

A graphic consisting of several overlapping, downward-pointing triangles in shades of blue, green, orange, and red, with the text '175 YEARS' centered at the top.

**175**  
YEARS



**Queen's**  
UNIVERSITY

DEPARTMENT OF  
**ONCOLOGY**  
2016 ANNUAL REPORT



Radiation Oncology Residents Drs. Jenny Jin and Harry Brastianos enjoy a run while attending the 2016 CARO Conference in Banff, Alberta

COVER: School of Medicine Building

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## WELCOME

### MESSAGE FROM THE DEPARTMENT HEAD, DR. ELIZABETH EISENHAUER



I am pleased to present the Department of Oncology Report for 2016. New trainees, programs, research and innovation in clinical activity were the hallmarks of 2016.

The Department also underwent an external review in the fall of 2016 – key messages from this review were positive regarding the progress made in the last five years. Additional comments were made regarding the challenges and opportunities the Department has before it as it moves into its next five years with a new Department Head.

As Department Head for the last five years, I would like to take this opportunity to thank the countless individuals within the Department and Cancer program, as well as the broader Faculty of Health Sciences for their willingness to work hard with me *together* towards achieving the Vision first articulated in 2012.

#### DEPARTMENT OF ONCOLOGY VISION:

*To accelerate improved cancer patient outcomes through:*

*Excellence and Innovation in Research*

*Excellence and Innovation in Education*

*Best Evidence into Best Practice*

*And Leadership in Academic Oncology*

## 2016

### THE YEAR IN NUMBERS

**New patients seen at the Cancer Centre of Southeastern Ontario** 6,626

**Peer reviewed papers/manuscripts published** 137

**Peer reviewed Grants or Awards held by  
Primary Department of Oncology Faculty (PI or Co-I)** 61

**Number of Postgraduate trainees, fellows** 13

# AWARDS AND CELEBRATIONS, NEW AND NOTABLE

**Dr. Andrew Kerr**, Elected to Board of Canadian College of Physicians in Medicine

Radiation Oncology Resident **Dr. Jenny Jin** wins the prestigious RSNA Roentgen Award

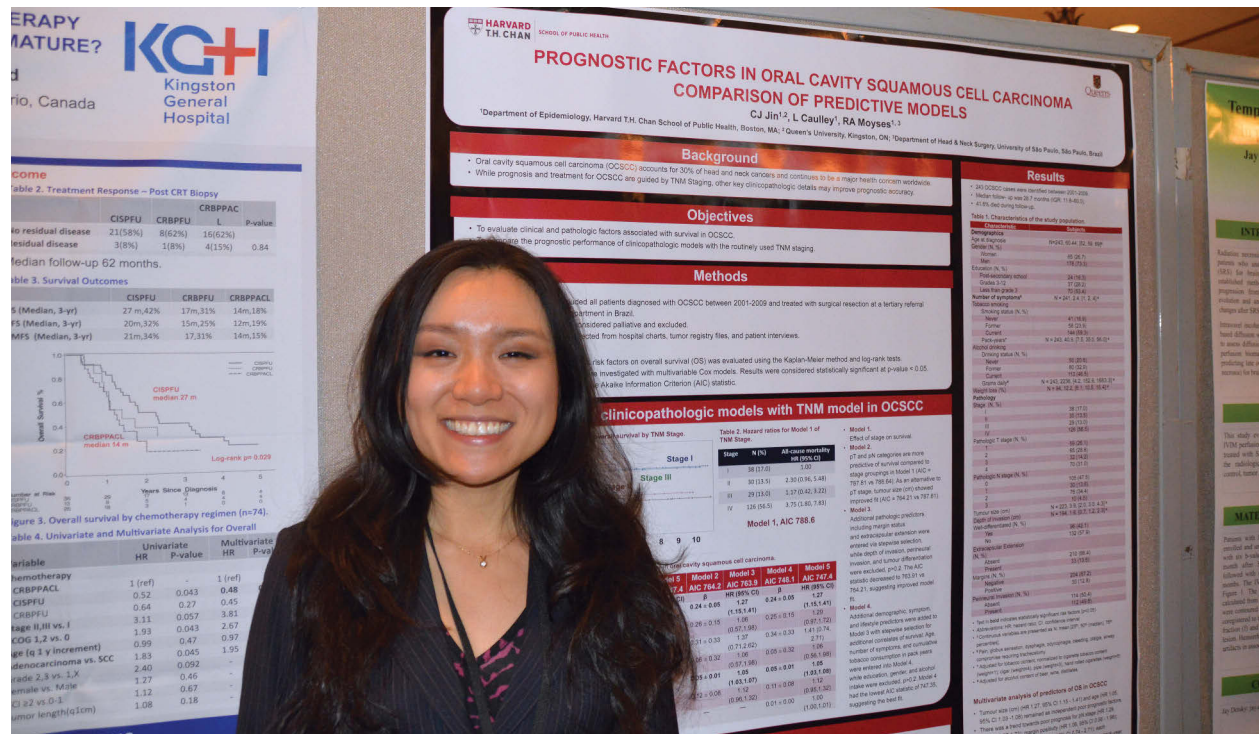
**The NCIC Clinical Trials Group** – Officially renamed the **Canadian Cancer Trials Group**

**Dr. Tara Baetz** promoted to Associate Professor

**Dr. Wendy Parulekar** – as President, led annual meeting of Society of Clinical Trials in Montreal

Radiation Oncology Residents **Drs. Harry Brastianos** and **Samantha Sigurdson** selected for Clinician Investigator Program

**Hotel Dieu Hospital** and **Kingston General Hospital** announced the intention to integrate as of April 1, 2017.



Radiation Oncology Resident **Dr. Jenny Jin**, winner of the RSNA Roentgen Award

## DIVISION REPORTS



**Dr. Conrad Falkson**

### **DIVISION OF RADIATION ONCOLOGY REPORT 2016**

DIVISION HEAD, DR. CONRAD FALKSON

The Division of Radiation Oncology within the Department of Oncology at Queen's University and Kingston General Hospital strives to ensure excellence in patient care and academic development. Located in the Cancer Centre of Southeastern Ontario, the Division of Radiation Oncology (DRO) is a local and regional resource, and is a major contributor clinically and academically to the Oncology Program.

There are currently 12 Radiation Oncologists within the Division and we will increase this to 13 in the near future. Three of the physicians are Clinician Scientists, who are affiliated with Queen's Cancer Research Institute. Clinically, the DRO is a full service academic radiation treatment facility offering external beam treatment (megavoltage, orthovoltage and electrons), IMRT, VMAT, and stereotactic planning and delivery, as well as HDR brachytherapy and unsealed source therapy.

Working closely with colleagues in Medical Physics, we have recently introduced a Fractionated Stereotactic Radiation Therapy (FSRT) program for treatment of brain metastases. We routinely offer Deep Inspiration Breath Hold technique as an option for reducing cardiac dose while treating left sided breast cancers. We offer a full stereotactic lung treatment program. We continue to work toward implementing new technology and techniques in a systematic and structured fashion and plan to offer Prostate HDR brachytherapy starting in the fall of 2017 while working on expanding the stereotactic program to include liver and body FSRT/SRS (Stereotactic Radiosurgery). The Division exemplifies collaboration and team work, and members work closely with other medical groups such as Surgery, Medical Oncology, and Palliative Care, as well as inter-professional collaboration with Supportive Care, Radiation Therapy and Medical Physics as well as collaboration with other programs at Queen's such as computer science and engineering.

Academically, the Division has a strong Residency Training Program, with 8 residents spanning a 5 year program. This training program is fully accredited by the RCPSC; candidates have been universally successful for several years at the Royal College exam, and all recent residents are currently working in Radiation Oncology. We participate in the training of residents from other disciplines through rotations and electives. The Division is active in Undergraduate teaching, with many observerships, electives and clerkship rotations throughout the year. The Division has a strong CPD program, as well as a focus on Patient Safety and Quality Assurance through initiatives such as Peer Review Audit. We also participate in research studies through QCRI, clinical trials through the Canadian Cancer Trials Group, OCOG and NRG, and several in-house studies.

