the percent of men with no detectable prostate cancer, and improved prostate cancer-associated anxiety. Our new, comprehensive biobank for GU tumours serves as a central repository for high quality biospecimens and supports research activities facilitating discovery of new biomarkers and supports our personalized medicine agenda. Dr. Anthony Joshua has led development of a prostate cancer clinical annotation database to be used in conjunction with the biobank specimens; this will build upon Dr. Trachtenberg's existing prostate database platform.

Other exciting new personalized medicine approaches are being assessed in the Campbell Family Cancer Research Prostate Cancer Program at the Princess Margaret, where patient-derived tissue samples are being accrued prospectively within clinical trials to develop new models of xenografts and to study prostate cancer stem cells. We are also interrogating the genetic heterogeneity of multiple cancer foci within a patient's prostate gland to delineate the lethal clones that need urgent and aggressive treatment to improve outcomes. Our multiple tissue microarrays will allow the complex information from sequencing studies to be distilled into practical biomarker tests. Together, our strong research in genomic and proteomic signatures should drive new tests for our patients to personalize their care to a new level.

Gynaecology

Lead: Stephane Laframboise

The Gynaecology Group volunteered to be one of two beta sites in the Princess Margaret's ambulatory redesign initiative. Innovative models of care delivery were tested, reshaping the way in which we work together to deliver the best possible care to our patients.

Robot-assisted gynaecologic surgery has been successfully implemented at UHN. This has resulted in improved access to minimally invasive surgery for women with gynaecologic cancers.

The expanded Princess Margaret Cancer Survivorship Program addresses the survivorship needs of gynaecologic cancer patients. Dr. Sarah Ferguson led the development of education resources and clinical care programming for the management of side effects of gynaecologic cancer treatment. Patients are offered a survivorship consultation with a cancer specialist to clarify questions about diagnosis and treatment, risk factors, and resources, and information and self-care sessions have been implemented to support patients throughout their journey. We presently have Lymphedema, Function & Mobility and Fatigue Clinics addressing some of the deficits related to gynaecologic cancers. Interventions are also in place to address bone health and healthy weight issues related to breast and gynaecologic cancer and its treatment.

New image-guided brachytherapy for cervix and endometrial cancers was adopted as our standard of care, in order to reduce side effects of treatment for our patients. The key advantage of this technique is the possibility to confirm the dose of radiation to the anatomy of each patient to take into account tumour volume and topography, as well as the position of other organs, thereby improving the ability to target the tumour and reducing risk to other organs. We also developed international consensus guidelines for intensity-modulated radiation therapy (IMRT) treatment of cervical cancer, which has the potential to improve the therapeutic ratio because of its ability to escalate dose to cancer targets while sparing adjacent healthy tissue.

Dr. Amit Oza played a key leadership role in incorporating targeted therapies in gynaecologic malignancies. He has been the chair on a multicenter phase II clinical trial looking at the role of ridaforolimus (an investigational mammalian target of rapamycin inhibitor) in treating patients with recurrent metastatic and/or locally advanced endometrial cancer; data presented at the 13th Biennial Meeting of the International Gynaecologic Cancer Society held in Prague, Czech Republic in 2010 showed that patients with metastatic or recurrent endometrial cancer demonstrated a nearly doubled progression-free survival (PFS) rate with oral ridaforolimus treatment.

Head and Neck

Lead: Brian O'Sullivan

In 2010, the PET PREVENT study, led by Dr. John Waldron, completed accrual of 399 patients at four Ontario cancer centres. This prospective cohort study aims to determine the sensitivity of PET imaging in detecting metastatic cancer in neck lymph nodes of patients with squamous cell head and neck cancer managed with primary radiation therapy. The Head and Neck Group led the design and execution of this study and led accrual with 57% of all patients enrolled. Analysis has revealed practice changing conclusions that will be presented at the American Society of Clinical Oncology (ASCO) 2011 meeting by Dr. Waldron.

We published the world's first description of the atypical behaviour of HPV-related oropharynx cancer compared to traditional cancers, as well as a landmark multicentre study that showed the critical impact of radiotherapy protocol compliance and quality in the treatment of advanced head and neck cancer.

Our radiation medicine team produced a mature description of the head and neck anthology of outcomes, which has accrued approximately 5,000 patients since 2003, with prospectively acquired outcome assessment at point of care. This was documented in the literature and at international meetings, and has provided the correlative clinical data to accompany biospecimen acquisition in a very successful translational program.

The creation of a large oral cancer database describing our surgical group's extensive experience in the treatment of oral cancer has been a major clinical outcomes research initiative led by Dr. David Goldstein, and complements the Department of Radiation Oncology Anthology of Outcomes Program led by Dr. Brian O'Sullivan.

