ARCC Conference 2014
Conference Program

Canada's Applied Research in Cancer Control Conference
May 11 - 12, 2014
Hilton Toronto
Toronto, Ontario

ARCC
Canadian Centre
for Applied Research
in Cancer Control

Founding Partners

Cancer Care Ontario
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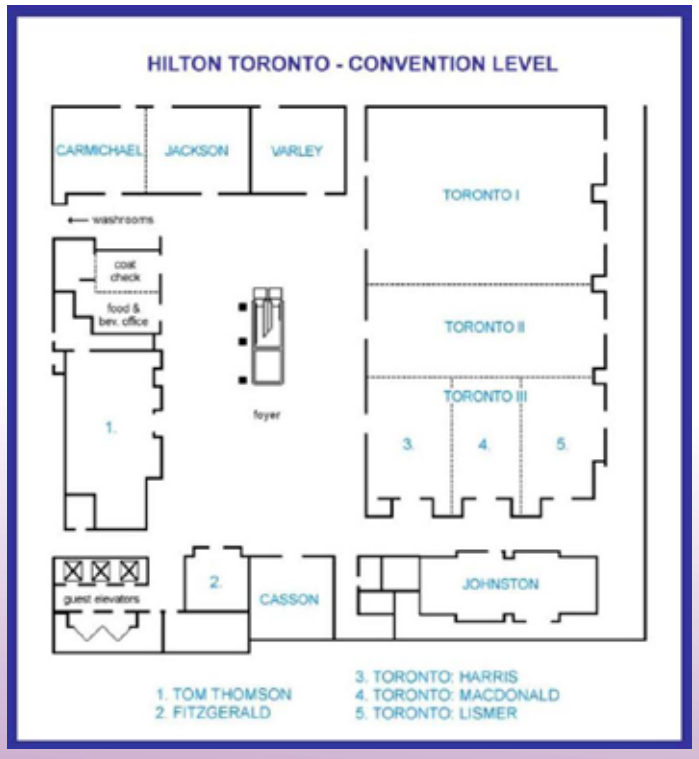

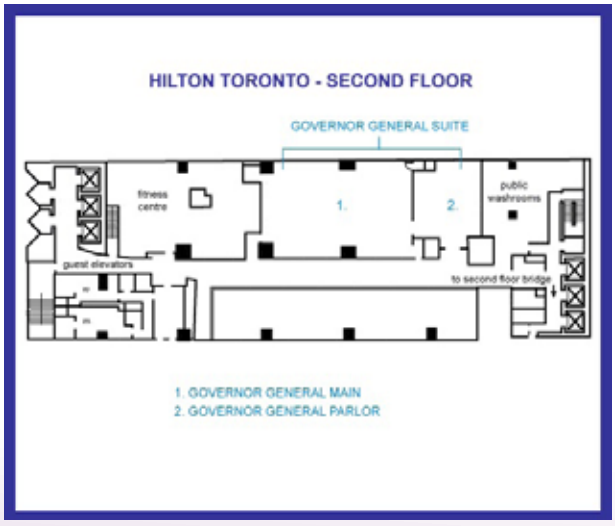

Welcome Message
From the ARCC Co-Directors
ARCC Conference 2014

Welcome to the 2014 Applied Research in Cancer Control (ARCC) Conference!

The ARCC Conference is an integral aspect of the applied cancer research community, featuring health economics, services, policy and ethics. We are proud to say that our conference continues to grow and remains the only conference focused solely on applied cancer control research in Canada. This year we expanded our scope to include an additional day of programming. This additional day has allowed us to create a specialized workshop on Cancer Health Economics and Health Technology Assessment, offer a speed networking event and include an additional poster session. We hope you are able to enjoy this additional programming and we welcome your feedback.

We have an exciting conference planned this year, with over 130 presentations and scientific posters being shared. We encourage you to grow your network at this event by talking with new people. Make sure to leave a contact form if a poster presenter is not available. As always, you can contact Rebecca Mercer, our Network Manager (arcc@cancercare.on.ca), to help you connect with anyone you might have missed.