## **DIVISION OF MEDICAL ONCOLOGY REPORT 2016**

DIVISION HEAD, DR. TARA BAETZ

The Division of Medical Oncology is made up of 18 full and part-time medical oncologists and hematologists who serve the needs of the Southeast LHIN. Two medical oncologists work primarily at the cancer clinic in the Belleville General Hospital (Quinte Healthcare) and the remainder have clinical responsibilities primarily at the Cancer Centre of Southeastern Ontario at Kingston General Hospital and Queen's University. In addition we have two Nurse Practitioners and four General Practitioners in Oncology (GPO's) who are essential members of our team.

Systemic therapy is delivered in Kingston and Belleville as well as our satellite systemic therapy clinics in Lennox and Addington Hospital, Brockville General Hospital and Perth Smiths Falls Hospital. All solid tumour disease sites are treated within the LHIN and we have thirteen multidisciplinary tumour board conferences. We work closely with the Division of Hematology to help in the delivery of complex malignant hematology.

The Division is very active in phase I to phase III clinical trials and are active in developing local guidelines for patient care. Our members are also involved in population-based research and translational research within the Cancer Research Institute. Many of our physicians also work at the Canadian Cancer Trials Group (CCTG) located at Queen's University. We have an active training program with both residents and fellows and participate in undergraduate medical training at Queen's University.

In addition, we have an active regional systemic program that is focusing on safe and quality systemic therapy closer to home. We work closely with our patient advisors to inform areas of improvement. In May of 2016 we had the fifth annual Regional Systemic Therapy Retreat which brought together health care providers in our region that deliver systemic therapy to discuss best practices. We continue to grow and we will be adding two new oncologists in the region that will be starting in 2017.



**Dr. Tara Baetz**



**Dr. John Schreiner**

## **MEDICAL PHYSICS REPORT 2016**

DIVISION HEAD, DR. JOHN SCHREINER

The Medical Physics Department at the Kingston General Hospital (CCSEO) provides service to today's population of southeast Ontario through its clinical programs and to the future population through its academic activities in the Department ([oncology.queensu.ca/divisions/divisions/medical\\_physics](http://oncology.queensu.ca/divisions/divisions/medical_physics))

The department's mandate is to assure that each patient treated by the centre's Radiation Oncology program receives the radiation dose as prescribed by a radiation oncologist. The members of the department work with other health care professionals in the Division of Radiation Oncology (DRO) to ensure that high standards of patient care are maintained within the radiation treatment arm of the Centre. Staff members provide this service via a range of activities from commissioning, testing, preventive maintenance, calibration and quality control of treatment units, through to dose calculation software quality control and treatment planning and dose calculation clinical support. In particular, medical physicists assist and advise in treatment planning and evaluate and approve each individual patient's external beam radiation therapy or brachytherapy treatment plan.

The staffing in 2016 included 6.0 FTE medical physicists with one chief medical physicist, one senior medical physicist and four college certified medical physicists. The department also includes four technical staff (one electronic and one mechanical accelerator service technologist, and two physics technicians), one support staff (a shared administrative secretary). Over the year the department also had a number of physics trainees included of two medical physics residents who each completed their training by the end of spring 2016 and a new resident recruited in September, and five physics graduate students.

### **ACADEMIC PROFILE**

Academically, the department trains the highly qualified physics and oncology personnel required in cancer clinics. It maintains an active program of research focusing on developing advanced therapeutics in radiation oncology by improving techniques for radiation dose delivery and measurement (See Education and Research sections for details). All of the physicists currently hold adjunct academic appointments in the Department of Oncology (one full professor, one associate professor, four assistant professors); five have similar appointments in the Department of Physics, Engineering Physics and Astronomy and one in the School of Computing.



KEY ACCOMPLISHMENTS 2016

Much of the clinical effort of the department last year was to expand the clinical implementation of radiation therapy techniques enabled through the recent acquisition of new radiation treatment equipment including our Varian TrueBeam linear accelerator. The physics program expanded image guided radiation treatment and volumetric modulated arc therapy (VMAT) techniques to more clinical sites; VMAT treatment now accounts for over 80% of intensity modulated therapy in the radiation program.

The Medical Physics staff worked diligently with radiation therapy staff to implement two novel treatment techniques in the clinic developing a breath-hold treatment technique to reduce heart toxicity in the treatment of patients with left sided breast cancer, and implementing a new fractionated stereotactic radiation therapy (FSRT) treatment enabling better targeting in the treatment of patients with brain metastases. The implementation involved months long work developing the technical specifications for the radiation delivery, the steps and workflow for treatment planning (including specialised CT imaging), and validating the dose delivery before the first patients were treated. Since development over 100 breast cancer patient and 33 brain met patients have benefited from these novel radiation delivery approaches. We expanded the Computed Tomography (CT) guidance of brachytherapy treatments to new treatment sites, expanding brachytherapy utilization.



**Dr. John Schreiner with new radiation treatment equipment – Varian TrueBeam linear accelerator**

## PERSONAL ACHIEVEMENTS AND CONTRIBUTIONS

Chandra Joshi, Andrew Kerr, Greg Salomons, Xiangyang Mei and John Schreiner all serve on various Communities of Practice (CoPs) for Cancer Care Ontario. Chandra Joshi is a member of the Canadian Organization of Medical Physicists (COMP) Communication Committee, Andrew Kerr was elected to the Board of the Canadian College of Physicists in Medicine, and John Schreiner is Chair of the COMP's Liaison with the Canadian Nuclear Safety Commission (CNSC) Sub-Committee, and a member of COMP's Quality Assurance and Radiation Safety Advisory Committee (QARSAC).

Greg Salomons and John Schreiner proposed, moderated, and presented two educational sessions the American Association of Physics in Medicine 2016 annual conference in Washington DC; Greg and colleagues speaking for a second year on Treatment Planning System Commissioning and QA, and John and others presenting on the use of Three Dimensional Dosimetry in clinical practice. Chandra Joshi attended the AAPM to represent the International Organization of Medical Physicists at their information desk. John Schreiner, Tim Olding and graduate students presented plenary sessions, software workshops and research results at the 9th International Conference on Three Dimensional Dosimetry (IC<sub>3</sub>Ddose) in Galveston TX (John continues to be a member of the IC<sub>3</sub>Ddose scientific committee). Chandra Joshi attended AMPICON (the Annual Medical Physicists of India Congress), where he gave an invited presentation on magnetic encoded tracking in brachytherapy and also spoke on the Canadian Partnership for Quality Radiotherapy and COMP joint program to develop Technical Quality Control guidance documents to drive clinical QC programs. At AMPICON Chandra also presented the first *Kingston Medical Physics Student Awards* to two Indian graduate students for their reported research – this was the inauguration of an annual award funded by donations from the department's medical physicists.



**Left to right: Dr. Tim Olding,  
Dr. John Schreiner and Kevin Alexander  
attend the 9th International Conference  
on 3D Dosimetry, in Galveston, Texas**

## INTER-DEPARTMENTAL COLLABORATIONS AND INNOVATIONS IN CARE

Oncology by its very nature is an interdisciplinary and transdisciplinary field. Not surprisingly therefore, strong clinical and academic collaborations have grown with faculty in different Departments within the Faculty of Health Sciences. In addition, the Department, working with leaders in the hospitals and colleagues across disciplines, has undertaken a number of innovations in patient care this past year. Below is a sampling of these:



**Dr. Jill Dudebout**



**Dr. Annette Hay**

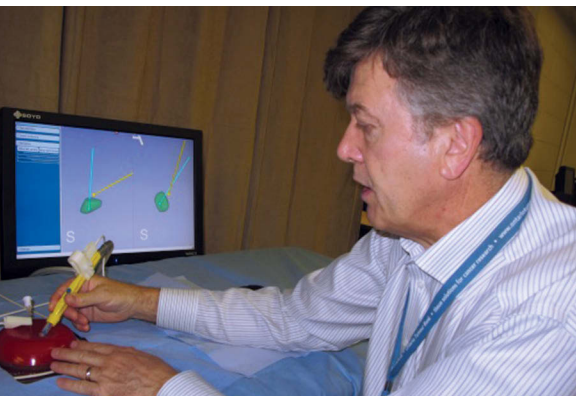
### **MALIGNANT HEMATOLOGY DISEASE SITE GROUP**