We have been very active in CME events, including leadership in the "Current Concepts in Head and Neck Surgery" course, which is co-led with MD Anderson and Memorial Sloan Kettering. "Practical Head and Neck Imaging" has been offered in conjunction with the Ontario Association of Radiologists and has been directed by Drs. Eugene Yu and Marc Freeman.

Our mouth-lesion clinic has been firmly established under the leadership of Dr. Karen Burgess, oral pathologist. This program is designed to allow dental healthcare professionals to refer directly to the Princess Margaret, bypassing several steps on the referral route. The program has established a small-volume cone-beam CT service using direct digital technology for assessing areas of suspected osteoradionecrosis and surgical osseous union issues. This results in dramatically-reduced radiation dose, diminishment of metallic artifacts common in medical CT and reduced costs.

Dr. Patrick Gullane was appointed as "Member of the Order of Canada" by the Governor General of Canada for his contributions in the field of head and neck surgery and also for his inspiration to many young surgeons.

Leukemia

Lead: Andre Schuh

The Princess Margaret has one of the largest acute leukemia programs in North America. We have established a new patient assessment program that allows most acute myeloid leukemia (AML) and myelodysplastic syndrome (MDS) patients to be assessed with 24 hours. This patient-centred, innovative program facilitates rapid diagnosis and assessment of this acutely ill population and addresses the increasing demand for services.

Additionally, we are establishing cooperative outreach programs with other hospitals within and beyond the Greater Toronto Area (GTA) to increase capacity for the delivery of services to leukemia patients across the region.

Our allogeneic stem cell transplant (SCT) program has also continued to expand and innovate to meet increasing need over the past year. Notably, the allogeneic SCT program was accredited by FACT, the international body that sets standards for the practice of stem cell transplantation. FACT-accredited organizations voluntarily seek and maintain FACT accreditation through a rigorous process, demonstrating that patient needs are paramount. FACT sets international requirements, and physicians and patients can rely on known standards in FACT-accredited programs.

We have adopted the use of two-way videoconferencing as a modality to provide post transplant follow up to patients residing in Northern Ontario, strengthening our outreach in the province.



Lung

Lead: Andrea Bezjak

A state-of-the-art Interventional Thoracic Surgery Suite (ITSS) has been opened at the Toronto General Hospital (TGH) site, and will be the hub for a new Interventional Thoracic Surgery Program led by Dr. Kazuhiro Yasufuku. A first of its kind in Canada, the ITSS is a hybrid endoscopy/surgical suite capable of general anaesthetic equipped with high-end endoscopy technology. The ITSS provides leading-edge thoracic interventional procedures such as bronchoscopy (white light, auto-fluorescent, narrow band imaging), airway stenting, photodynamic therapy, in-vivo endocytoscopy, and other procedures.

Our translational lung cancer program received grant support for its continued growth this year. The program explores tumour markers, molecular pathology of targeted therapies, and selection of therapy on the basis of molecular targets. The program is led by principal investigators Dr. Ming Tsao, who holds grants from the Ontario Research Fund, Ontario Institute of Cancer Research, Canadian Cancer Society and the Terry Fox Research Institute, Dr. Frances Shepherd, recipient of the Ontario Premier's Summit Award for Research Excellence and the Boehringer Ingelheim Innovation Award for Molecular Profiling of Lung Cancer, and Dr. Geoffrey Liu, Research Chair in Experimental Therapeutics and Population Studies, Cancer Care Ontario.



The lung radiation program leads in the practical application of technological advances to radiation treatment of lung cancer patients, with intensity modulated RT (IMRT) and image-guided RT (IGRT) being the standard of care of all patients treated with high dose thoracic RT in our program. We have been disseminating best practices in high-tech RT to other centres in Ontario, through IGRT and IMRT courses and individuality-tailored visits of radiotherapy teams from other centres. Our SBRT (Stereotactic Body Radiation Therapy) program continues to provide excellent local control, and the integration of VMAT (Volumetric Modulated Arc Therapy) in 2010 has allowed for quicker and more efficient delivery of these high ablative doses of radiation.

Lymphoma

Lead: Michael Crump

During 2010, the Lymphoma Group ran 30 clinical trials, spanning primary therapy trials, novel approaches to relapsed disease and stem cell transplantation, through to phase I and phase II testing of new agents in myeloma and lymphoma. Important first clinical studies included phase I evaluations of a novel inhibitor of AKT and a monoclonal antibody directed at the B cell protein CD20. These studies included important investigator-initiated trials, as well as cooperative group studies at the national and international level.

