Princess Margaret Cancer Centre

Annual Report 2013

UHN Princess Margaret Cancer Centre


UHN
Princess
Margaret
Cancer Centre

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A Message From our Leadership

We are delighted to provide the 2013 Annual Report of the Princess Margaret Cancer Centre at University Health Network (UHN). The report profiles activities of our departments, cancer disease groups, and research and education programs. In 2013, we refreshed our strategic plan – World Class Personalized Cancer Medicine – and maintained our emphasis on five core themes: patient care, correlative cancer biology, guided therapeutics, novel therapeutics, outreach and partnerships. Our focus has been on fostering a culture of innovation, integration and collaboration within our programs, while fully engaging our staff.

There were exciting developments at The Princess Margaret over the past year. We leveraged the BILLION DOLLAR CHALLENGE to recruit additional world-renowned researchers and clinicians and keep building "bench strength" in key areas including biobanking, clinical genomics and computational biology.

In 2013, we made significant progress in delivering personalized cancer medicine to our patients, aligned with our vision of being one of the Top 5 Cancer Centres in the World. We continued to transform patient care by launching an Ambulatory Care Strategy designed to enhance the patient experience, by introducing an Adolescent and Young Adults Oncology Program (AYA) to address the particular care needs of this group, and by developing a patient navigation pilot project to enhance care coordination and support the goal of empowering patients as partners in their care.

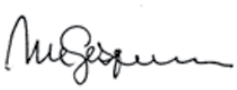
In correlative cancer biology, cancer informatics software continued to provide significant data to support integration of research and clinical activity. A new biospecimen database was launched – caTissueSuite – to give researchers access to a wealth of information on patient tissue samples collected and analyzed in our research labs. In guided therapeutics, the Cyclotron Facility

was built and the Magnetic Resonance Image Guided Radiation Therapy (MRgRT) suite is nearing completion.

In novel therapeutics, there were more advances in personalized cancer medicine in our Cancer Immune Therapy and Cancer Genomics Programs. In education and outreach, The Princess Margaret Phase II Consortium continued to design, develop, and conduct early phase clinical trials. We also expanded our global reach by forming new collaborations with leading cancer centres around the world.

We want to thank all our staff and many volunteers for their tremendous dedication and determination to provide the highest standard of care and support for our patients, and for continually striving for excellence through innovation and collaboration. We especially want to thank The Princess Margaret Cancer Foundation for spectacular partnership and fundraising that has enabled so much of our success. For further details on The Princess Margaret, please visit our website: **www.theprincessmargaret.ca**

Marnie Escaf,
MHA, HBBA
Senior Vice President
Executive Lead
Princess Margaret Cancer Centre



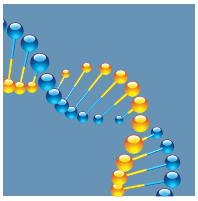
Mary Gospodarowicz,
MD, FRCPC, FRCR (Hon)
Medical Director
Princess Margaret Cancer Centre

Our Strategic Plan

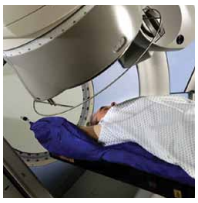
World Class Personalized Cancer Medicine

At the Princess Margaret Cancer Centre, our vision is: "To achieve global impact as one of the top 5 comprehensive cancer programs in the world." In 2012, we launched a five-year strategic plan – World Class Personalized Cancer Medicine. The strategy aligns with those of University Health Network, Cancer Care Ontario, the University of Toronto, and The Princess Margaret Cancer Foundation's "Believe It" campaign for personalized cancer medicine. The Princess Margaret Cancer Centre strategy summarizes its goals across five key strategic themes:

Transform patient care: We will transform patient care by developing new models of inter-professional care, offering support through all the aspects of cancer care, personalizing cancer care and serving unique vulnerable populations, as well as empowering patients to become partners in their care.



Augment correlative cancer biology: We will accelerate implementation of personalized cancer care based on a novel understanding of patient and tumour molecular characteristics, as well as their impact on treatment outcomes, through expanded correlative cancer biology programs.



Accelerate guided therapeutics: We will continue to innovate in guided therapeutics and lead implementation of new and powerful cancer diagnostics and treatments supported by a robust foundation of new informatics including pattern recognition and automation.

“achieve global impact as one of the top 5 cancer centres in the world”

Expand novel therapeutics: We will provide patients with access to leading-edge treatment methods through research and implementation of novel systemic therapeutics, incorporating molecular imaging and genomic signatures and improving outcomes for cancer patients globally.

Drive outreach and education: We will strengthen our impact and reputation, contribute to our communities, improve care and research, and exchange knowledge through global and local collaborations and partnerships, as well as education.

In order to plan for world class personalized cancer medicine, we need to be aware of major trends in healthcare and cancer services, which include:

- Patients as partners in their own care
- New models of inter-professional care
- New targeted therapies
- International collaboration among cancer centres
- Cancer survivorship needs

Our plan takes into account emerging trends in care, research, clinical practice, education, and cancer control. Our plan supports patient-centred care, empowers patients as partners in their care and promises to provide well-documented, best possible outcomes. Delivering on these themes will require planning, focus, attention, integration across our core areas and management of resources. Therefore, to meet these requirements and ensure successful execution of our strategic plan, a strategy stewardship office was launched this year.

Our Program

The Princess Margaret Cancer Centre at UHN in Toronto, Ontario, is the largest comprehensive cancer centre in Canada. Patients receive care at all four UHN hospital sites, but most cancer services are delivered at The Princess Margaret site, 610 University Avenue, which has 2,900 employees, 126 beds and approximately 398,000 square feet of research space. Elsewhere at UHN, the neuro-oncology program is housed at Toronto Western Hospital, surgical oncology is based primarily at Toronto General Hospital, and rehabilitation services are provided at Toronto Rehabilitation Institute.

The Princess Margaret has a team of more than 1,000 researchers, trainees and staff creating new frontiers in molecular imaging, cancer genomics, immune therapy, and tumour and stem cell biology. In 2013, our teams were cited in 1,135 publications and secured approximately $162 million in external funding to support cancer research.

The Princess Margaret offers comprehensive, multidisciplinary cancer care and expertise across the spectrum of cancer services including surgery, radiation, chemotherapy, stem cell transplantation, psychosocial oncology and palliative care, and specialized oncology nursing.

In 2013, there were 3,865 cancer surgeries, 7,000 outpatient chemotherapy treatments, 10,250 courses of radiation treatment, and 364 stem cell transplants, as well as 1,690 patients enrolled in clinical trials.