We have strong leadership present with representation from across the country providing for excellent knowledge exchange and networking opportunities. We are pleased to have Peter Bach, Danica Wasney, Craig Earle, Thomas Smith, Harvey Chochinov, Jennifer Temel and Denise Marshall as plenary speakers. Our plenary sessions feature experts in the field of cancer drugs, palliative and end-of-life care, and speakers will address the challenges and opportunities in these areas.

The Centre is a resource for the applied cancer community, enabling and enhancing applied research, capacity building and community building in cancer control. In addition, our program area webinars, newsletters and online resources allow the ARCC community to be able to connect in a meaningful way. ARCC has promoted further collaborations and advanced research through these resources. ARCC membership is free and we encourage you to join if you are not yet a member. You can submit a membership form (see the detachable one at the back of program) directly to the registration desk or by email to arcc@cancercare.on.ca. Also, don't forget to follow us on Twitter (@cc_arcc) and LinkedIn for the most up-to-date information about ARCC. Use the hashtag #ARCC2014 during the conference for your chance to win complimentary registration to the 2015 ARCC Conference!

We want to thank the many people who have helped make today another exceptional event. This event would not have been possible without help from Kimberly van der Hoek, Sarah Benn, and Rebecca Mercer. We also thank the abstract review committee and program leads for their time and expertise: Melissa Brouwers, Sonya Cressman, Ian Cromwell, Claire de Oliveira, Craig Earle, Jennifer Gibson, Wanrudee Isaranuwatchai, Arminee Kazanjian, Joanne Kim, Murray Krahn, Christopher Longo, Mary McBride, Elizabeth McCarron, Helen McTaggart-Cowan, Reka Pataky, Dean Regier and Mallory Thao.

We are grateful for the continuous and generous support of the Canadian Cancer Society (CCS), the Canadian Association for Health Services and Policy Research (CAHSPR) and our partner organizations.

Thank you for joining us today and we hope you enjoy the conference!

Dr. Jeffrey Hoch
ARCC Co-Director
Cancer Care Ontario (CCO)

Dr. Stuart Peacock
ARCC Co-Director
BC Cancer Agency (BCCA)

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Program at a Glance
(subject to change)

Sunday, May 11, 2014 (Registration required for pre-conference day)

1:30PM - 3:30PM — **Specialized Workshop** — **Tom Thompson Room**

An introduction to the roles of Ethics and Economics in Canada's Cancer Drug Health Technology Assessment Process

- **Dr. Jennifer Gibson**, Director, Joint Centre for Bioethics and Associate Professor, Institute of Health Policy, Management, and Evaluation, University of Toronto
- **Dr. Jeffrey Hoch**, Co-Director, Canadian Centre for Applied Research in Cancer Control (ARCC) and Associate Professor, Institute of Health Policy, Management, and Evaluation, University of Toronto

Resource allocation is a key challenge for healthcare decision makers. This is especially true when public payers are considering which cancer drugs to fund. This session will introduce participants to Canada's national recommendation process as well as Canada's provincial recommendation processes. The session will also contrast these groups' activities with the responsibilities of public payers (e.g., the Ministry of Health). Drs. Gibson and Hoch will share their insights into how ethics and economics are and could be used to enhance the functioning of the system designed to inform difficult choices.

4:00PM - 5:00PM — **Speed Networking** — **Convention Level Foyer**

5:00PM - 7:00PM — **ARCC Welcome Reception** — **Governor General's Suite**

5:00PM - 7:00PM — **Poster Viewing - Session A** — **Governor General's Suite**

Monday, May 12, 2014

7:30AM – 8:30AM — **Registration and Breakfast** — **Toronto Ballroom I and Foyer**

8:30AM – 8:35AM — **Welcome from the Co-Directors - Dr. Stuart Peacock**, Co-Director, ARCC — **Toronto Ballroom I**

8:35AM – 8:40AM — **Welcome from the Canadian Cancer Society (CCS) – Pamela Fralick**, President & CEO, Canadian Cancer Society – **National Office** — **Toronto Ballroom I**

8:40AM – 10:15AM — **Cancer Drugs: Challenges and Opportunities for Applied Cancer Research** — **Toronto Ballroom I**