#### **Inaugural Chair Dr. John Matthews; as of April 2016 – Drs. Jill Dudebout and Annette Hay**

The Departments of Medicine and Oncology have forged strong bonds in the management of malignant hematological diseases through the creation of a Malignant Hematology Disease Site Group whose functions are similar to those of Divisions within the two departments. At this table all practitioners in the field of systemic management of malignant hematological conditions come together to streamline outpatient operations, including referral intake and new clinics, to coordinate inpatient care of patients, plan strategic initiatives and expand academic scholarship as well as develop common treatment guidelines. This work, which formally began in 2015, has led to the development of a new rapid diagnosis clinics, the development of guidelines for management of diffuse large B cell lymphoma, new inpatient scheduling and a common outpatient referral process. With John's retirement in early 2016, leadership of the MHDSG has been assumed jointly by Drs. Annette Hay (Medicine) and Jill Dudebout (Oncology)

The year of 2016 has seen substantial expansion in clinical activity within the Malignant Hematology group, reflecting increasing demand across the province. The autologous stem cell transplantation program increased from 30 to 55 transplants per year. Acute leukemia induction volumes increased from 17 to 39 per year. Several exciting initiatives have commenced to elevate delivery of complex malignant Hematology in Kingston, guided by an external review of our current and future capabilities by Dr. Hans Messner. Dr. Sita Bhella, recently appointed Stem Cell Program Director, is leading the team towards international FACT (Foundation for the Accreditation of Cellular Therapy) accreditation of the autologous transplant program. The group has welcomed recently hired additional outpatient stem cell nurses, a quality improvement coordinator, a nurse practitioner and additional pharmacy support. Dr. Jill Dudebout has established an adolescent and young adult cancer survivorship clinic.

Thanks to strengthening of local and regional ties, alongside the dedication and hard work of all members throughout 2016, the Malignant Hematology Disease Site Group is poised to realize further advances in 2017.



**Dr. Jay Engel**

## **SURGICAL ONCOLOGY**

DIVISION HEAD, DR. JAY ENGEL

Surgical Oncology, led by Dr. Jay Engel, has seen the recruitment of several new members of Faculty in the past year who have been welcomed to the Department of Oncology and Cancer Program:

**Dr. Wiley Chung** –Thoracic Surgery

**Dr. Elena Park** – Gynecologic Oncology

**Dr. Glyka Martou** – Breast Reconstruction

Each of these Surgeons has an active clinical presence in the Cancer Centre and program and is building both clinical and academic bridges with the Department of Oncology.

## **LUNG DISEASE ASSESSMENT PATHWAY – IMPROVEMENTS IN ONCOLOGIST ACCESS**

With the arrival of the new respirologist Dr. Genevieve Digby, an important quality improvement project began in the LDAP clinic to shorten wait times for patients receiving a new diagnosis of lung cancer. This clinic takes place at the HDH site, one where oncologists were not normally in attendance and patients with new diagnoses of lung cancer were normally referred from there to cancer centre (waiting 1-2 weeks more to be seen). Following a successful pilot with medical oncologist Dr. Andrew Robinson in summer of 2016, both medical and radiation oncologists are now scheduled to attend the clinic to provide instantaneous consultation to patients receiving a new lung cancer diagnosis. This work is ongoing and its evaluation will include both quantitative and qualitative (patient) assessments supported by a research grant received by Dr. Digby.

**INNOVATION IN RADIATION ONCOLOGY**

The Division of Radiation Oncology, working closely with colleagues in Medical Physics, introduced two new techniques for safer/more effective Radiation treatment delivery in 2016. The first of these was a new program in Fractionated Stereotactic Radiation Therapy (FSRT) for treatment of brain metastases. Stereotactic approaches are more complex to plan than whole brain radiation, but lead to improved outcomes in terms of cognition. In addition, the radiation team also introduced the Deep Inspiration Breath Hold technique for breast cancer treatment to help reduce long term cardiac effects and cardiac dose during curative treatment of left sided breast cancers.



**Medical Physics graduate students  
Kevin Alexander and Thomas Bulenga**

**INNOVATION IN SYSTEMIC THERAPY**

Improving care closer to home is a goal for the Regional Cancer Program. In order to expand the systemic treatments available in the community, a new process was developed to compound the intravenous medication for individual patients at the pharmacy in Kingston and to transport it to a regional hospital for infusion. This new process has allowed for the expansion of treatments available at the Brockville site and has permitted the initiation of infusion treatments at the Perth clinic. Over three hundred treatments and supportive therapies have been delivered and this process has allowed many patients to be treated much closer to home. This innovative process is being evaluated as an option to improve access for many sites in the province.

Immune therapy is increasingly become a common systemic therapy treatment in many tumour sites including lung cancer and melanoma. These drugs have very specific and unpredictable autoimmune side effects that require specialist management. We have developed an immune therapy patient education class to help educate patients on potential toxicities and management strategies in order to bring patients to medical attention in a timely manner. Our immune therapy education class was the first of its kind in the province.

## DISEASE SITE GROUPS AND EVIDENCE-BASED STANDARDS

In 2016, an increasing number of multidisciplinary Disease Site Groups developed guidelines for our disease management standards. Each new guideline is based on best evidence, is consistent with Cancer Care Ontario Disease Site Pathways, is reflective of the care provided at KGH/CCSEO and is developed and approved by the relevant Disease Site Group. Furthermore, all guidelines are then discussed and approved by the Disease Site Chairs council for posting on the public Department of Oncology website ([oncology.queensu.ca/clinical/disease\\_sites](http://oncology.queensu.ca/clinical/disease_sites))

2016 also saw the reporting of our first metrics of guideline compliance, one that demonstrated high levels of compliance on the few metrics selected for review thus far.

This table lists guidelines approved as of April 2, 2017

	<b>Disease Site Group</b>	<b>Guideline Description</b>	<b>Date Finalized</b>
1	Breast	Breast Cancer	<b>October 15, 2014</b>
2	CNS	GBM	<b>October 26, 2016</b>
3	GI	Anal Canal Carcinoma	<b>October 15, 2014</b>
4	GI	Esophageal and GE Junction Cancer	<b>May 18, 2016</b>
5	GI	Gastric Cancer	<b>May 18, 2016</b>
6	GI	Pancreas	<b>October 26, 2016</b>
7	GI	Biliary	<b>October 26, 2016</b>
8	GU	Renal Cell Carcinoma	<b>June 25, 2014</b>
9	GU	Testicular (Germ Cell)	<b>June 25, 2014</b>
10	GU	Urothelial Cancer of the Bladder	<b>June 25, 2014</b>
11	GU	Upper Tract Urothelial Carcinoma	<b>January 21, 2015</b>
12	Gyne	Vulvar Cancer (Invasive Squamous Cell)	<b>May 20, 2015</b>
13	Gyne	Ovarian Cancer	<b>May 20, 2015</b>
14	Lung	Non-Small Cell Lung Cancer	<b>January 21, 2015</b>
15	Lung	Small Cell Lung Cancer	<b>January 21, 2015</b>
16	Lymphoma	Aggressive B Cell Non-Hodgkin's Lymphoma	<b>October 28, 2015</b>
17	Malignant Hematology	Indolent Lymphoma	<b>April 5, 2017</b>
18	Melanoma	Cutaneous Melanoma	<b>February 26, 2014</b>
19	Sarcoma	Soft Tissue Sarcoma	<b>May 20, 2015</b>

## EDUCATION

### **REPORT FROM THE CHAIR, DEPARTMENT OF ONCOLOGY EDUCATION COMMITTEE – DR. CATHERINE DE METZ**

The major focus this year has been on developing the CBME curricula for both Residency Training Programs. Queen's University and the Specialty Committee have offered several sessions for residents and faculty regarding this. We are confident as we move to the new system, that we will be ready to offer quality training and assessments for our residents (see more below).



**Left to right: Dr. Martin Korzeniowski, Dr. Harry Brastianos and Dr. Maria Kalyvas at the 2016 CARO Conference in Banff, Alberta**

### **UNDERGRADUATE MEDICAL EDUCATION**

**Department and Medical Oncology lead: Dr. Mihaela Mates**

**Radiation Oncology Lead: Dr. Allison Ashworth**

Dr. Allison Ashworth was formally named as the UGME lead for Radiation Oncology to partner with Dr. Mihaela Mates in work on this important aspect of our Departmental Work.