New patients in 2013

Disease Group		2013
Malignant/In-Situ/ Uncertain Behaviour	Gastrointestinal	1,821
	Breast	1,567
	Genitourinary	1,393
	Gynecology	1,074
	Lung	937
	Leukemia	870
	Head & Neck	812
	Thyroid	564
	Lymphoma	562
	Sarcoma	331
	Central Nervous System	319
	Melanoma	308
	Eye	198
	Myeloma	172
Other		691
Sub Total		11,619
Benign		1,653
Non-Neoplastic		3,680
Total		**16,952**

Data Source: PM Cancer Registry, March 26, 2014.

Benign & Non-Neoplastic seen at The Princess Margaret 2013

Benign Neoplasms	Number of Cases
Breast	381
Eye	269
Other, Benign	235
Central Nervous System	200
Endocrine	181
Gastrointestinal	119
Gynecology	91
Bone & Soft Tissue	67
Genitourinary	51
Head & Neck	39
Thoracic	13
Total	**1,646**

Non-Neoplastic Conditions	Number of Cases
Gastrointestinal	590
Hematology & BMT	570
Breast	438
Genitourinary	436
Eye	397
Other, non-neoplastic	360
Gynecology	213
Endocrine	142
Thoracic	138
Counseling & Screening	136
Central Nervous System	125
Skin	58
Bone & Soft Tissue	42
Total	**3,645**

Many clinical departments and professions are engaged in the delivery of services across all major disease sites, and this report summarizes key achievements from each area.

Clinical Programs

Surgical Oncology

With 65 surgical oncologists, the Princess Margaret Cancer Centre offers the most comprehensive surgical cancer care in Canada. Surgical oncology services include:

- Neuro-Oncology
- Breast Surgical Oncology
- Skin and Melanoma Oncology
- Sarcoma
- Urological Oncology
- Head and Neck Oncology
- Thoracic Oncology
- Hepatobiliary Surgical Oncology
- Colorectal Surgical Oncology
- Gynecologic Surgical Oncology
- Ocular Oncology
- Oncological Reconstruction

80% of patients require surgical services during their cancer care, and we continue to meet the increasing demand for all surgical services while also growing in areas where we provide care to the most complex patients.

Radiation Oncology

The Radiation Medicine Program has one of the largest treatment facilities in the world with four CT Simulators (including PET-CT; SPECT), a dedicated 3T MRI unit on rails to facilitate interventional procedures, 16 linear accelerators equipped for image-guided radiation therapy and enabled for volumetric modulated arc therapy, a Perfexion Gamma Knife for stereotactic cranial radiosurgery, an orthovoltage treatment unit, and a brachytherapy program that includes high dose rate (HDR) and pulse dose rate (PDR) afterloaders. Specialty programs include: Palliative Radiation Oncology; Pediatric Radiation Therapy; Oligometastases; Stereotactic Radiation Therapy; Brachytherapy; and Gamma Knife Radiosurgery. 12% of Radiation Medicine Program patients are enrolled in clinical trials.

Medical Oncology

With an international reputation for novel approaches to research and to clinical care, the Department of Medical Oncology and Hematology is a multidisciplinary, inter-professional team with 50 medical and hematological oncologists and more than 150 practitioners, nurses, trainees and allied health professionals. The team also includes 16 hematologists and a Blood and Marrow Transplant Centre, making it this country's largest centre treating leukemia, lymphoma and myeloma. The division recently redesigned its accredited outpatient Conway Chemotherapy and Transfusion Centre where patients receive treatment in a comfortable setting that meets the highest standards to ensure safety, security and privacy.

Psychosocial Oncology and Palliative Care

The Department of Psychosocial Oncology & Palliative Care (POPC) engages in clinical care, research and education in psychosocial and palliative care in cancer. This integrated program is comprised of professional staff in Social Work, Psychology, Psychiatry, Palliative Care, Nursing, Spiritual Care, Music Therapy, and also volunteers who are specifically trained to provide information and emotional support. Outpatient POPC clinics, which provide care for more than 3,000 patients annually, a 12-bed acute palliative care unit at The Princess Margaret and a 10-bed residential hospice at the Kensington Health Centre, ensure care for patients and families from the time of diagnosis, to survivorship, to end-of-life care and bereavement. POPC is engaged in its study of novel interventions to improve the physical and psychosocial well-being of individuals with cancer.

Oncology Nursing

Registered Nurses at the Princess Margaret Cancer Center are Specialized Oncology Nurses providing patient-centered care to people with common, rare and complex forms of cancer. More than 25% of the 500-plus nurses here also have Oncology or Palliative Care speciality certification from the Canadian Nurses Association. Our nurses engage patients as partners in their care, and work collaboratively with radiation oncologists, medical oncologists, surgical oncologists, psychiatrists, palliative care specialists, social workers, clinical dieticians and other healthcare professionals in all areas of the cancer program.

The Princess Margaret nursing team constantly strives for excellence by ensuring staff are able to work to the full scope of nursing practice and able to have an impact on access, wait times, quality and safety. This means that nurses have a significant role on the healthcare team and also influence and advance nursing practice by contributing to research and education through publications and presentations locally, nationally and internationally.

Cancer Clinical Research Unit

As one of the largest clinical research centres dedicated to improving treatment for people with cancer, the Princess Margaret Cancer Clinical Research Unit (CCRU) is the foundation of oncology trials activity, and provides leadership, oversight and infrastructure for researchers. Every year The Princess Margaret initiates more than 100 new clinical trials – at any one time the program has close to 250 trials open to recruitment. The CCRU is the central point of contact for any questions related to conducting clinical research here. Our team of dedicated experts helps guide investigators and study teams to achieve the highest quality research and to foster innovation in clinical research.

The CCRU moved into a new facility in 2012 and during the past year we have fully utilized this space that brings together clinical research staff to facilitate collaboration, as well as provide space for meetings, monitoring visits, and storage. CCRU prioritizes patient safety while encouraging a culture of innovation, responsibility and accountability in clinical research. CCRU is comprised of multiple departments including Biostatistics, Cancer Registry, Clinical Trials Support Unit, Clinical Research Nursing, Correlatives Study Program, Quality Assurance, and Metrics and Operations. The CCRU champions a culture in clinical research that has staff and managers eager to link and work closely with one another. This culture has been the key to program-wide adoption of standardized processes and increased stakeholder engagement. Collectively, these have enabled the program to reduce time required to open new trials and enhance trial quality, while the volume of new trials and overall trial complexity has continued to increase.

Bras Family New Drug Development Program

The Drug Development Program aims to provide evidence to improve outcomes for cancer patients globally and expand the inpatient drug development service to support the use of novel therapies across the spectrum of care.