Chaired by: **Dr. Jeffrey Hoch**, Co-Director, ARCC

- **Dr. Peter Bach**, Director at the Center for Health Policy and Outcomes, Memorial Sloan-Kettering Cancer Centre
- **Ms. Danica Wasney**, Clinical Pharmacist at the Provincial Oncology Drug Program, CancerCare Manitoba
- **Dr. Craig Earle,** Director of Health Services Research, Ontario Institute for Cancer Research and Cancer Care Ontario

10:15AM – 10:35AM — **Nutritional Break** — **Toronto Ballroom I and Foyer**

10:35AM – 12:05PM — **Morning Concurrent Sessions**

Health Services Research — **Toronto Ballroom I**
Chaired by: **Dr. Patti Groome**, Canada Research Chair - Cancer Care Evaluation, Queens Cancer Research Institute

Health Technology Assessment — **Tom Thompson Room**
Chaired by: **Jaclyn Beca**, Research Manager, ARCC, Cancer Care Ontario

Patients and Families — **Jackson Room**
Chaired by: **Colene Bentley**, Health Services Researcher, ARCC, BC Cancer Agency

12:05PM – 12:45PM — **Networking Lunch** — **Toronto Ballroom I and Foyer**

12:45PM – 1:30PM — **Poster Viewing - Session B** — **Governor General's Suite**

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1:30PM – 3:00PM **Afternoon Concurrent Sessions**

Personalized Medicine — **Toronto Ballroom I**
Chaired by: **Dr. Dean Regier**, Senior Health Economist, ARCC, BC Cancer Agency

Cancer Costing — **Tom Thompson Room**
Chaired by: **Dr. Wanrudee Isaranuwatchai,** Research Associate, Centre for exceLlence in Economic Analysis Research (CLEAR), St. Michael's Hospital

Decision Making — **Jackson Room**
Chaired by: **Reka Pataky**, Health Economist and Data Lead, ARCC, BC Cancer Agency

3:00PM – 3:20PM **Nutritional Break** — **Toronto Ballroom I and Foyer**

3:20PM – 4:55PM **Palliative and End-of-Life Care: Challenges and Opportunities for Applied Cancer Research** — **Toronto Ballroom I**

Chaired by: **Dr. Stuart Peacock**, Co-Director, ARCC

- **Dr. Thomas Smith**, Director of Palliative Medicine, Johns Hopkins Medical Institutions and Johns Hopkins Sidney Kimmel Comprehensive Cancer Center
- **Dr. Jennifer Temel**, Associate Professor of Medicine at Harvard Medical School and Clinical Director of Thoracic Oncology at Massachusetts General Hospital
- **Dr. Harvey Max Chochinov**, Distinguished Professor of Psychiatry at the University of Manitoba, Director of the Manitoba Palliative Care Research Unit for CancerCare Manitoba
- **Dr. Denise Marshall**, Associate Professor, Division of Palliative Care, Dept of Family Medicine, McMaster University

4:55PM – 5:05PM **Poster Awards and Adjourning Remarks** — **Toronto Ballroom I**

Speaker Biographies
ARCC Conference 2014

Dr. Peter Bach, MD, MAPP

Dr. Bach is well known for his investigation into Medicare's approaches to coverage policies. Dr. Bach currently serves on the Institute of Medicine's National Cancer Policy Forum and the Committee on Performance Measurement of the National Committee on Quality Assurance. In addition, he chairs the Technical Expert Panel that is developing measures of cancer care quality for the Centers for Medicare and Medicaid Services in the United States. Dr. Bach's research has appeared in the New England Journal of Medicine (NEJM), the New York Times, and the Journal of the American Medical Association (JAMA).