The academic year 2016-17 had a number of developments in oncology curricular activities. The oncology course content (Terms 2B and C2) and structure (lectures were largely replaced by small group learning events) continued to be updated and new oncology online modules directly linked to the in class teaching. Oncology course content overlapping with other courses (e.g. family medicine, mechanisms of disease) was eliminated and more clinical content was introduced. To date, the evaluations for both oncology courses have been very favourable.

In addition, over the past academic year a number of new oncology related events were introduced. In C1 (pre-clerkship course) *Oncology Emergencies* are now formally taught by Oncology staff. In the fall of 2015 the curricular committee has approved the introduction of a mandatory expanded clinical skills *Oncology/Palliative communication session* for first year medical students that was successfully implemented in the spring of 2016. Finally, a new *consolidative small group lecture* comprising geriatrics, oncology and palliative care was introduced in term 2B. All these new initiatives received positive student evaluations.

Finally, Oncology faculty members are actively involved in other UGME activities such as clinical skills, research and admission committees, first patient program, OSCE examiners etc.

#### **POSTGRADUATE MEDICAL EDUCATION – GENERAL NEWS**

We welcomed Carissa Bird at the end of 2016 as part time Program Coordinator. Micheline McDonald remains also part time in this role and with the remainder of her time has taken on the new role of CBME development coordinator. This growth in education program staffing was made possible by special funds from the Faculty of Health Sciences and will enable both postgraduate programs to meet the demanding schedule of work required to launch CBME programs in July 2016.



**Micheline McDonald**



**Carissa Bird**



**POSTGRADUATE MEDICAL EDUCATION – MEDICAL ONCOLOGY****Postgraduate Program Director: Dr. Nazik Hammad****Education Coordinators: Ms. Micheline McDonald and Ms. Carissa Bird****CBME Coordinator: Ms. Micheline McDonald****MEDICAL ONCOLOGY TRAINEES- PRESENT AND GRADUATING RESIDENTS**

The Medical Oncology Training Program currently has 4 trainees from PGY4-5. In July 2016, we welcomed two new PGY4 trainees, Dr. Joel Gray and Dr. Ambika Parmar. Our congratulations are extended to Dr. Ketan Ghate and Dr. Osama Souied who will be graduating from our program at the end of June. They will be sitting for their Royal College Medical Oncology Exam in the Fall of 2017. Dr. Ghate accepted a job as a medical oncologist in Sarnia, Ontario at Bluewater Health. Dr. Souied will soon be starting his new job as medical oncologist in Regina. Dr. Ghate received an ASCO merit award this year for his research.

Looking to the future – we will soon welcome Dr. Geordie Linford and Dr. Alice Newman in July 2017 as our two new PGY-4 residents. We also welcome Dr. Bassam Basulainman as a visa trainee fellow in July 2017.

**CBME DEVELOPMENT**

Preparation for the July 2017 launch of CBME continued throughout the year. At the national level, the group participated in a field test of six Foundation and Core EPA's (Entrustable Professional Activity). This provided valuable faculty development for preceptors and also served as the basis of a local scholarly project on quality of feedback. At the May 2017 national workshop, a consensus regarding the full complement of stage specific EPA's and Required Training Experiences was reached.

Locally, the appointment of Micheline McDonald in the role of CBME Development Coordinator in January was warmly welcomed and provided valuable assistance in ongoing development and implementation preparation. Work continued on multiple fronts including curriculum development, rotation scheduling, assessment strategy and tool development, establishment of Competence Committee (CC) and Faculty and Resident development. Dr. Jim Biagi was appointed as the inaugural CC Chair and Drs. Mihaela Mates and Andrew Robinson in the role of Academic Advisors. The final months of the 2016-2017 academic year brought a renewed sense of energy and expectation as final preparations for the first CBME trainees neared completion.

## POSTGRADUATE MEDICAL EDUCATION – RADIATION ONCOLOGY

**Postgraduate Program Director: Dr. Maria Kalyvas**

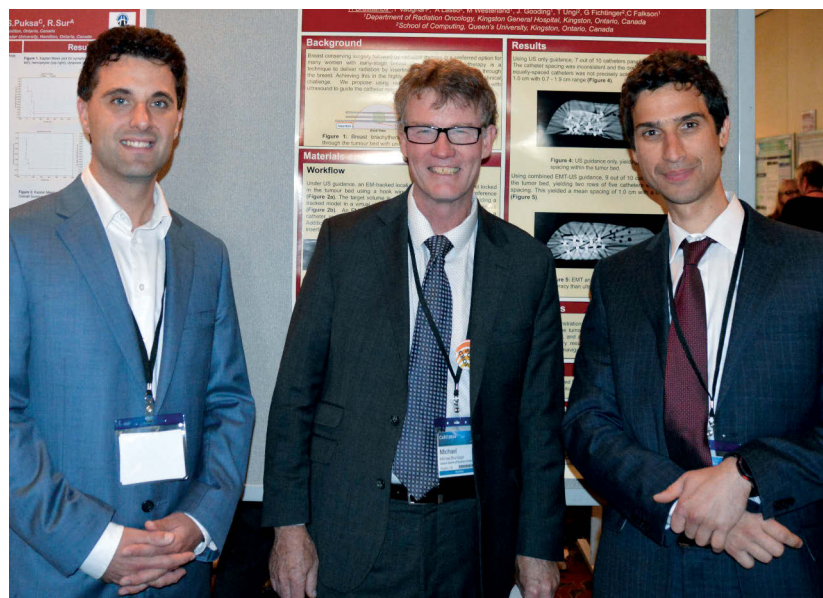
**CBME lead: Dr. Catherine de Metz**

**Education Coordinators: Ms. Micheline McDonald and Ms. Carissa Bird**

**CBME Coordinator: Ms. Micheline McDonald**

## TRAINEES – PRESENT AND GRADUATING RESIDENTS

The Radiation Oncology program at Queen's welcomed Drs. Nikitha Moideen and Michael Yan on July 1, 2016. They were introduced to Oncology through a Transition to Discipline program, encompassing 2 blocks. This was designed to help them move from medical students to residents in their chosen field. This was in advance of the formal launch of CBME at Queen's, and it went very well. Staff were introduced to the assessment tool of Field Notes; the new residents had more frequent assessments than previous years. Based on the feedback from Niki and Mike, the program will be revised for July 2017, when CBME training will begin for the new incoming residents. More senior residents will also have frequent assessments as they form the hybrid years between time-based and competency-based training. Congratulations go to Drs. Martin Korzeniowski and Pierre-Yves McLaughlin who graduated from the program at the end of June 2016 and who successfully passed their Royal College examinations in Radiation Oncology. Dr. Korzeniowski has accepted a fellowship in brachytherapy in Kelowna, British Columbia. Dr. McLaughlin will be starting a staff position in Gatineau, Quebec. We wish them both the very best for their future endeavours. Dr. Melody Qu was successful at the Royal College Fellowship examinations in the spring of 2017, and will also be graduating from the Program, to begin a clinical fellowship at Princess Margaret Cancer Centre in Toronto. Congratulations, Melody. We wish you all the best.



**Left to right: Dr. Martin Korzeniowski, Dr. Michael Brundage and Dr. Harry Brastianos at the 2016 CARO Conference in Banff, Alberta**

### CBME DEVELOPMENT

Dr. de Metz and Dr. Kalyvas attended a 3 day workshop at the RCPSC in Ottawa to work with other program directors in Radiation Oncology from across the country on Competency Based Medical Education. This will certainly continue to be a focus for us over the next couple of years. We have been working on the first stage of the transition labeled Transition to Discipline which was introduced to new PGY1 residents July 1, 2016. The Specialty Committee has now met twice and has been instrumental on helping develop the EPAs necessary for the specialty.

### DEPARTMENT OF ONCOLOGY GRAND ROUNDS

**Lead: Dr. Elizabeth Eisenhauer**

**Coordinator: Ms. Micheline McDonald**

The Department continued to host weekly hour-long Grand Rounds to provide accredited continuing education to Faculty, trainees, students and researchers regarding new developments in Cancer medicine and research. Using a unique online tool, Faculty can evaluate and claim MOC Program Section 1: Accredited Group Learning credits.