Focusing on Phase I and II cancer clinical trials, the program is a leader in the evaluation and implementation of novel cancer agents while also providing the highest quality patient care. Led by clinician-scientists, the Drug Development Program has evaluated the anti-tumour effects of new cancer agents in more than 300 early-phase clinical trials across numerous disease sites, including gynecologic, gastrointestinal, head and neck, breast and prostate cancers, and leukemia. The program, which works closely with the National Cancer Institute, the Cancer Therapeutics Evaluation Program and the National Cancer Institute of Canada Clinical Trials Group (NCIC CTG), has a strong track record of rapidly designing, developing and conducting early-phase trials.

With more than 50 physician scientists, researchers, technicians, nurses, pharmacists, statisticians and specialized support and clinical trials coordination staff, the program works collaboratively with each patient or healthcare team, placing a strong emphasis on applying translational research to the trials program and research approaches. Trials conducted include studies on pharmacokinetics, pharmacodynamics, and correlative studies including genomics, cancer stem cells, pharmacodynamic biomarkers of novel molecularly targeted agents, and tumour xenograft studies from fresh tumour biopsies.

Transforming Patient Care

Adolescent and Young Adults Program

In 2013, the Adolescent and Young Adults Oncology Program (AYA) was launched at The Princess Margaret to address the care needs of this patient group. The focus in the first year was raising awareness about program services and creating AYA education for clinicians. AYA leadership has engaged disease site groups, identified local champions, and completed clinical observations to inform AYA specific care needs. An AYA Clinical Nurse Specialist was recruited, and as part of implementation, partnerships with community programs were developed.

New AYA education and training has been developed on the topics of fertility, sexual health, and health and community resources. Next, the AYA Program is investigating multiple research studies, including patient and provider satisfaction, designing an AYA mobile app, assessing the impact of distress on well-being, and measuring fertility outcomes.

Navigation Pilot Project

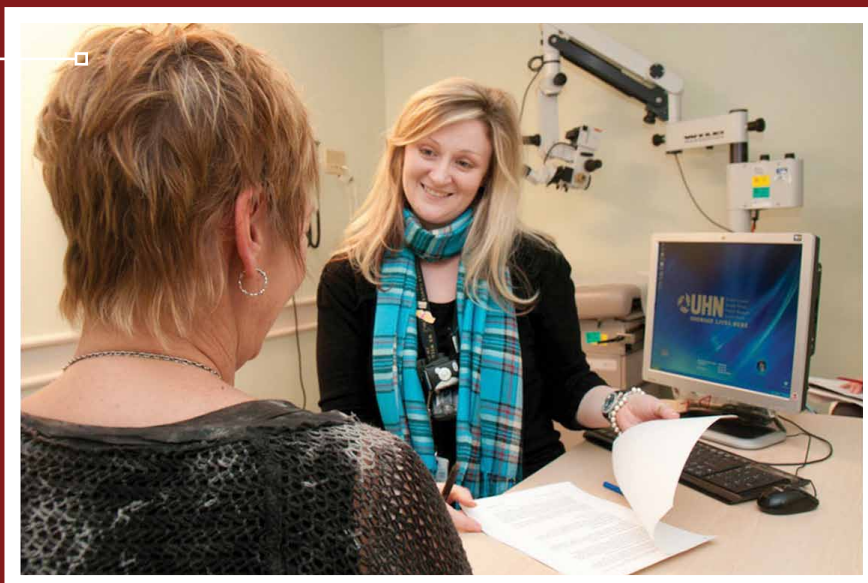
A Patient Navigation project was developed in 2013 to augment care coordination and enhance the patient experience by providing support for emotional, physical, and informational needs. A pilot study began in the gynecology disease site group to assess clinical needs, manage symptoms and distress, and coordinate care for higher-needs patients.

To further assist patients, caregivers and families, key changes were planned: a way-finding role for volunteers to help with directions at key hospital locations; new signage installed, and a phone call to confirm initial appointment details.

QuickStart Program

The QuickStart Program: Same-day radiotherapy for early-stage breast cancer, co-led by an inter-professional team of radiation therapist Grace Lee, medical physicist Tom Purdie and radiation oncologist Anthony Fyles was recognized with a 2013 Innovation Award from the Cancer Quality Council of Ontario. With the QuickStart Program, breast intensity-modulated radiation therapy planning is completed within minutes instead of hours, which means the patient can start breast radiation treatment on the same day as the initial consultation. QuickStart is enabled by innovative software developed by Dr. Purdie, who was UHN's Inventor of the Year in 2012.

Ambulatory Care Strategy – Patient Optimization



An Ambulatory Care Strategy was launched in 2013. Notable successes were developing quarterly ambulatory progress reports to track key initiatives of the strategic plan, and a comprehensive website to share information and progress.

As part of this strategy, a Patient Optimization Project was created to focus on identifying key opportunities related to education, clinic flow and processes, role and scope of practice, and new models of care.

Another important element of the strategy was working with Patient Flow Coordinators (PFC) to enhance interaction with patients and families at every visit, including providing support checking into clinics, scheduling appointments, and reviewing next appointment instructions. This year, 92% of PFCs completed a specialized workshop that introduced the 4A's of customer service (Acknowledge, Ask, Act, Ask again), and reviewed patient-centred care values.