We welcomed Dr. Roger Tiedemann in 2010, a clinician scientist with a focus on identification of genetic alterations in malignant plasma cells that may be important therapeutic targets for lymphoma treatment.

Dr. Suzanne Kamel-Reid initiated a translational research collaboration evaluating microRNA signatures as a biomarker of treatment outcome in mantle cell lymphoma. Dr. Gil Prive also led a translational research collaboration, studying the development of a small molecule inhibitor of the important transcription factor BCL-6 in aggressive histology lymphomas. Identification of genetic factors associated with the development of specific lymphomas may have the potential to support the development of novel therapeutics designed to target critical pathways for the growth and survival of the malignant cells, based on their genetic makeup.

Melanoma and Skin

Lead: Danny Ghazarian

The Melanoma and Skin Group has moved to a newly-developed and designed outpatient clinic equipped with specialized patient education material. This patient-friendly atmosphere provides an environment amenable to multidisciplinary service delivery, as well as patient education. We have continued to strengthen our molecular diagnostics through BRAF and c-kit gene mutation analysis for melanoma patients, and the Sequenom test for diagnosing genetic mutations in patients' cancers on an individual basis. The Princess Margaret and Memorial Sloan-Kettering began implementing the Sequenom technology in 2010 for identifying the presence or absence of specific genetic mutations, which in turn helps determine which therapies are likely to result in a positive response and should therefore be delivered to a given patient. As molecular targeted therapy is becoming one of the main streams of treatment in many cancers, testing and analyzing melanoma cells for different molecular genetic alterations, including gene mutations, is crucial for initiating appropriate targeted therapy. Currently, melanoma patients with BRAF mutations may respond well to BRAF inhibitors.

We are also establishing other molecular genetic tests, such as FISH (fluorescent in situ hybridization), that will aid the skin pathologist in the differential diagnoses of borderline melanocytic lesions, including Atypical Spitzoid tumours. Such lesions are controversial and can impose a diagnostic challenge.

We have brought synoptic reporting up to date for melanoma, squamous cell carcinoma, and Merkel cell carcinoma. Synoptic pathology reports are documents that include structured information derived from morphology and molecular technologies; standardized data elements are presented as a checklist, facilitating improved completeness and quality of reporting.

We have undertaken significant clinical trials work, including testing of therapies directed against BRAF positive, BRAF negative, and metastatic melanomas. We have also developed tissue microarrays for melanoma, sebaceous carcinoma, and Merkel cell carcinoma. Tissue microarrays are powerful tools for evaluating expression of specific genes in tissue samples; in cancer research, tissue microarrays are used to analyze the frequency of molecular alterations in different tumour types, to evaluate prognostic markers, and to test potential diagnostic markers.

To strengthen our education program, we have established a fellowship in skin oncology, supporting two new fellows in the areas of translational melanoma research and dermatopathology, emphasizing our continuing growth in these key areas of the field.

Sarcoma

Lead: Peter Ferguson

The Sarcoma Group is the largest of its kind in Canada and one of the largest in North America. The past year has seen our Sarcoma clinic move into a new state-of-the-art facility in the Princess Margaret; this new facility enables us to deliver true multidisciplinary care, as the co localization of surgical, radiation and medical oncologists in the same clinic enables instantaneous discussion and consultation, thereby increasing efficiency and rapidity of care delivery to patients.

The Sarcoma Group has been a pilot site for the Cancer Program's Distress Screening and Response Tool (DART). Our patients are screened at registration using this tool to facilitate discussion with clinicians regarding anxiety, depression and other psychosocial stressors. Clinicians can then involve other specialists and allied health personnel to address these issues. Use of this tool allows for a more complete and holistic approach to patient care.

We have completed a clinical study investigating Near-Infrared Spectroscopy as a means of assessing the viability of wounds after resection of soft tissue sarcoma, a novel technology that may result in decreased morbidity for our patients.

Excellence in teaching continues to be a priority, and surgical oncologist Dr. Peter Ferguson was awarded the W.T. Aikins Award, the most prestigious award in undergraduate education at the University of Toronto. One of our trainees, Dr. Kurt Weiss from Pittsburgh, received the award for best clinical paper at the inaugural UofT Division of Orthopaedic Surgery Fellowship Day.