The Planning committee meets at least annually to review feedback from the year prior, and in the 2016 calendar academic year, a number of local and national speakers were recruited to speak on topics as diverse as “Allogeneic Hematopoietic Stem Cell Transplantation 101: The Good, The Bad and The Ugly” (Dr. Sita Bhella); “The Tobacco Endgame – A Report of the Canadian Summit” (Dr. Elizabeth Eisenhauer); “Tumor Immunotherapy – A New Pillar of Cancer Therapy (Dr. Lillian Siu); and “Improving Integration Between Primary Care and Specialist Care: Cancer Survivorship and Beyond” (Dr. Eva Grunfeld).

### RADIATION PHYSICS – EDUCATION

2016 was a quiet year in Medical Physics teaching at Queen's. The introductory courses in medical physics (Physics 495 and Physics 858 at the graduate and undergraduate levels, respectively) were not given this year (although considerable work was done by the 495 team to redesign and improve the course for Winter 2017). Most of the clinical physicists did supervise undergraduate thesis projects in honours and engineering physics (Physics 590 and 455, respectively) and some provided select lectures for physics (John Schreiner) and pathology courses (Andrew Kerr).

Medical physicists contribute to the clinical teaching of the CCSEO's medical physics and radiation oncology residents and radiation therapists. In 2016, the medical physics staff participated in a component of clinical RT training providing radiation safety review and assisting in rotations through computerized treatment planning. In the Radiation Oncology Training Program, medical physicists participated in Academic Half Day sessions, planning rounds, and CME. A physicist participates in weekly tutorials with oncology residents covering both basic and clinical physics topics. Medical physics HQP training was directed to the medical physics residents; five physics graduate students (one PhD, four MSc), two co-operative research students and six undergraduate thesis students. One of our medical physics residents completed his CAMPEP accredited program in 2016.

# RESEARCH

## RESEARCH ADVISORY COMMITTEE

**Chair: Dr. Elizabeth Eisenhauer**

The Research Advisory Committee meets 3-4 times per year to monitor progress in achieving the 2014-2018 strategic plan priorities<sup>1</sup>, review emerging issues and initiatives. 2016 highlights are as follows:

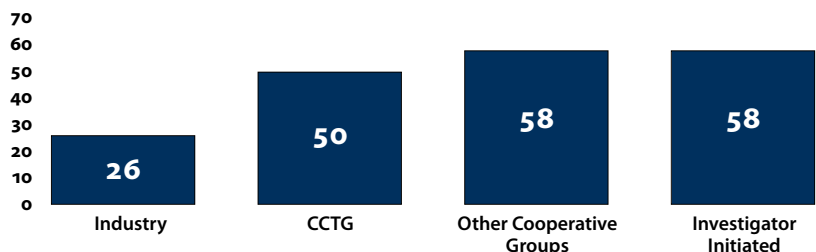
## PATIENT-ORIENTED RESEARCH

### CANCER CLINICAL TRIALS

2016 continued to be a successful year for growth in both observational and interventional patient clinical trials. 192 subjects were enrolled to Interventional studies, while 307 subjects were enrolled on observational studies. Commitments to the Canadian Cancer Clinical Trials Network (3CTN) to increase accrual to academic trials were actually exceeded! Highlights included accrual of over 25 patients to a phase I study combining immunotherapy and chemotherapy, the opening and enrollment of trials examining de-escalated therapies including immunotherapy and radiation therapy, studies examining standard of care interventions and complex interventions such as telephone follow-up, and database studies attempting to leverage information gained from clinically indicated panel molecular testing.

In terms of clinical trials volume, 45 interventional clinical trials were open during 2016, with a total of 342 months of open trials. Despite the increase in number of clinical trials open, efficiency remained high with over 6 patients enrolled per year of open trial. An evolving understanding of tumor biology has to several studies examined de-escalation strategies for patients with cancer, including: the value of de-escalation of therapy for adjuvant breast cancer radiation in early stage disease (LUMINA); the use of intermittent immune therapy for melanoma as opposed to continuous (ME-13), the de-escalation of bone-targeted agents for patients with metastatic breast or prostate cancer (REACT-G), and the de-escalation of combined modality treatment for HPV positive head and neck cancer (HN-002). Immunotherapy trials in lung cancer have accrued successfully at the centre, with our clinical trials unit making a key contribution in the establishment of first line pembrolizumab as the standard of care in a subset of lung cancer patients (KEYNOTE-024). As can be seen in the breakdown of clinical trials accrual, the department has accrued to a large number of academic trials, which is evidence of the success of the CCCTN network of which we are a part, and also of the priorities of the unit. The departments involvement in clinical trials has continued to benefit patients through access to cutting edge research, and has continued to benefit the field and future cancer patients by answering relevant clinical questions.

### INTERVENTIONAL TRIALS: TOTAL ACCRUAL BREAKDOWN BY SPONSOR TYPE



<sup>1</sup>oncology.queensu.ca/assets/DOCUMENTS/Dept\_of\_Oncology\_Strategic\_Research\_Plan\_2014-2018.pdf

## RESEARCH INTO PATIENT-CENTRED OUTCOMES AND INNOVATION IN CARE

Patient-centred outcome research over the past year has included further progress on projects that seek to understand how patient balance the benefits of cancer treatment with side effects and quality of life. Work has also continued on initiatives to improve oncologist-patient communication regarding end of life care and how to best convey patient wishes to other members of the care team.

## MOLECULAR ONCOLOGY RESEARCH

The 2015 Interdisciplinary Molecular Oncology grant competition supported interdisciplinary research teams to pursue clinically relevant molecular research utilizing biospecimens from the CCTG Tumour Tissue and Data Repository. Four applications were chosen for funding (see table below), at \$30,000-\$40,000 each. Overall, the four successful teams included 10 faculty members from Oncology, CBG, CCTG, Pathology and Molecular Medicine, Gynaecology, and Biomedical Sciences. The teams are pursuing novel translational research in breast, colorectal, and ovarian cancer. We expect these teams to build momentum and capacity and help nucleate more stable disease-site specific research teams.

### MOLECULAR ONCOLOGY GRANTEES AND PROJECT TITLES

Applicants	
Madhuri Koti James Biagi	Role of CXCL10/CXCR3 signaling axis in modulation of tumor immune landscape and therapeutic response in high-grade serous epithelial ovarian cancer
Andrew Robinson Chris Mueller	GR promoter methylation as a biomarker of Tamoxifen efficacy in pre-menopausal women
Andrew Robinson Sonal Varma	ER beta expression and chemotherapy induced amenorrhea
Harriet Feilotter Scott Davey Nazik Hammad	Expanded mutation testing in a cohort of colorectal cancer samples from CO.17

### PERFCT PROTOCOL ACCRUES QUICKLY!

In 2015, the so-called "PERFCT" (Patients Eligible to Receive Funded Cancer Testing) received REB approval with leadership from Drs. Penny Bradbury (now at University of Toronto but continuing as an Adjunct member of the Department of Oncology at Queen's University), Harriet Feilotter (Pathology and Molecular Medicine), Andrew Robinson, Tara Baetz and Jim Biagi. This unique project allows *additional* molecular/mutational analyses of samples from consenting patients who are undergoing standard mutation testing for treatment decisions. The additional information that will be available (which will include data generated that span ~50 genes and more than 3,000 known variants with a clear impact in tumorigenesis) will be available for research projects once sufficient cases have been accrual. Since accrual opened in April 2016, 229 patients have been enrolled – so it is hoped that with this accrual rate close to 1,000 cases will be available within 3 years.



**Dr. Michael Brundage**

## **POPULATION AND HEALTH SERVICES RESEARCH**

### **Director: Dr. Michael Brundage**

The strategic priority for this research area was to facilitate research by Department faculty who have an interest in conducting health services or clinical research but who are not full time clinician scientists. An important enabler for this to happen which was identified early on was to find funding for infrastructure support which could be embedded within the Division of Cancer Care and Epidemiology (CCE) (QCRI) that would allow such collaborations to grow.