Patient Chemotherapy Class

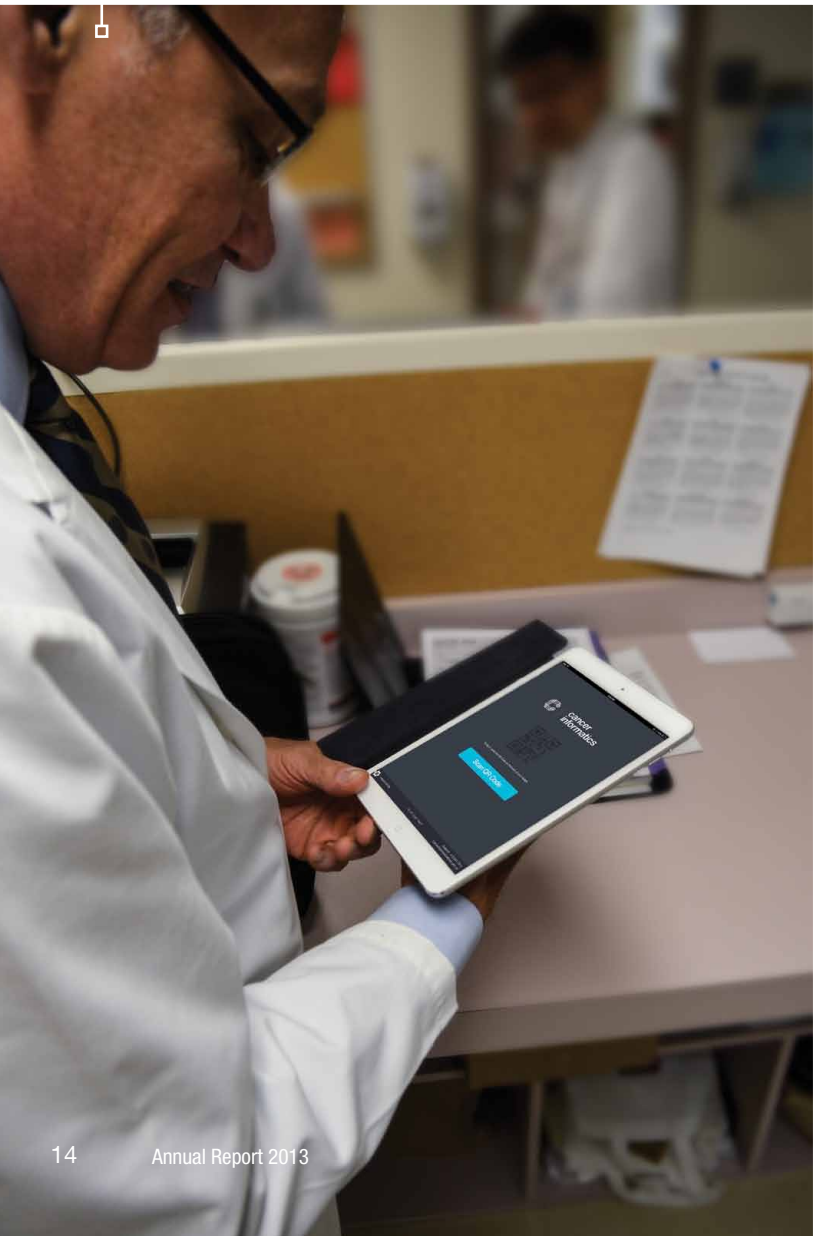
The Patient Chemotherapy Class was developed to empower patients and decrease anxiety about cancer treatment by providing knowledge and information about chemotherapy treatment, common and possible side effects, and strategies to cope with them.

The team made major strides in patient-centred care in 2013 with the development of diverse education materials. Working collaboratively with the Patient Education Department, calendars were created to help patients navigate their chemotherapy treatment schedule. These calendars, based on the specific chemotherapy drugs and regimen patients receive, reflect the teachings of the class to help patients understand the typical routine and what they will experience.

Correlative Cancer Biology

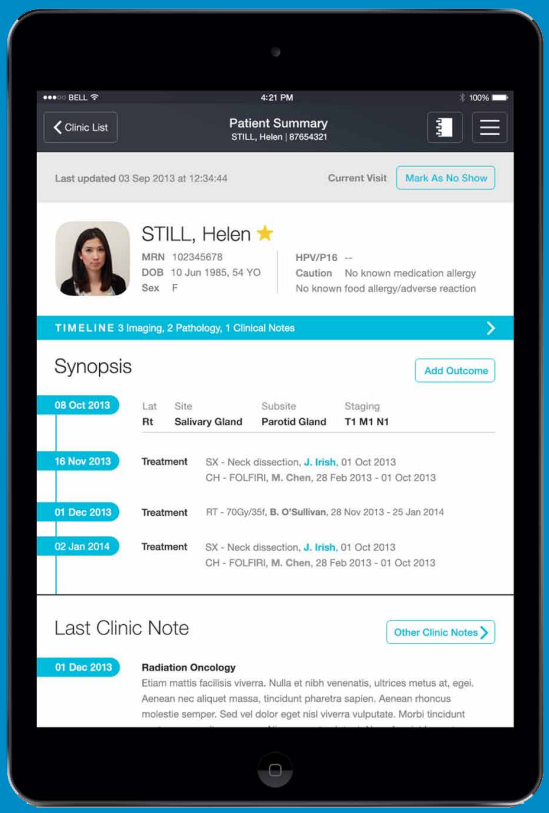
Cancer Informatics

The Cancer Informatics software platform enables the integration of research, clinical activity and data by building the technology infrastructure to link clinical and research IT systems. This is accomplished by providing innovative tools that allow interaction with high quality data in the clinic, at the bedside, or in the lab, while patients will be able to participate in their care through an online channel accessible from their home or in the clinic.



In 2013, the Cancer Informatics program formed a clinical advisory committee, and was able to integrate services, data, and storage components by modeling based on the semantic Web for Health Care and Life Sciences' Resource Description Framework.

In addition to these achievements, the first clinic was established with the Cancer Informatics Application (head and neck). Three more clinics (lung, leukemia, and gynecology) were scheduled to follow in 2014.



Personalizing Breast Cancer Radiotherapy

Luminal A Project

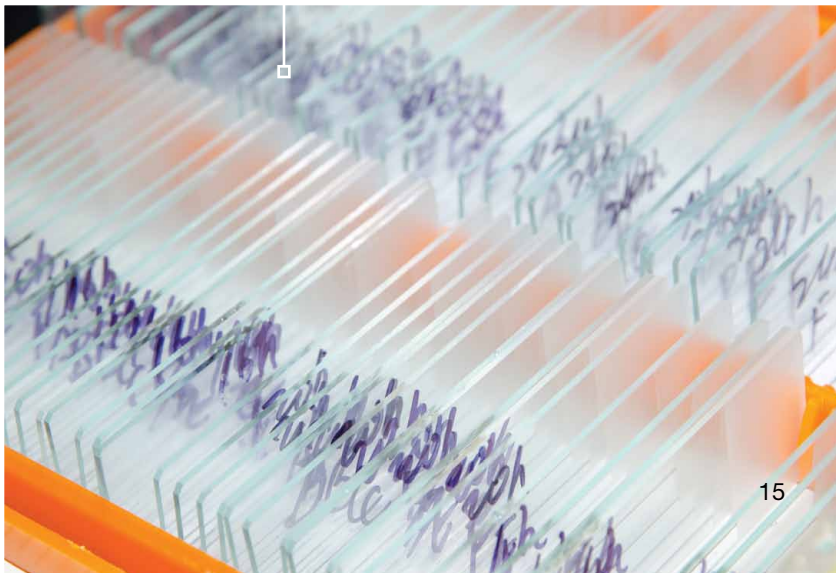
In 2013, based on 15 years of research, Dr. Fei Fei Liu and Dr. Anthony Fyles documented that there is minimal benefit from breast radiotherapy (RT) for women with lymph node negative breast cancer and luminal A disease. Based on this research, the 10-year local breast relapse was only ~6% to 8%, regardless of RT, providing patients also received hormone therapy. This observation has significant impact in that post-menopausal women with luminal A breast cancer comprise of approximately 25% of all newly-diagnosed breast cancer patients each year in Ontario. This finding will benefit both patients and the Ontario health care system, as patients could avoid unnecessary treatment, potentially saving the system approximately $8 million to $10 million every year.