Cancer Clinical Research Unit

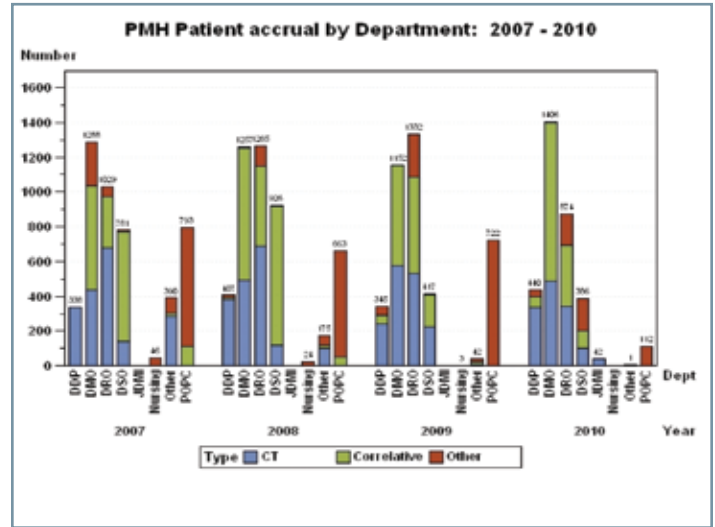
Amit Oza, Medical Director

Overview

Our Cancer Clinical Research Unit (CCRU) provides quality review and oversight to ensure that our clinical trials are managed within a structure that protects the integrity of the trials and the safety of participants. The CCRU includes a Clinical Trials Support Unit, Quality Assurance and Metrics, a Cancer Registry, and a Biostatistics program.

102 clinical research studies were opened in 2010, of which 87 were clinical trials. 3,261 subjects were accrued to clinical research studies, of which 1,310 were accrued onto clinical trials. The schematic above outlines our patient accrual to clinical trials from 2007-2010, by department.

In support of this clinical trials activity, the CCRU undertook a series of initiatives to strengthen quality. We implemented the Medidata Rave database, a high quality, efficient database system. This platform has been selected and installed by NCIC CTG for Phase I, II and III clinical trials. Medidata Rave will provide us with an FDA-compliant database that is auditable, will reduce data entry time, reduce queries and improve timelines.



We secured a \$1M Translational Research Team award (over four years) from the Ontario Institute for Cancer Research (OICR) for high-impact clinical trials translational research. In support of our translational research work, we developed our correlative sciences program in conjunction with our Drug Development Program (DDP) and the Ontario Translational Research network (OTRN) in 2010. Key to implementing personalized medicine is the development of reliable biomarkers that offer information about disease prognoses and treatment response. Multidisciplinary, translational research collaborations facilitate the identification and testing of these biomarkers. Establishment of the correlative sciences program is a critical step forward in this area of research.

Cancer Registry

- **Online staging** application upgraded to the 7th edition of UICC TNM staging for all 2010 cases
- Cancer staging retrieved and documented for over 21,000 records ▶ **>95% completion rate** for staging information
- Recognition from CCO for **highest quality data** of all Ontario cancer centres
- Greenlight system enhancement to allow all **REB approvals** to be electronic, reducing turnover time

Biostatistics

- Selected to mentor two **interns** as part of OICR's High Impact Clinical Trials Program
- **Drug Development Program, Lung Translational Research** and **Hypoxia** Groups supported

Quality Assurance

- **Medidata Rave database** for clinical trials ▶ common data elements, edit checks, custom functions, and SOPs
- Pilot of improved research **source documentation**
- Clinical trial nursing and coordinator **educators**
- Oncology trials **training** program
- **Educational meeting** (140 participants) and eLearning program
- Internal and external **benchmarking** program
- **20 QA reviews** of current trials
- **“Report cards”** for investigators
- **Financial impact assessment** process ▶ invoicing, tracking, and financial management system
- **Correlative sciences program** to support translational research (Translational Team award from OICR)



Ontario Cancer Institute

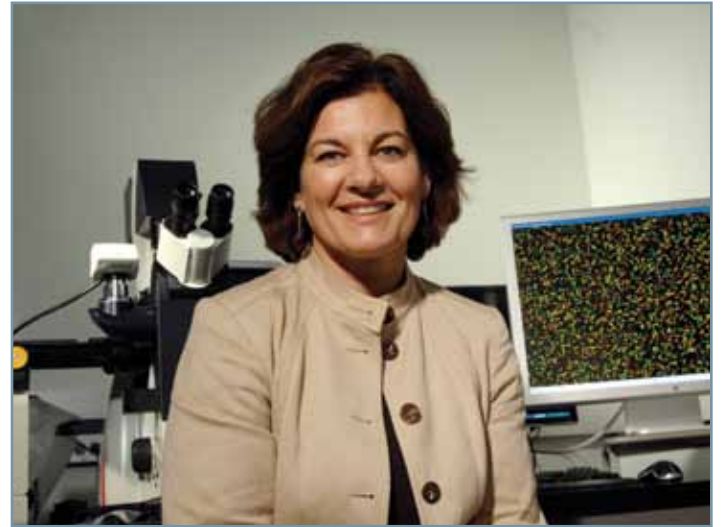
Benjamin Neel, Director

Overview

The Ontario Cancer Institute (OCI) is the research arm of the Princess Margaret. Our team includes 248 researchers, 425 trainees, and 622 research staff. In 2010, we achieved over \$100 million in external funding and produced 735 peer-reviewed publications. Innovation is key to research at OCI and this year, the faculty was active in filing patents (please see “Innovations and Licensing” for examples).