To deliver on this priority, CCE has been successful in obtaining a 3-year grant from University Hospitals Kingston which will support research led by faculty (primary or cross-appointments to the Department of Oncology) who have demonstrated interest in health-services research in collaboration with the experienced CCE research team. The research model is focused on applied projects that capitalize on available linked clinical and administrative databases housed at the Division of Cancer Care and Epidemiology, in addition to available mentoring from clinician-scientist researchers. The funds support a part-time biostatistician and statistics analytical programmer who can assist physicians in conducting this research. This new research opportunity is designed to provide guidance and infrastructure support of small projects that can answer limited-scope questions or that can provide pilot data leading to competitive funding applications for larger projects. The collaborative model fosters the conduct of projects that provide new knowledge leading to improved quality of patient care, improved health services, and improved patient outcomes both locally at KGH, in other Ontario hospitals, and in other jurisdictions. It is hoped that within the next year 2-3 new projects will commence as a result.

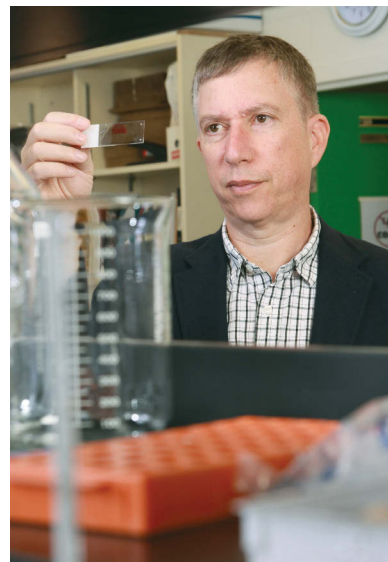
## **MEDICAL PHYSICS RESEARCH**

Research efforts in Medical Physics included continued work on Cobalt-60 based dose delivery using a unique BEST Theratronics Equinox research Cobalt-60 unit, development of a film scanner with commercial potential, and the rollout of three dimensional dosimetry into the clinic. Our students commissioned the radiation beams from the Equinox unit in our clinical ECLIPSE treatment planning system so that clinically relevant Cobalt-60 dose deliveries can be planned. Our three dimensional dosimetry was an important component in the clinical validation of the FSRT program mentioned in the last paragraph. We were also actively involved in credentialing of VMAT/IMRT techniques to pave way for initiating advanced clinical trials with the Radiation Therapy Oncology Group (RTOG/NRG). This work involved development of clinical trial specific treatment planning techniques and QA strategies, and the preparation and submission of data required for the cancer program to be accepted into the specific trials.

**QUEEN'S CANCER RESEARCH INSTITUTE (QCRI) UPDATE****Director: Dr. David Berman**

In 2016, the QCRI leadership undertook a comprehensive and wide ranging approach to develop a new institute -wide strategic plan. After 6 months of planning through 2016, a strategic retreat was held February 2017 with participation by members of QCRI as well as numerous Department of Oncology faculty. The final report for the plan is being circulated for review and will shape future directions. A key part of the plans involving clinicians will be to foster the development of *translational research teams* – it is hoped that these teams, with support from UHKF Oncology and other funds, will coalesce to develop robust research plans leading to CIHR (or similar) grant submissions. TRT development awards will be announced in 2017.

Finally, in November 2016, the Canadian Cancer Trials Group (whose Queen's operation and statistics office comprises the Cancer Clinical Trials Division of the institute) underwent an extremely positive international peer review reverse site visit as part of the renewal process for its Canadian Cancer Society core grant.



Greg Black

**Dr. David Berman**

## PUBLICATIONS 2016

### BOOKS, CHAPTERS, MONOGRAPHS AND FULL MANUSCRIPTS

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## PEER-REVIEWED RESEARCH GRANTS/AWARDS HELD IN 2016\*

\*This does not including per case funding received from participation in clinical trials

<b>Principal Investigator</b>	<b>Baetz T (National Co-Principle Investigator)</b>	<b>Principal Investigator</b>	<b>Booth CM</b>
<b>Co-Investigator</b>	<b>Robinson A</b>	<b>Co-Investigators</b>	<b>Feldman-Stewart D</b> ; French S; Siemens R
<b>Sponsor</b>	CCTG	<b>Sponsor</b>	CCSRI-Knowledge to Action
<b>Total Awarded</b>	\$21,000	<b>Total Awarded</b>	\$99,344
<b>Title of Grant</b>	KGH-OCREB # 16-053_ME.13 "A Randomized Phase III Study of Duration of Anti-PD-1 Therapy in Metastatic Melanoma (STOP-GAP)"	<b>Title of Grant</b>	Understanding physician knowledge attitudes and behaviour: Towards improving utilization rates of peri-operative chemotherapy for bladder Cancer
<b>Principal Investigator</b>	<b>Booth CM</b>	<b>Principal Investigator</b>	<b>Brundage MD</b>
<b>Sponsor</b>	CFI – IOF	<b>Co-Investigators</b>	<b>Mackillop WJ</b> ; Groome P; <b>Booth C</b> ; et al
<b>Total Awarded</b>	\$34,455	<b>Sponsor</b>	Cancer Care Ontario
<b>Title of Grant</b>	(Translating New Anti-Cancer Treatments into Population Benefit: A Provincial Chemotherapy and Outcomes Database	<b>Total Awarded</b>	\$1,182,500
<b>Principal Investigator</b>	<b>Booth CM</b>	<b>Title of Grant</b>	Cancer Care and Epidemiology
<b>Sponsor</b>	CIHR	<b>Principal Investigator</b>	<b>Brundage MD</b>
<b>Total Awarded</b>	\$500,000	<b>Co-Investigators</b>	Foxcroft S; Halperin R; McGowan T; Warde P; Parliament M; Milosevic M
<b>Title of Grant</b>	Canada Research Chair in Population Cancer Care	<b>Sponsor</b>	Canadian Partnership Against Cancer
<b>Principal Investigator</b>	<b>Booth CM</b>	<b>Total Awarded</b>	\$746,120
<b>Sponsor</b>	Queen's Department of Oncology/ UHKF	<b>Title of Grant</b>	Peer Review in Radiotherapy: A National Quality Improvement Initiative
<b>Total Awarded</b>	\$40,000	<b>Principal Investigators</b>	Plante M; Tu D
<b>Title of Grant</b>	CRC Mets Project – Oncology	<b>Co-Investigators</b>	Arseneau J; Atri M; Brotto L; <b>Brundage MD</b> ; Craighead PS; Ferguson S; Fyles AW; Kwon J; Mittmann N; Stuart G
<b>Principal Investigator</b>	<b>Booth CM</b>	<b>Sponsor</b>	CIHR
<b>Co-Investigators</b>	<b>Biagi James J</b> ; <b>Hanna T</b> ; Krzyzanowska M; <b>Mackillop W</b> ; Nanji S; Peng U P	<b>Total</b>	
<b>Sponsor</b>	Canadian Institute for Health Research (CIHR)	<b>Awarded</b>	\$2,203,332
<b>Total Awarded</b>	\$218,100	<b>Title of Grant</b>	Randomized Trial Comparing Radial Hysterectomy and Pelvic Node Dissection vs Simple Hysterectomy and Pelvic Node Dissection in Patients with Low Risk Cervical Cancer Defined as Lesions Measuring Less Than 2 cm with Less than 50% Stromal Invasion
<b>Title of Grant</b>	Optimizing the Use of Adjuvant Chemotherapy for Colon Cancer: A Population-Based Study of Practice and Outcomes		

**Principal Investigator** Cairncross, G  
**Co-Investigators** Al-Awar R; Chan J; Kaplan D; Marra, M; Mason W; Moffat J; Moran M; Robbins S; Senger D; **Seymour L**; Singh S; Weiss S; Wrana J  
**Sponsor** Terry Fox Research Institute  
**Total Awarded** \$3,094,452  
**Title of Grant** Modeling and Therapeutic Targeting of the Clinical and Genetic Diversity of Glioblastoma

**Principal Investigator** **Dancey J**  
**Sponsor** British Columbia Cancer Agency  
**Total Awarded** \$615,475  
**Title of Grant** Canadian Cancer Clinical Trials Network