Biospecimen Database

In 2013, caTissueSuite was launched – a new database that gives researchers access to a wealth of information on patient tissue samples collected and analyzed across UHN and Princess Margaret research labs.

The Database/Biospecimen Data Federation Project links research and clinical data with biospecimens to allow researchers access to more data associated with biospecimens. This data includes, but is not limited to, a patient's medical and treatment history, pathology diagnoses and reports, and details related to patient research consent. In order to encourage all UHN clinicians to migrate their biospecimen and related clinical data into this new system, the database is designed to be flexible and comprehensive.

Database functionality was created to pull all of the data from the clinical side, as well as pathology reports (synoptic and non-synoptic) related to biospecimens, and load them from CoPath to CaTissueSuite/Caisis which is now in clinical use. Discussions have also been initiated with ovarian, genitourinary and cervix tissue banks to join the initiative.



Multiple Myeloma

Clinician-scientist Dr. Rodger Tiedemann published research in the journal Cancer Cell that reveals why multiple myeloma, a cancer of the bone marrow, persistently escapes cure and relapses after mainstream therapy.

He and his team discovered the existence of rare immature progenitor cancer cells that appear to be the root cause of the disease – and relapse – and demonstrated that these cells are intrinsically resistant to proteasome inhibitor drugs. The progenitor cells are untouched by the proteasome inhibitor treatments that kill the plasma cells that make up most of the tumour. The immature progenitor cells are believed to mature to reboot the disease process, causing relapse even in patients whom had achieved apparent “complete response.”

Dr. Tiedemann said: “Now that we know that myeloma progenitor cells exist and why these survive treatment, we can measure this residual disease in patients, and attempt to target it with new therapeutic strategies.”

Guided Therapeutics

Molecular Imaging

Cyclotron and Radiochemistry Facility

The Cyclotron and Radiochemistry Facility is a research lab and production facility that was initially co-funded by the Canadian Foundation for Innovation and The Princess Margaret Cancer Foundation. The facility is part of TECHNA Institute's goal to grow capacity for molecular imaging and give rapid access to radioisotopes and studies of new radiopharmaceuticals.

In 2013, Cyclotron facility construction was completed and the Canadian Nuclear Safety Commission issued the commissioning licence. The cyclotron's first beam-on was in December, and the commissioning process to test and validate all components of the facility continued. The facility will potentially provide for improved imaging for a multitude of diseases, and aid in detection and treatment of new or varied conditions.

Minimally Invasive Image Guided Surgery/Interventions for Lung Cancer

Despite advances in technology, lung cancer is the leading cause of cancer death in Canada. In 2013, there were an estimated 25,500 new cases and 20,200 deaths, accounting for 27% of cancer deaths.

The Guided Therapeutic (GTx) Laboratory together with the Guided Therapeutic Operating Room (GTx OR) has enabled the members of the GTx team including surgical oncologists, medical engineers, and physicists to pursue their translational research in minimally invasive therapeutics for cancer. Since the open of the GTx OR, 2 clinical trials in the field of lung cancer have been initiated in the GTx OR.

Since the first Canadian successful robotic lobectomy for lung cancer was performed at Toronto General Hospital in October 2011, thoracic surgeons have performed more than 60 robotic lung cancer surgeries. “The robotic platform can potentially integrate new technology and real-time image information which may change the way we can operate in the near future,” said Dr. Kazuhiro Yasufuku, Director of the Interventional Thoracic Surgery Program. His team has been looking at ways of identifying sentinel lymph nodes during robotic lung cancer surgery. Since 2013, the team has been exploring new ways to locate small lung tumours during robotic surgery, as well as a new, less invasive technique using a laser to destroy lung tumours.

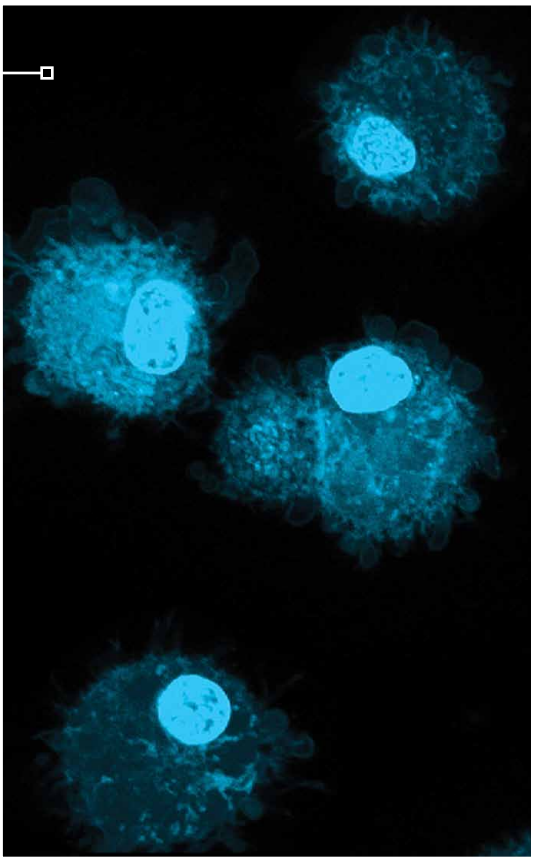
MRgRT Facility

The Magnetic Resonance Image Guided Radiation Therapy (MRgRT) suite at the Princess Margaret Cancer Center will merge the imaging capabilities of an MRI with advanced radiation therapy devices, creating a unique environment to fast track the development and integration of guided therapeutic devices, techniques, and procedures.

The facility will start clinical operation in 2014.

Novel Therapeutics

Cancer Immune Therapy Program



The Cancer Immune Therapy Program at the Princess Margaret Cancer Centre brings together experts from various fields focused on rapidly translating immunotherapy research into clinical trials.

Several clinical trials at various stages are under development. Dr. Linh Nguyen and her team have established the expertise needed to harvest and grow tumour-infiltrating lymphocytes (TILs) from a patient's tumor before reinfusion into the patient. In 2013, the program received approval from the UHN Research Ethics Board and Health Canada to proceed with the manufacturing procedures of cellular products for the first clinical trial using TIL products. The program is currently enrolling patients in a Phase II study to evaluate the infusion of TILs with low-doses of the growth stimulant IL-2 in patients with metastatic melanoma, and two patients have already been treated with this regime. Both patients tolerated the therapy well and the first has shown a partial response to this therapy.