Having a personalized medicine platform was identified as being critical to the success of OCI’s goal of becoming a world leading comprehensive cancer research centre. We have now established a CAP/CLIA-certified Sequenom-based facility for genotyping cancer-associated mutations, and we have entered into a partnership with the Ontario Institute for Cancer Research (OICR) to combine deeper sequencing on the PacBio RS platform with Sequenom-based validation. This work will support the identification of biomarkers for cancer and potential targeted therapeutics.

The Cancer Stem Cell Consortium (CSCC) announced in 2010 that two multi-disciplinary research teams co-led by Canadian and Californian scientists were awarded funding through a Collaborative Partnership Program with The California Institute for Regenerative Medicine (CIRM).



The program supports research that will result in a cancer stem cell based therapy with the specific aim of improving cancer treatment. OCI faculty members Drs. Tak Mak and John Dick are the Canadian leads for the two programs. The first project will focus on the development of novel drugs to treat leukemia; the goal of the second project is to utilize a pipeline strategy to develop novel drugs targeting cancer-initiating cells in solid tumour cancers.

With the largest and most active drug development program in Canada, we are the only site outside of the United States that hosts a Phase I grant and Phase II contract with the US National Cancer Institute (NCI) for adult cancers. We were recently named as a site in the NCI Immunotherapy Network; we are the only Canadian site in this network.

Our scientists were involved in four of the Global Leadership Round in Genomics and Life Sciences (GL2) awards this past year. OCI’s Igor Jurisica and UofT’s Gary Bader were honoured for their project, “Cancer Gene Encyclopedia (CGEP): Computationally Optimized Characterization of Cancer Genes, Proteins, their Structure, Function and Interaction.” Benjamin Neel and Bradley Wouters received the award for “Functional Genomics of Solid Tumours for Discovery and Development of New Biologics and Biomarkers.” Rama Khokha was awarded the GL2 for “Functional Oncogenomics for the Discovery of Cancer Drivers and Unique Subclasses (FOCUS).” OCI’s Gordon Keller, along with UHN’s Peter Liu, were honoured for “Cardiovascular Biomarker Discovery in Disease and Development through Predictive Precision Proteomics (CBD3P3).”

Innovations and Licensing

- **Enhancing Sensitivity to Radiotherapy and Chemotherapy of Head and Neck Cancer:** Identification and regulation of a novel molecular target that plays an essential role in making head and neck tumours more sensitive to radiation and chemotherapy (Dr. F-F. Liu)
- **Combination Therapy using a Clioquinol Analogue and Bortezomib (Velcade) for Treatment of Lymphoid Malignancies:** Combination therapy with potential for a new approach to treat proliferative diseases, such as leukemias including AML, ALL and multiple myeloma (Dr. A. Schimmer)
- **Immunotherapy for Cancer via Vector Mediated Carcinoembryonic Antigen Administration:** Immunotherapies offer great potential for the treatment of cancer, but most require generation of patient-specific cell products; this process could help alleviate this need (Dr. J. Medin)
- **Treating Cancer with Statins and Dipyridamole:** This combination has potential to be efficacious against all cancers (Drs. L. Penn and A. Schimmer)
- **In-Vivo Fiberoptic Probe for Intra-operative Quantification in Tissue:** This is a fiberoptic probe that quantitatively measures fluorescence in tissue for in-vivo surgical applications which compensate for effects of tissue optical property variations (Dr. B. Wilson)
- **Molecular Signatures for Statin Sensitivity in Multiple Myeloma Patients:** There are molecular differences between the sensitive and insensitive Multiple Myeloma cell lines that the researchers have developed into 4-, 5- and 20-gene signatures with high predictive values for statin therapy sensitivity (Dr. L. Penn)

Research Program

- **Dr. Naoto Hirano**, whose research focuses on development of novel cancer immunotherapies using unique engineered dendritic cells, joined OCI
- CAP/CLIA-certified Sequenom-based facility for genotyping cancer-associated mutations to support **personalized genomic medicine**
- OCI scientists involved in four of the **Global Leadership Round in Genomics and Life Sciences (GL2) awards**
- Drs. Tak Mak and John Dick appointed as Canadian leads for two programs awarded funding through the California Institute for Regenerative Medicine (CIRM), aimed at a cancer **stem cell based therapy** for improving cancer treatment

Education

- 216 graduate students
- 217 post-doctoral fellows



Patient Education and Survivorship

Pamela Catton, Program Head

Overview

Patient Education and Survivorship values patient empowerment. We strive to provide patients with the right information at the right time and in the right way, to meet their individual needs. Survivorship is about living, surviving and having the best quality of life possible. Our work in patient education and survivorship aims to offer holistic, patient-centred care and support across the cancer journey.