Dr. Harvey Max Chochinov, MD, PhD, FRCPC

Dr. Chochinov is a Distinguished Professor of Psychiatry at the University of Manitoba and Director of the Manitoba Palliative Care Research Unit, CancerCare Manitoba. His seminal publications addressing psychosocial dimensions of palliation have helped define core-competencies and standards of end-of-life care. He holds the only Canada Research Chair in Palliative Care, is the Chair of CIHR's Standing Committee on Ethics and a member of the Governing Council of the Canadian Institutes of Health Research. He is the only psychiatrist in Canada to be designated as a Soros Faculty Scholar, Project on Death in America. He is a recipient of the Queen's Golden Jubilee Medal and his province's highest honour, the Order of Manitoba, for his work in palliative care. He is the Chair for the Canadian Virtual Hospice, a Fellow of the Royal Society of Canada and a Fellow of the Canadian Academy of Health Sciences. He is the 2008 recipient of the National Cancer Institute and Canadian Cancer Society O. Harold Warwick Prize. In 2009, the University of Manitoba bestowed its highest research honour, the Dr. John M. Bowman Rh Institute Foundation Award. Dr. Chochinov is the 2010 recipient of the Lifetime Achievement Award from the Canadian Association of Psychosocial Oncology and has also received the 2010 International Psycho-Oncology Society's Bernard Fox Memorial Award, which recognizes an individual's outstanding contribution in education, research or leadership to the field of psycho-oncology.

Dr. Craig Earle, MD

Dr. Craig Earle is a medical oncologist specializing in gastrointestinal cancers at Sunnybrook's Odette Cancer Centre, the Director of Health Services Research for Cancer Care Ontario and the Ontario Institute for Cancer Research, a Professor of Medicine at the University of Toronto, and a Senior Scientist at the Institute for Clinical Evaluative Sciences. Dr. Earle originally trained and practiced in Ottawa, after which he spent 10 years between 1998 – 2008 in Boston at Harvard Medical School and the Harvard School of Public Health. While there, he was the founding Director of the Lance Armstrong Foundation Adult Survivorship Clinic at Dana-Farber Cancer Institute. He is currently Chair of the Ontario Steering Committee for Cancer Drug Programs. His personal research interests focus on evaluating and improving the quality of care received by patients with advanced cancer and cancer survivors, the effect of financial incentives on care delivery, and making linked de-identified administrative data more available for health research.

Dr. Denise Marshall BSc, MD,CCFP, FCFP

Dr. Marshall trained in Family Medicine and then Palliative Care at McMaster University and has practiced as a Palliative Care consultant physician since 1989. She has been the founder/medical director for the Niagara West Palliative Care team since 1997, and founding board chair, now medical director of McNally House Hospice in Grimsby Ontario. As an Associate Professor, Dr. Marshall has held several positions in the Dept of Family Medicine, and the Faculty of Health Sciences at McMaster University in Hamilton Ontario. She was the Inaugural Director of the Division of Palliative Care (2003-2008) and Assistant Dean, Faculty Development in the Faculty of Health Sciences at McMaster (2007-2012). She is vice Chair of the HNHB End of Life Care Network and the CCO Regional Palliative Care lead for HNHB LHIN. Dr. Marshall was on a year long sabbatical from McMaster in 2013 and studied the public health approach to palliative care with international colleagues. She is passionate about systems of care, suffering, community development and social justice.

Speaker Biographies
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Dr. Thomas Smith, MD

Dr. Smith is the Director of Palliative Care for Johns Hopkins Medical Institutions and the Johns Hopkins Sidney Kimmel Comprehensive Cancer Center. Before joining Johns Hopkins, he served as the Medical Director of the Thomas Palliative Care Program and the Co-Director of the Massey Cancer Center Cancer Control and Prevention Program at the Virginia Commonwealth University. He received his BSc *summa cum laude* from the University of Akron and his medical degree *cum laude* from Yale University School of Medicine. He completed his residency in Internal Medicine at the University of Pennsylvania and completed a Fellowship in Hematology and Oncology at the Virginia Commonwealth University. He also was a Special Fellow in Medical Oncology at the National Cancer Institute and holds the first Harry J. Duffey Family Professorship of Palliative Medicine in the Department of Oncology of Johns Hopkins.

Dr. Jennifer Temel, MD

Dr. Temel is an Associate Professor of Medicine at Harvard Medical School and the Clinical Director of Thoracic Oncology at Massachusetts General Hospital. She completed her medical residency at Brigham and Women's Hospital and her oncology fellowship training at the Dana-Farber/MGH combined program. Her research interests include optimizing the delivery of care for both lung cancer patients and their families, with a focus on palliative and end-of-life care.