In 2013, standard operating procedures and expertise were established to harvest and culture dendritic cells. In addition, the program and the Department of Medical Oncology are undertaking several trials using agents that target molecules that negatively regulate the immune response. These trials were conducted in collaboration with pharmaceutical partners and the Cancer Therapy Evaluation Program, and resulted in peer-reviewed publications and participation in practice-changing Phase III clinical protocols.

Cancer Genomics Program – Molecular Profiling

The mission of the Cancer Genomics Program (CGP) is to advance personalized cancer medicine through the identification of underlying genetic mutations and molecular mechanisms that drive cancer, and to match patients to targeted therapies based on their genotypes.

In 2013, the Integrated Molecular Profiling in Advanced Cancers Trial (IMPACT) and Community Oncology Molecular Profiling in Advanced Cancers Trial (COMPACT) were further expanded to include melanoma, rare cancers, and unknown primary cancers. During the year, IMPACT and COMPACT recruited 588 and 225 patients respectively.

The IMPACT abstract was selected for oral presentation at the American Society of Clinical Oncology Annual Meeting in Chicago. There, Dr. Philippe Bedard showed that 43 patients (24% of patients with mutations) had been matched to targeted therapies, including 23 patients (53% of those matched) enrolled in investigational clinical trials. Of the patients matched to clinical trials, at a seven-month follow-up 30% had significant tumour shrinkage, and six patients had partial response to therapy.

The CGP developed a brochure, website, and five-minute educational videos on molecular profiling for the purpose of educating patients and their families. Through these media, the CGP strives to integrate community oncology centres into The Princess Margaret research network, improve community relations, and provide support for clinical trials activities in Ontario through the early identification of patients who may be eligible to enroll in these clinical studies.

Education and Outreach

Ocular Oncology Program

Several provinces in Canada refer their patients for diagnosis and management of intraocular tumours, particularly ocular melanoma, to The Princess Margaret.

In 2013, the program appointed a new director, Dr. Hatem Krema, with the goal of broadening the scope of the program to include treatment of all intraocular and extraocular tumours. Clinic space was redesigned to include the Ocular Oncology Imaging Suite, a new facility equipped with modern investigative equipment for accurate imaging of eye tumours. The program changes are intended to provide more patient satisfaction, update the knowledge and expertise of staff, and enhance our reputation internationally as a tertiary referral centre for surgical and non-surgical treatment of all ophthalmic tumours. For 2014, the plan was to enhance research capacity, stimulate educational and academic activities, and implement disease-specific digital database for patient records and electronic storage.

The Princess Margaret Phase II Consortium

The Princess Margaret Phase II Consortium was awarded three consecutive five-year research and development contracts with the United States National Institutes of Health (US NIH) to design, develop, and conduct early phase clinical trials of National Cancer Institute/Cancer Therapeutics Evaluation Program (NCI/CTEP) sponsored agents, with translational emphasis in an innovative and efficient manner. Over the past 12 years, the group has evolved and conducted more than 120 Phase I, II and III clinical trials. Ninety of these trials were designed, developed and executed by the consortium, with the primary study database being housed and managed from Princess Margaret.

The consortium has accrued more than 2,000 patients across Canada and was awarded a membership position with the international Gynecologic Cancer InterGroup that has enabled continued collaboration in complex gynecologic clinical trials with groups from across the globe. Over the next decade, the complexity of Phase II and III clinical trials will increase, with molecular analyses, mutational screening and pharmacogenomics being increasingly embedded into multi-centre clinical trials.

Accelerated Education Program

Under the joint leadership of Nicole Harnett, Director, Radiation Skills Lab, and Drs. David Jaffray and Pamela Catton, the Radiation Medicine Program at Princess Margaret developed an Accelerated Education Program (AEP), which holds six 2.5-day workshops every year, on a series of Best Clinical Practices for radiation therapy delivery. In 2013, 140 inter-professionals attended from across Canada and 18 other countries. There were an additional 200 participants in virtual webinars which were simultaneously broadcast with the workshop. Topics ranged from intensity-modulated radiation therapy, image-guided radiation therapy, and stereotactic body radiation therapy for lung, liver, and paraspinal sites, to quality, safety, and accelerator technology programs. The AEP was recently recognized by a University of Toronto Faculty of Medicine “Colin Woolf Award” for excellence in course co-ordination.

Eldoret Kenya – Cancer Program

Efforts in cancer prevention and treatment in Africa are intensifying as rates of new cancers in the next 20 years are predicted to rise faster than anywhere in the world. To address this, AMPATH (Academic Model Providing Access to Healthcare), a program created by collaborations between a consortium of North American academic medical centers, Moi University and Moi Teaching and Referral Hospital (MTRH) in Eldoret, Kenya, has established and developed an oncology program during the past 5 years. The Princess Margaret Cancer Centre has contributed on several fronts.

In 2013, Dr. Barry Rosen continued to help develop a comprehensive approach to cancer care in gynecology at MTRH, which over the years has screened more than 25,000 women for cervical cancer, and established 6 outreach clinics. Dr. Rosen has also established a Fellowship program in gynecologic oncology at Moi University School of Medicine, and provided training for 2 Kenyan gynecologists both in Kenya and at the Princess Margaret Cancer Centre.

The Princess Margaret also helped establish an innovative educational framework for nurses, aimed at developing specialized nursing knowledge and expertise in cancer care in Kenya. The focus is educating and building the knowledge and skills in Kenya using a curriculum best suited for the local context and culture. As well, The Princess Margaret team has assisted in setting up a Radiation Oncology Program by providing expertise in the design and construction of a new chronic disease building at MTRH that will house a radiation oncology department.

Expanding the International Academic Landscape – King Hussein Cancer Centre

On June 13, 2013, Her Royal Highness Princess Dina Mired of Jordan, and the King Hussein Cancer Center, visited the Princess Margaret Cancer Centre to sign a Memorandum of Understanding, which forged an international partnership and shared vision of delivering advanced, world-class cancer care.

Dr. Mary Gospodarowicz, Medical Director of the Cancer Program at The Princess Margaret, said "we have a wealth of knowledge here, and we believe we have a moral imperative to share this with other centres throughout the world, while also ensuring that we learn from the different and innovative patient care models our collaborators employ."