We have expanded specific clinical elements of our programming from breast cancer to gynaecologic cancers. The Self Management Program targets all cancers and focuses on survivorship issues amenable to self-management in the physical, emotional, spiritual and social domains, from the point of diagnosis to end of life (level one care). There are three major components: a survivorship consultation; a comprehensive self-management program of information, education classes, self-management tools, and support; and self care clinics to deal with chronic side effects of treatment, which include lifestyle classes around healthy eating and exercise. As program elements are developed and implemented, they undergo formal quality improvement evaluation. The

Chemo Questions Class and the Managing Your Cancer Journey were both evaluated, and the Chemo Questions Class has now been implemented as a standard of care.

An exciting new program has been initiated by Dr. Alex Jadad, Canada Research Chair in eHealth Innovation. A team of newcomer youths received specialized training at the Princess Margaret, becoming the foundation for an exciting initiative known as “Roving Navigators” or “Roving Reporters”, which is opening new avenues for cancer survivor support, and for the generation and exchange of new knowledge throughout the institution with the use of iPads. This project was a part of a larger initiative funded by Citizenship and Immigration Canada and called Youth4Health. This \$1.4 million initiative empowered 5,000 Ontario newcomer youth to become “health navigator” resources for their communities (www.youth4health.ca). The project trained enthusiastic young individuals on identifying unmet needs among cancer survivors and services that could meet them, and gave them access to an extended network of peers and state-of-the-art information and communication technologies with which to level the playing field for populations that are underserved in the GTA and Ontario.

Our Survivorship Program has now been linked with breast surgical patients during their preoperative education sessions; this resulted in a 33% increase in survivorship consultations performed (378). There was also a 10% growth in self-care clinic utilization (1,760). The rehabilitation and education needs of breast reconstruction patients are now being met, and two new self-management education sessions were added - *Brain Fog and Healthy Nutrition During Cancer Treatment*.

We have also launched our Electronic Living Laboratory for Interdisciplinary Cancer Survivorship Research (ELLICSR) this past year (please see “2010 Highlights”).

Research and Innovation

- “**Maximizing Your Patient Education Skills Course**” knowledge translation initiative honoured locally, nationally and internationally
- Three CIHR grants in cancer survivorship and a three-year knowledge translation grant to develop **survivorship care plans**
- Project to address **self-management** in the cancer system and to address barriers to widespread implementation (CIHR Health Services grant)
- New **research partnership** with George Brown College Chef School and ELLICSR to help colorectal cancer survivors address late GI side effects through dietary modifications (NSERC grant)
- CHSRF grant in collaboration with CCO to engage patients and public to **improve the cancer journey**

Patient Services

- **Gynaecologic cancer patient education /survivorship program**; Dr. Sarah Ferguson appointed Associate Medical Director
- Personal Self-Management Support Tool, “**My Cancer Journey**” binder adopted cancer program wide
- **Youth4health** program to transform young people into navigators of cancer services empowered by smart mobile technologies
- **Transdisciplinary model of survivorship care** in Lymphedema Clinic
- Staff development tool “**3Ws and an H**” to increase capacity in effective patient education

Education

- 6 graduate students
- 25 research undergraduate students
- 30 other students (RTT, OT, PT, Nursing)

- Two **public forums** - celebration of the opening of ELLICSR; new component of the Princess Margaret Hospital Conference
- “**Maximizing Your Patient Education Skills, Part 1**”

Toronto Regional Cancer Program

Mary Gospodarowicz, Regional Vice- President, Toronto Central LHIN South

Overview

The Toronto Regional Cancer Program (TRCP) has a very high concentration of specialized cancer services, with two major cancer centres (Princess Margaret and the Odette Cancer Centre at Sunnybrook). Fully affiliated with the University of Toronto, we have a large focus on academia in several teaching hospitals, and a highly diverse patient population. The TRCP is divided into North and South Programs. Dr. Linda Rabeneck was the Regional Vice President (RVP) of the North Program and stepped down at the end of 2010 to take on the role of Vice President, Cancer Prevention and Control at Cancer Care Ontario (CCO). Dr. Andy Smith has now been appointed as RVP for the North Program.