Danica Wasney, BSc (Pharm), ACPR, BCOP

Ms. Wasney is a Clinical Pharmacist at the Provincial Oncology Drug Program at CancerCare Manitoba. In this role, she provides support for the provincial Oncology Pharmacotherapeutic Subcommittee and facilitates a process for evaluating drug requests for emerging cancer therapies. Additionally, she participates in several initiatives evaluating the economic impact of, and patient outcomes from, cancer therapies. Her research interests include drug utilization evaluation and clinical outcomes of anticancer therapies. She maintains a clinical practice within a multidisciplinary care team providing care for neuro-oncology patients. She graduated from the Faculty of Pharmacy at University of Manitoba, has completed a Hospital Pharmacy Residency at The Ottawa Hospital, and is certified with the Board of Pharmaceutical Specialties based in Washington, DC, as a Board Certified Oncology Pharmacist.

Concurrent Sessions at a Glance
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Morning Concurrent Sessions 10:35AM – 12:05PM		
Session A: HEALTH SERVICES RESEARCH *Chaired by Pattie Groome*	**Session B: HEALTH TECHNOLOGY ASSESSMENT** *Chaired by Jaclyn Beca*	**Session C: PATIENTS AND FAMILIES** *Chaired by Colene Bentley*
Toronto Ballroom I	Tom Thompson Room	Jackson Room
Oral cancer drug therapy use and costs have drastically increased since 2006: the Saskatchewan experience *Darryl Boehm, Saskatchewan Cancer Agency*	**Oncology HTA - Canadian versus international experiences** *Isabelle Chabot, Principal Consultant, EvAccess*	**Canadian adolescents' perspectives of cancer risk** *Roberta Woodgate, University of Manitoba*
Quality of end-of-life cancer care in Canada: a four province study *Lisa Barbera, Clinician Scientist, Odette Cancer Centre*	**Cost-effectiveness of a microarray-based gene expression test for identifying primary tumor in patients with cancer of unknown primary** *Malek Hannouf, Department of Epidemiology and Biostatistics. Schulich School of Medicine and Dentistry, Western University*	**Transition from pediatric to adult care for childhood cancer survivors in NL** *Roger Chafe, Assistant Professor, Memorial University*
The duration of the acute treatment cancer journey among Ontario patients diagnosed with colorectal cancer *Saul Melamed, Director, Clinical Programs, Cancer Care Ontario*	**Cost-effectiveness of Cetuximab and Panitumumab in first-line treatment for patients with KRAS Wild-Type metastatic colorectal cancer in Ontario** *Emmanuel Ewara, Health Economics Analyst, Centre for Excellence in Economic Analysis Research, St. Michael's Hospital*	**Cancer-related fatigue and its impact of the lives of breast cancer survivors** *Jennifer Jones, Director of Research, Cancer Survivorship, Princess Margaret Cancer Centre*
Can we accurately identify chemotherapy related acute care visits in administrative data? *Monika Krzyzanowska, Associate Professor, University of Toronto, University Health Network, ICES*	**Is the primary prophylaxis of febrile neutropenia in breast cancer economically justified?** *Chris Skedgel, Research Health Economist, Atlantic Clinical Cancer Research Unit*	**Prostate cancer patients' satisfaction with wait-times for radiation therapy in Newfoundland and Labrador** *Dana Ryan, Memorial University*
Impact of a multi-pronged intervention to improve the use of single fraction radiotherapy for bone metastases across six centres *Ivo Olivotto, Head, Radiation Oncology, Tom Baker Cancer Centre*	**A quantitative approach to radiation treatment machine allocation in Ontario** *Jonathan Wang, Senior Analyst, Cancer Care Ontario*	**Measuring end-of-life care quality and experience: perceptions of bereaved caregivers** *Hsien Seow, Cancer Care Ontario Research Chair in Health, McMaster University*