**Principal Investigator** **Dancey J**  
**Sponsor** Nova Scotia Health Research Foundation  
**Total Awarded** \$62,500  
**Title of Grant** Canadian Cancer Clinical Trials Network

**Principal Investigator** **Dancey J**  
**Sponsor** Canadian Foundation for Innovation  
**Total Awarded** \$3,831,564  
**Title of Grant** NCIC Clinical Trials Group Central Operations and Statistics Office at Queen's University

**Principal Investigator** **Dancey J**  
**Sponsor** Ontario Institute for Cancer Research (OICR)  
**Total Awarded** \$2,437,500  
**Title of Grant** Canadian Cancer Clinical Trials Network

**Principal Investigator** **Dancey J**  
**Sponsor** New Brunswick Health Research Foundation  
**Total Awarded** \$178,000  
**Title of Grant** Canadian Cancer Clinical Trials Network

**Principal Investigator** **Dancey J**  
**Sponsor** Alberta Cancer Foundation  
**Total Awarded** \$463,500  
**Title of Grant** Canadian Cancer Clinical Trials Network

**Principal Investigator** **Dancey J**  
**Sponsor** Canadian Breast Cancer Foundation  
**Total Awarded** \$500,000  
**Title of Grant** Canadian Cancer Clinical Trials Network

**Principal Investigator** **Dancey J**  
**Sponsor** Canadian Partnership Against Cancer  
**Total Awarded** \$1,300,000  
**Title of Grant** Canadian Cancer Clinical Trials Network

**Principal Investigator** **Dancey J**  
**Co-Investigators** **Bradbury P**; Bramwell V; **Brundage M**; Chapman J- A; Chen B; Chi K; Cleary L; Couban S; Crump M; Dancey J; Ding K; Fung Kee Fung M; Gelmon K; Goss G; Hirte H; Jonker D; Leigh N; Mason W; Mittmann N; O'Callaghan C; Parulekar W; et al  
**Sponsor** NIH – US National Cancer Institute  
**Total Awarded** \$15,115,287  
**Title of Grant** NCIC Clinical Trials Group – Canadian Collaborating Clinical Trials Network

**Principal Investigator** **Dancey J**  
**Sponsor** Ontario Institute for Cancer Research (OICR)  
**Total Awarded** \$490,000  
**Title of Grant** Ontario Institute for Cancer Research (OICR) Scientist Award

**Principal Investigator** **Dancey J**  
**Co-Investigators** Meyer R; **Eisenhauer EA**; **Seymour L**; Parulekar W; O'Callaghan C; Tu D; Ding K; Chapman J; Chen B; Squire J; **Bradbury P**; **Brundage MD**; et al  
**Sponsor** Canadian Cancer Society Research Institute  
**Total Awarded** \$35,821,331  
**Title of Grant** NCIC Clinical Trials Group Core Program Grant

PEER-REVIEWED RESEARCH GRANTS/AWARDS HELD IN 2016

**Principal Investigator** de Vries M  
**Co-Investigators** Stiggelbout a; Kil P; Pelger R; van Bodegom-Vos L; Zeelenberg M;  
**Feldman-Stewart D**  
**Sponsor** CZ Innovation Fund-the Netherlands  
**Total Awarded** €169,400 Euros  
**Title of Grant** De Patient centraal bij de behandelkeuze voor prostaatkanker (JIPPA – Joint Implementation Prostate cancer Patient-centrered care)

**Principal Investigator** Engel J  
**Co-Investigators** Rudan J; Fichtinger G  
**Sponsor** AHSC AFP Innovation Fund; SEAMO  
**Total Awarded** \$91,000  
**Title of Grant** Computer-Assisted Breast Conserving Surgery – Proof of Concept Study on Non Palpable Tumors

**Principal Investigator** Davey S  
**Co-Investigators** Feilotter H; **Hammad N**  
**Sponsor** Canadian Cancer Trials Group  
**Total Awarded** \$70,320  
**Title of Grant** Correlative Mutation Screening Analyses Associated with the CO.20 Clinical Trial

**Principal Investigator** **Feldman-Stewart D**  
**Co-Investigators** Bender J; **Brundage M**; Chin J; Davison J; Kazanjian A; Kennedy B; Molloy S; Tong C  
**Sponsor** Prostate Cancer Canada and Movember  
**Total Awarded** \$167,640  
**Title of Grant** ASAP Network Decision Support Tool

**Principal Investigator** **Brundage M**  
**Co-Investigators** Dyer T; O'Donnell J  
**Sponsor** Cancer Care Ontario  
**Total Awarded** \$177,735  
**Title of Grant** Bridge funding – Cancer Care and Epidemiology

**Principal Investigator** Grunfeld E  
**Co-Investigators** Aubmin M; Brouwers M; Carroll J; De Angelis C; Earle C; **Eisenhauer EA**; Fillion L; Groome P; et al  
**Sponsor** Canadian Institutes of Health Research  
**Total Awarded** \$2,476,364  
**Title of Grant** Canadian Team to Improve Community Based Cancer Care along the Continuum (CanIMPACT)

**Principal Investigator** **Hanna T**  
**Co-Investigators** **Eisenhauer EA**; McKay D; Petrella T; Earle C; Tron V; Peng P; **Booth CM**, **Baetz T**  
**Sponsor** CIHR  
**Total Awarded** \$360,993  
**Title of Grant** A population study of the Toxicity and Effectiveness of High Dose Interferon for High Risk Melanoma

**Principal Investigator** **Hanna T**  
**Co-Investigators** **Booth CM**; Earle C; Petrella T; **Eisenhauer E**; McKay D; **Baetz T**; Peng P  
**Sponsor** Ontario Institute for Cancer Research  
**Total Awarded** \$24,086  
**Title of Grant** A population-based study of adjuvant high-dose interferon use for high-risk melanoma in Ontario

**Principal Investigator** **Hanna T**  
**Sponsor** Ontario Institute of Cancer Research  
**Total Awarded** \$350,000  
**Title of Grant** OICR Clinician Scientist Award

**Principal Investigator** **Hanna T**  
**Co-Investigators** **Eisenhauer EA**; Petrella T M; **Baetz T**; **Booth CM**; et al  
**Sponsor** CTAQ Endowment Fund  
**Total Awarded** \$20,000  
**Title of Grant** Optimizing High-Dose Interferon Use for Melanoma in Ontario: A population-based study

**Principal Investigator** **Hanna T**  
**Co-investigators** Sullivan R (Kings Health Partners Institute of Cancer Policy); Bourque JM  
**Sponsor** CARO and Elekta  
**Total Awarded** \$75,000  
**Title of Grant** Staying on target: Optimizing Utilization of High- Precision Radiotherapy

**Principal Investigators** **Joshi C; Shenfield C**  
**Co-investigator** Fichtinger G  
**Sponsor** The Prostate Cancer Fight Foundation – Kingston-Quinte Chapter  
**Total Awarded** \$32,000  
**Title of Grant** Electromagnetic catheter tracking approach for accurate reconstruction of prostate brachytherapy implant geometry using phantom studies

**Principal Investigator** **Kalyvas M**  
**Sponsor** Postgraduate Medical Education  
**Total Awarded** \$10,000  
**Title of Grant** Special Purpose Grant awarded by Postgraduate Medical Education

**Principal Investigator** **Mackillop WJ**  
**Co-investigators** Zhang-Salomons J; **Booth CM**; C Sawka; Warde P; Dudgeon D; Trudeau M; Irish J  
**Sponsor** Cancer Care Ontario  
**Total Awarded** \$104,840  
**Title of Grant** CCO: Develop and Report on Quality Indicators of Cancer Care in Ontario

**Principal Investigators** **Mates M**; Boag A; Feilotter H  
**Sponsor** Queen's Department of Oncology/ UHKF  
**Total Awarded** \$20,000  
**Title of Grant** Novel gene sequencing technique for molecular profiling of non-small cell lung cancer

**Principal Investigators** **Kerr AT**; Redfearn D; **de Metz C**  
**Sponsor** Queen's University Department of Oncology Kingston General Hospital Cancer Research Fund – Interdisciplinary Cancer Research Grant 2013  
**Total Awarded** \$39,805  
**Title of Grant** Development of a hybrid pacemaker-dosimeter