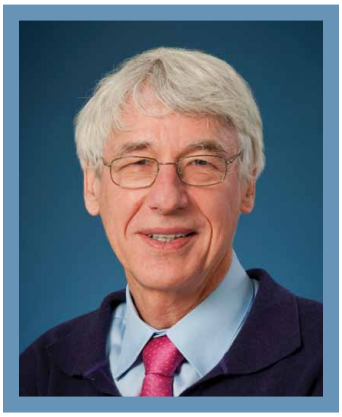
Other Highlights

Medication Reimbursement Specialist Program

The Pharmacy team implemented a centralized Medication Reimbursement Specialist position to support and guide clinicians and patients through the complex maze of processes related to drug coverage and medication procurement. The goal was to improve patient care and reduce workload for health care providers by streamlining the access process and exhausting every opportunity for maximum drug coverage.

This year, The Princess Margaret received the 2013 Quality Award from the Cancer Quality Council of Ontario for implementing this innovative approach.

Dr. John E. Dick, Senior Scientist at UHN's Princess Margaret Cancer Centre and the McEwen Centre for Regenerative Medicine, was awarded The Canadian Cancer Research Alliance's (CCRA) Outstanding Achievements in Cancer Research award.



Dr. Ian Tannock, was appointed as Member of the Order of Canada, for "contributing to our understanding of tumour cell behaviour and to improving the efficacy of chemotherapy treatments."

Dr. Brenda Gallie received the Canadian Ophthalmology Society's Lifetime Achievement Award for her work in retinoblastoma. In March 2013, she led the international team that published in Lancet Oncology the discovery of a new type of retinoblastoma that affects very young babies.

Dr. Mary Gospodarowicz received a Lifetime Achievement Award from the European Society for Radiotherapy and Oncology and the Janeway Medal from the American Radium Society.

The Princess Margaret Phase I Consortium - Success for our Drug Development Program

The Princess Margaret Phase I Consortium is one of 12 US NCI supported Early Therapeutic Clinical Trials Network (ET-CTN) phase I consortia. The Phase I grant is for five years – 2014-2019. Princess Margaret Cancer Centre is the lead site, with the Moffitt Cancer Center in Tampa, Jurvavinski Cancer Center in Hamilton, and British Columbia Cancer Agency Vancouver as sub sites. Congratulations to **Drs. Lillian Siu** and **Phil Bedard** for securing this prestigious award from the National Institutes of Health in the U.S.

Lawrence S. Bloomberg Faculty of Nursing Distinguished Alumnus Award

Dr. Doris Howell, RBC Chair in Oncology Nursing Research and Education received the Lawrence S. Bloomberg Faculty of Nursing Distinguished Alumnus Award. This award recognizes an individual with outstanding achievements whose noteworthy activity has been recognized in his or her field and has contributed to the health system through patient care, basic and clinical research, volunteerism, teaching and/or health services administration or healthcare oriented services. Dr. Howell, a Senior Scientist at Princess Margaret Cancer Centre, also received the Diamond Jubilee International Visiting Fellowship award at the University of Southampton in the United Kingdom.

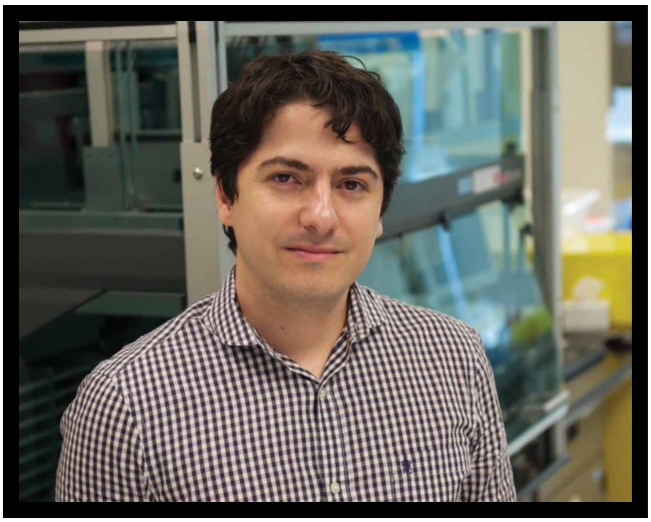
The Princess Margaret Sole Canadian Cancer Centre Chosen for Global Consortium

Princess Margaret Cancer Centre was selected by GlaxoSmithKline (GSK) as a preferred centre of excellence to accelerate translation of research into new therapies for patients. The Princess Margaret was the only Canadian institution chosen, and the only non-U.S. site to receive both a Phase I grant and a Phase II contract from the U.S. National Cancer Institute. Consortium members were selected for their international leadership and expertise in oncology research.

Building our Bench Strength

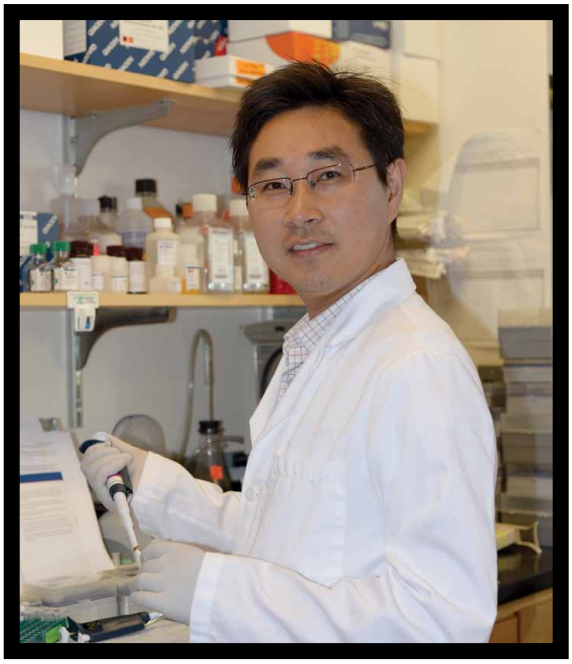
Princess Margaret Cancer Centre has recruited eminent scientists and physicians to build expertise in new areas such as epigenetics and immune therapy, and attain additional ‘bench strength’ in key areas including pathology, biospecimen sciences, clinical genomics and computational biology.

Epigenetics



Dr. Daniel De Carvalho came to The Princess Margaret from the University of Southern California's Medical School in Los Angeles, where his work was recognized as one of the top 20 major advances in cancer research in 2012 by the American Society of Clinical Oncology.