In 2010, our TRCP priorities included multidisciplinary cancer conferences (MCCs), colorectal cancer screening, and hepatobiliary (HPB) standards achievement. In addition to these key priorities, the Princess Margaret led or partnered in regional work in the following key areas: **diagnostic assessment programs (DAP)**; a joint **After Cancer Treatment Transition (ACTT) program**; gynaecologic oncology; prostate cancer community of practice; and synoptic reporting.

Princess Margaret radiation oncologists provide support to our partner hospitals to improve access and multidisciplinary planning for patient care by participating in a variety of MCCs at St. Joseph's Health Centre and St. Michael's Hospital (SMH). This participation supports provision of the best possible care to patients in the Toronto Central LHIN. Our radiation oncologists are also now providing inpatient consults and hold multidisciplinary clinics at SMH.

Access to gynaecologic oncology in Ontario is under strain, particularly in the Greater Toronto Area (GTA). A project has been initiated between the Princess Margaret and SMH with the goal of offering gynaecology patients with cancer diagnoses (regardless of first site of presentation)

multidisciplinary assessment, triage and appropriate care by the right physician at the right time. This has enhanced collaboration between providers at both organizations in the triage and management of patients and has improved access for patients to high quality care.

Two prostate cancer community of practice events were led by the Princess Margaret in 2010, with multidisciplinary participation from surgeons, pathologists and radiation oncologists. The first event highlighted: an overview of recent International Society of Urological Pathologists consensus panels; quality of life (QOL) issues for patients undergoing treatment for prostate cancer and; utilization of the UHN prostate database. The second event focused on three main themes: cancer control, QOL, and optimizing strategies in prostate biopsy to identify three main areas for regional improvement. The 2011 event will build on this work to initiate planning for continuous improvement.

Successful implementation of synoptic pathology reporting in TRCP south cancer centres for breast, lung, colorectal, prostate and endometrial cancers has improved the quality and completeness of cancer stage data collection and cancer pathology reporting. This information becomes a part of the Ontario Cancer Registry, supporting cancer system improvement and enhanced quality of patient care.

The TRCP program is organized around the journey of cancer care from prevention and screening through to palliative care.

The TRCP Prevention and Screening Program held a unique and controversial educational event featuring Dr. Linda Rabeneck and Dr. Chris Vinden, who debated the evidence for and against the two main colorectal cancer screening modalities, fecal occult blood test (FOBT) and colonoscopy. The event drew 110 registrants from a variety of disciplines including family medicine, nurse practitioners, specialists and nursing.



The TRCP Palliative Care Program is responsible for the implementation of the symptom screening tool, the Edmonton Symptom Assessment Scale (ESAS). At the Princess Margaret, we have transitioned to the roll out of ESAS entirely through the **DART** program. We doubled our ESAS screening rates through this program.

A proud achievement was the receipt of CCO’s annual “Human Touch Award” for 2010 by the Princess Margaret’s Strachan Bongard, a volunteer in our GI Clinic. This was the first Human Touch Award to be dedicated to a volunteer. The award acknowledged Strachan’s commitment to cancer care through exceptional volunteer work that enhances the quality of life of cancer patients.

Program Delivery

The two TRCP regional cancer centres together form the largest cancer centre in North America; in 09/10, the centres delivered the following:

- 39,430 women were screened through the Ontario Breast Screening Program (OBSP)
- 28,179 ColonCancerCheck Fecal Occult Blood Test (FOBT) kits were processed
- 2,737 colonoscopies were performed as part of the ColonCancerCheck program
- 11,244 index cancer surgeries (not including diagnostic or reconstructive surgeries) were completed
- 11,309 patients received outpatient chemotherapy treatment
- 16,465 courses of radiation treatment were delivered

TRCP Priorities

MCCs

- **85% compliance** with CCO guidelines, with all Cancer Surgery Agreement sites represented and consistent multi-disciplinary participation

Colorectal Cancer Screening

- **Increased screening rates** by ~10%

HPB

- Over 90% of **HPB surgeries** performed in designated centres (UHN/St. Joseph’s)

Volunteer Resources

The more than 450 volunteers at the Princess Margaret are an integral part of our diverse community; made up of adults, students, retirees, foreign-trained professionals, working professionals, and people in career transition, our volunteers contribute to both patient and staff satisfaction by supporting patients, families and staff.

In 2010, the Volunteer Resources (VR) department completed an exhaustive exercise, to revise the VR departmental website with a clearer focus on supporting staff as they support our volunteers. Using the “Caring, Coaching, Connecting” tag line from the VR logo, the site is now divided into three easily navigated sections – each one dedicated to assisting staff in:

- “Connecting” with the VR department to request volunteer support;
- “Coaching” and training volunteers in their roles; and
- “Caring” for volunteers with tips on how to keep them engaged in their activities and integrated into the staff team.