**Principal Investigator** Leveridge, M  
**Co-investigators** **Booth C; Mackillop WJ**; Siemens DR  
**Sponsor** AFP Innovation Research Fund  
**Total Awarded** \$36,000  
**Title of Grant** Management and Outcomes of Testicular Cancer in Routine Clinical Practice: A population-based Outcomes Study

**Principal Investigator** Liu G  
**Co-investigators** **Brundage MD**; Howell D; Green E  
**Sponsor** Cancer Care Ontario  
**Total Award** \$1,182,500  
**Title of Grant** On-PROST: Ontario Patient Reported Outcomes of Symptoms and Toxicity

**Principal Investigator** Milosevic M  
**Co-investigators** Bissonnette JP; Brown E; **Brundage MD**; Dunscombe P; French J; Gillan C; Parliament M; Schella J  
**Sponsor** Canadian Partnership Against Cancer (CPAC)  
**Total Awarded** \$1,186,110  
**Title of Grant** Canadian Partnership for Quality in Radiotherapy

**Principal Investigator** Mueller C  
**Co-investigator** **Robinson A**  
**Sponsor** Queen's Department of Oncology/ Molecular Oncology Research Competition/UHKF grant  
**Total Award** \$40,000  
**Title of Grant** (KGH) GR Promoter Methylation as a Biomarker of Tamoxifen Efficacy in Pre-Menopausal Women

PEER-REVIEWED RESEARCH GRANTS/AWARDS HELD IN 2016

**Principal Investigator** Parulekar W  
**Sponsor** Foundation du CHU  
**Total Awarded** \$137,601  
**Title of Grant** Randomized Phase II Feasibility Trial of Image Guided External Beam Radiotherapy With or Without High Dose Rate Brachytherapy Boost in men with Intermediate Risk Prostate Cancer (PR.15)

**Principal Investigator** Parulekar W  
**Co-investigators** Shepherd L; Chen B; Goodwin P; Pritchard K; Gelmon K; Whelan T; Stambolic V  
**Sponsor** CBCF  
**Total Awarded** \$444,159  
**Title of Grant** A Phase III Randomized Trial of Metformin Versus Placebo on Recurrence and Survival in Early Stage Breast Cancer (MA.32)

**Principal Investigator** Robinson A  
**Co-investigators** Gregg R; Mates M  
**Sponsor** KGHRI  
**Total Awarded** \$19,000  
**Title of Grant** (KGH) Estrogen Receptor Beta and Chemotherapy Induced Amenorrhea

**Principal Investigator** Robinson A; Mahmud A  
**Sponsor** Queen's University Department of Oncology/ UHKF  
**Total Awarded** \$300,000  
**Title of Grant** Cancer Clinical Trials – support for Clinical Trials Unit in Cancer Centre

**Principal Investigator** Robinson A; Mahmud A  
**Sponsor** Canadian Cancer Clinical Trials Network  
**Total Awarded** \$50,000  
**Title of Grant** Participation in Canadian Cancer Clinical Trials Network (CCCTN)

**Principal Investigator** Robinson A; Booth CM  
**Sponsor** Clare Nelson Bequest  
**Total Awarded** \$10,000  
**Title of Grant** Bladder Cancer Outcomes for Metastatic Disease

**Principal Investigator** Varma S  
**Co-investigators** Engel CJ; Berman D; et al  
**Sponsor** OICR  
**Total Awarded** \$20,000  
**Title of Grant** Assessing breast lumpectomy surgical resection margins using desorption electrospray ionization mass spectrometry imaging

**Principal Investigator** Hammad N  
**Co-investigators** Dalgarno N; Egan R; Emack J; Tomiak A  
**Sponsor** Queen's University Maudsley Scholarship and Research Fund  
**Total Awarded** \$4,950  
**Title of Grant** Does the new Entrustable Professional Activities (EPA) assessment tools enhance the quality of feedback to Medical Oncology residents?

**Principal Investigator** Fichtinger G  
**Co-investigators** Engel CJ; Rudan J  
**Sponsor** CFI  
**Total Awarded** \$358,342  
**Title of Grant** Real-time Navigated iKnife System for Breast Cancer Surgery

**Principal Investigator** Fichtinger G  
**Co-investigators** Engel CJ; Rudan J  
**Sponsor** Ministry of Research, Innovation and Science  
**Total Awarded** \$358,342  
**Title of Grant** Real-time Navigated iKnife System for Breast Cancer Surgery

**Principal Investigator** Vero Badillo F  
**Sponsor** SWOG Clinical Trials Initiative  
**Total Awarded** \$302,921  
**Title of Grant** BRC6: A Phase II/III Biomarker-Driven Master Protocol for Second-Line Therapy of Squamous Cell Lung Cancer (Lung-Map) – CTA with SWOG(DAVID)

**Principal Investigators** Robinson A; Varma S  
**Sponsor** Queen's University Department of Oncology/UHKF  
**Total Awarded** \$19,000  
**Title of Grant** Estrogen Receptor Beta expression and Breast Cancer Outcomes

**Principal Investigator** **Robinson A**  
**Sponsor** Queen's University Department of Oncology/UHKF  
**Total Awarded** \$900,156  
**Title of Grant** KGH-QM0001 "Patients Eligible to Receive Funded Cancer Testing: PERFECT"

**Principal Investigator** **Schreiner LJ**  
**Co-investigators** McAuley K; **Kerr A**; **Salomons G**; **Johnson D**  
**Sponsor** Canadian Institutes for Health Research  
**Total Awarded** \$369,250  
**Title of Grant** Advancing gel dosimetry for clinical radiation therapy

**Principal Investigator** **Engel CJ**  
**Co-investigator** Fichtinger G  
**Sponsor** SEAMO – AFP Innovation Fund  
**Total Awarded** \$94,056  
**Title of Grant** Computer-Assisted Breast Conserving Surgery – Proof of Concept Study on Non Palpable Tumors

**Principal Investigator** **Schreiner LJ**  
**Co-investigators** **Kerr A**; **Johnson D**; **Joshi C**; **Salomons G**  
**Sponsor** Ontario Research Fund for Research Excellence Funding/Industry Partner: Best Theratronics  
**Award** \$369,250  
**Title of Grant** Adaptive Radiation Therapy via Cobalt-60 Image Guided Radiation Therapy; part of Ontario Consortium on Adaptive Interventions in Radiation Oncology, OCAIRO

**Principal Investigator** **Seymour L**  
**Co-investigators** Tsao MS; et al  
**Sponsor** NIH  
**Total Awarded** \$2,300,000  
**Title of Grant** LACE-BIO II: Identification; validation and implementation of prognostic and/or predictive biomarkers for adjuvant chemotherapy in early stage non-small cell lung cancer

**Principal Investigator** **Seymour L**  
**Sponsor** Hospital for Sick Children  
**Total Awarded** \$15,750  
**Title of Grant** IND.217 A Phase I Enrichment Study of Low Dose Metronomic Topotecan and Pazopanib in Pediatric Patients with Recurrent or Refractory Solid tumours Including CNS Tumours

**Principal Investigator** Snyder C  
**Co-investigator** **Brundage MD**  
**Sponsor** Communication and Dissemination Research Patient-Centred Outcomes Research Institute (PCORI)  
**Total Awarded** \$232,370 (total \$697,105)  
**Title of Grant** Presenting Patient-Reported Outcomes Data to Improve Patient and Clinician Understanding and Use

**Principal Investigator** Swaminath A  
**Co-investigators** **Falkson C**; Whelan T  
**Sponsor** Canadian Cancer Society Research Institute (CCSRI)  
**Total Awarded** \$1,000,000  
**Title of Grant** LUSTRE A Randomized Trial of Medically-Inoperable Stage I Non-Small Cell Lung Cancer Patients Comparing Stereotactic Body Radiotherapy Versus Conventional Radiotherapy

**Principal Investigator** Whelan T  
**Co-investigators** Smith S; **Falkson C**  
**Sponsor** CBCF  
**Total Awarded** \$500,000  
**Title of Grant** LUMINA: A prospective Cohort Study Evaluating Risk of Local Recurrence Following Breast Conserving Surgery Alone in Low Risk Lumina A Breast Cancer



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