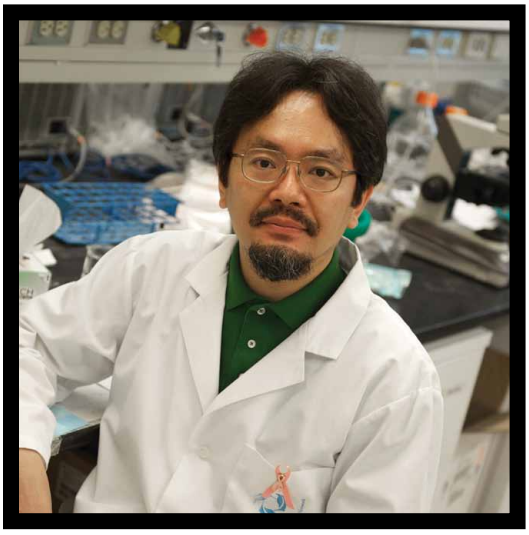
Dr. Housheng He joined The Princess Margaret after completing postdoctoral training at Dana-Farber Cancer Institute. He has already led seminal work in the field of epigenetics, contributing to 22 peer-reviewed studies published in high-impact journals.



Dr. Mathieu Lupien joined The Princess Margaret from Dartmouth Medical School where he was Director of the Quantitative Epigenomics Laboratory.

Immune Therapy

Dr. Marcus Butler joined The Princess Margaret from the Dana-Farber Cancer Institute, to establish an Immune Monitoring Lab where his team will develop specialized techniques to test and measure immune response in patients.



Dr. Naoto Hirano, joined The Princess Margaret from the Dana-Farber Cancer Institute, to study studying and test various ways to engineer and train T-cells (the workhorse of the immune system) to be more effective against cancer.

Pathology

Dr. Michael Roehrl joined The Princess Margaret from Harvard Medical School to lead the Biospecimen Sciences Program which includes managing tumour and tissue banks for The Princess Margaret.

Dr. Fernando Schmitt joined The Princess Margaret from the medical faculty at the University of Porto. He is a recognized global expert in cytopathology (the diagnosis of diseases on a cellular level) and breast cancer.

Clinical Genomics and Computational Biology

Last year, Princess Margaret Cancer Centre conducted 550 clinical trials, many involving the genomic sequencing of tumours. The amount of data generated by these studies is vast and the analysis can be tremendously complex. Crunching the numbers is a science in itself, and we welcomed several new members to the team.

Dr. Benjamin Haibe-Kains joined The Princess Margaret from l'Institut de Recherches Cliniques de Montreal

Dr. Michael Hoffman joined The Princess Margaret from the University of Washington in Seattle.

Dr. Trevor Pugh is an expert in computational technologies. He came to The Princess Margaret from the Broad Institute at Dana-Farber Cancer Institute, and will lead the Clinical Genomics Research Program.


Believe It.
WE WILL
CONQUER CANCER
IN OUR LIFETIME

Appendix

Princess Margaret Cancer Centre Leadership

PM STAFF (as at August 2013):

65 Surgical Oncologists
56 Medical & Hematology Oncologists
37 Radiation Oncologists
30 Radiation Physicists
150 Radiation Therapists
12 Palliative Oncology Physicians
589 Nursing Staff

FELLOWS:

53 Surgical Oncology Post-Residency Fellows
47 Medical & Hematology Fellows
18 Radiation Fellows

Cancer Program Executive Committee

Mary Gospodarowicz, Medical Director, Princess Margaret Cancer Centre

Marnie Escaf, Senior Vice President, University Health Network and Executive Lead, Princess Margaret Cancer Centre

Terri Stuart-McEwan, Executive Director, Solid Tumour Oncology and Gattuso Rapid Diagnostic Centre

Judy Costello, Senior Clinical Director, Hematologic Oncology

Fatima Sheriff, Director, UHN International, Director, Cancer Strategy Stewardship

Pamela Savage, Acting Director of Nursing

Jonathan Irish, Head, Surgical Oncology

Fei-Fei Liu, Head, Radiation Medicine Program

Malcolm Moore, Head, Medical Oncology and Hematology

Gary Rodin, Head, Psychosocial Oncology and Palliative Care

Andre Schuh, Head, Leukemia Site Group and Director of Clinical Services for Malignant Hematology

Martha Wyatt, Director, Regional Cancer Program and Toronto Medical Affairs

Amit Oza, Medical Director, Cancer Clinical Research Unit

Pamela Catton, Medical Director, Cancer Survivorship Program, Director, Oncology Education

Shaf Keshavjee, Surgeon-in-Chief, UHN

Disease Site Group Leaders

Breast	David McCready
Central Nervous System/Eye	Normand Laperriere
Endocrine	Shereen Ezzat
Gastrointestinal	Jennifer Knox
Genitourinary	Charles Catton
Gynecology	Stephane Laframboise
Head and Neck	Brian O'Sullivan
Leukemia	Andre Schuh
Lung	Andrea Bezjak
Lymphoma	Michael Crump
Melanoma	Danny Ghazarian
Sarcoma	Peter Ferguson

Senior Management Team

Marnie Escaf, Senior Vice President, University Health Network and Executive Lead, Princess Margaret Cancer Centre

Judy Costello, Senior Clinical Director, Hematologic Oncology

Rudy Dahdal, Director, Facilities and Redevelopment

Jane Finlayson, Senior Public Affairs Advisor

Zsolt Hering, Finance Manager

Jin-Hyeun Huh, Director, Pharmacy Operations

Terri Stuart-McEwan, Executive Director, Solid Tumour Oncology and Gattuso Rapid Diagnostic Centre

Pamela Savage, Acting Director of Nursing

Sophie Foxcroft, Director of Operations, Radiation Medicine Program

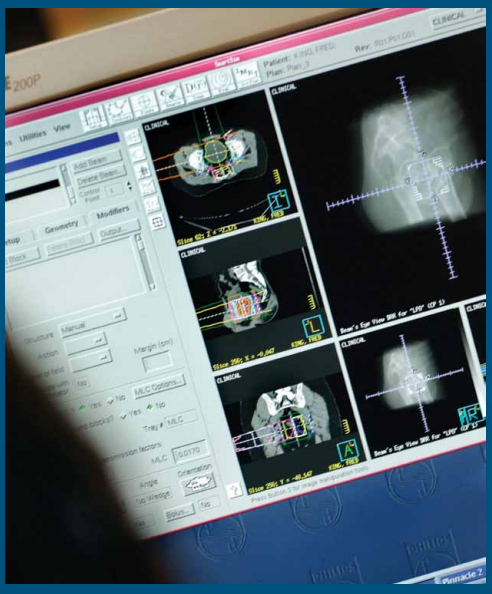
Mary Ann Neary, Senior Clinical Director, Surgical Services

Terra Ierasts, Shared Information Management Services (SIMS) Site Manager

Lorinda Lee, Director, Human Resources

Martha Wyatt, Director, Regional Cancer Program and Toronto Medical Affairs

Hayley Panet, Manager, Strategic Projects



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