The Healing Beyond the Body (HBB) Volunteer Support Program was expanded in 2010. HBB is a unique program developed by the Department of **Psychosocial Oncology and Palliative Care** (POPC) to select, train and support volunteers to provide information and emotional support to patients and families at all stages of the disease. Help is offered to navigate the medical system and to access information about practical resources, as well as to support patients with cancer and their families. There are currently approximately 150 specially trained HBB volunteers who are fully integrated with the professional support programs of POPC. HBB staff members receive training and ongoing support from full-time social work staff to fulfill their roles and functions. HBB has been implemented in most clinics, treatment areas and inpatient units, as well as in specialized areas throughout the hospital. New initiatives underway in HBB are focusing on volunteer recruitment, role development, diversity, inclusion and access.



Patient Services

- Dedicated volunteer support for the **DART initiative** assisting patients and clinicians in assessing and triaging symptoms of distress
- Expanded **Healing Beyond the Body** volunteer roles to include support for head and neck surgical inpatients
- Expanded **patient support workshops** offered through the Princess Margaret Wig Salon to include instruction in scarf tying techniques as an alternate way to camouflage hair loss

Mentorship

- Partnership with the University of Toronto's Faculty of Medicine to provide a three week **Summer Mentorship Program** for disadvantaged youth who otherwise may not be in a position to consider a career in healthcare

Princess Margaret 2011

The Princess Margaret Cancer Program has enjoyed tremendous support from the University Health Network (UHN), Cancer Care Ontario (CCO), and Princess Margaret Hospital Foundation (PMHF).

We have made progress towards achieving the goals outlined in our strategic plan, and are well poised for further success in 2011. It is expected that the talent and commitment of our staff will lead to continuous innovation in all aspects of the program.

Our departments, disease site groups, and services have well articulated priorities that are aligned with our mission of leading and partnering to deliver top quality care to our patients by translating the science of cancer into practice.

In 2011, we will continue to redesign our ambulatory care program to enhance the patient experience through the delivery of high quality, safe and integrated patient care. We will complete development of the new chemotherapy suite to better meet the needs of our growing volumes of patients in an environment that is responsive to their needs. To address the information needs of our patients, the public, referring physicians and other external stakeholders and partners, we will launch a new website incorporating innovative technologies to support our programs.

Building on work initiated in 2010, we will implement our new service excellence campaign aimed at providing the service experience that we want to create for our patients at the Princess Margaret. We are starting a master planning exercise to align our physical capacity with our strategic plan, and will open our Cancer Clinical Research Unit at 700 University Avenue.

Working with our partners in the region and internationally, including in Kuwait, we will continue to develop innovative systems of care that will benefit our patients, as well as patients in other centres.

We will support the Princess Margaret Hospital Foundation in its challenging activities, including its annual “Ride to Conquer Cancer”, “Weekend to End Women’s Cancers”, and the most exciting new 2011 initiative, “Road Hockey to Conquer Cancer”.

The Princess Margaret is an excellent provincial resource in cancer care and we strive to continue to lead in cancer care, education and research, and innovation.



Appendix A: Princess Margaret Leadership

Clinical Programs

- **Oncology Nursing**
 - Barbara Fitzgerald, Director
- **Surgical Oncology**
 - Jonathan Irish, Department Head
 - Director of Education – Frances Wright
 - Director of Research – Michael Reedijk
 - Director of Operating Room Services – David McCready
- **Medical Oncology - Haematology**
 - Malcolm Moore, Department Head
- **Radiation Medicine**
 - Mary Gospodarowicz, Department Head
 - Deputy Head – Pdraig Warde
 - Head of Physics – David Jaffray
 - Head of Radiation Therapy – Julie Wenz
 - Senior Director of Operations – Faye Montgomery
- **Psychosocial Oncology and Palliative Care**
 - Gary Rodin, Department Head
- **Education**
 - Pamela Catton, Program Head

Administration

- **Vice President**
 - Sarah Downey
- **Program Medical Director**
 - Mary Gospodarowicz
- **Clinical Director, Inpatient and Ambulatory Care**
 - Janice Stewart
- **Director, Cancer Program Planning and Implementation**
 - Roxana Sultan
- **Director, Regional Cancer Program Planning**
 - Martha Wyatt
- **Director, Finance**
 - Michelle Gariepy
- **Director, Human Resources**
 - Deborah Russell
- **Senior Public Affairs Advisor**
 - Jane Finlayson





Princess Margaret Hospital
University Health Network