Concurrent Sessions at a Glance
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Afternoon Concurrent Sessions 1:30PM – 3:00PM		
Session D: PERSONALIZED MEDICINE *Chaired by Dean Regier*	**Session E: CANCER COSTING** *Chaired by Wanrudee Isaranuwatchai*	**Session F: DECISION MAKING** *Chaired by Reka Pataky*
Toronto Ballroom I	Tom Thompson Room	Jackson Room
Towards a national strategy for improving clinical trial accrual of adolescents and young adults (AYA) diagnosed with cancer *Ronald Barr, Professor of Pediatrics, McMaster University*	**Phase-specific and long-term costs of cancer care in Ontario** *Claire de Oliveira, Independent Scientist/Health Economist, Centre for Addiction and Mental Health*	**A qualitative study exploring the influence of cancer labels on general public's preferences** *Helen McTaggart-Cowan, Health Economist, ARCC, BC Cancer Agency*
Optimizing implementation of fecal immunochemical testing in organized colorectal cancer screening: a randomized controlled trial *Jill Tinmouth, Lead Scientist, ColonCancerCheck, Cancer Care Ontario*	**First two years of health system resources and costs following a stage defined breast cancer diagnosis: a population-based approach** *Nicole Mittmann, Executive Director, Hope Research Centre*	**Health system-level factors influence the implementation of complex innovations in cancer care** *Robin Urquhart, Assistant Professor, Dalhousie University*
Considerations in modeling the cost-effectiveness of genomic tests that are used to inform critical treatment decisions in Acute Myeloid Leukemia *Sonya Cressman, Health Economist, ARCC, BC Cancer Agency*	**Changes in the volume and cost of Take Home Medications for cancer drug therapy dispensed from FY06 to FY13 in the BC Provincial Oncology Drug Program** *Susan Walisser, Provincial Pharmacy Professional Practice Leader, BC Cancer Agency*	**Advancing quality in cancer control and system performance: developing a strategy to address uncertainty in health policy decision-making** *Melissa Brouwers, Associate Professor, McMaster University*
The value of personalizing medicine: medical oncologists' views on gene expression profiling in breast cancer treatment *Yvonne Bombard, Scientist, Assistant Professor, Li Ka Shing Knowledge Institute, St. Michael's Hospital*	**Canadian cost comparison of different forms of androgen ablative therapies prior to and during the castration-resistant prostate cancer** *Alice Dragomir, Assistant Professor, McGill University*	**The Cancer Prevention Centre: a model of vertical integration between a research university and a community organization** *Carolyn Gotay, Professor, University of British Columbia*
The influence of gene expression profiling (GEP) on decisional conflict in chemotherapy treatment decision-making for early-stage breast cancer (BrCa) *Karen MacDonald, Research Associate, University of Calgary*	**Translating evidence-informed systemic therapy clinical practice into a patient-based systemic treatment funding model** *Vicky Simanovski, Sr. Manager, Regional Systemic Treatment, Cancer Care Ontario*	**Integration of cancer care in the management of complex patients** *Sima Gandhi, Epidemiologist, Institute for Clinical Evaluative Sciences*

Poster Sessions at a Glance
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A methodology challenge when conducting research with disadvantaged populations Frances Wong, Radiation Oncologist, BC Cancer Agency-Fraser Valley Centre	**Embedding the clerk into the primary team model of care** Caroline Hamm, MD, Windsor Regional Cancer Program
Analysis of differences in ICER estimates from manufacturers and pCODR Economic Guidance Panel Lori Yin, Reimbursement Strategy and Health Economics Co-op Student, Roche Canada	**Ethical considerations for emerging genomic-based cancer therapeutics** Alan Warner, Mount Sinai Hospital
Antiemetic recommendations for breast cancer patients receiving highly emetogenic chemotherapy: systematic review incorporating network meta-analyses Terry Ng, Resident, Division of Medical Oncology, University of Ottawa	**Evaluation of local feasibility of performing window of opportunity studies in breast cancer patients: the ultimate trial for personalized medicine** Angel Arnaout, Breast Surgical Oncologist, Ottawa Hospital and Ottawa Hospital Research Institute
Benefits and barriers to participation in colorectal cancer screening: a systematic review and synthesis of qualitative studies Monika Kastner, Li Ka Shing Knowledge Institute, St. Michael's Hospital and Institute of Health Policy, Management, and Evaluation, University of Toronto	**How to engage patients and families: Cancer Care Ontario's 5-step approach** Hannah Shamji, Policy Research Analyst, Cancer Care Ontario
Cancer mortality among recipients of solid organ transplant in Ontario Sergio Acuna, Graduate Student, St Michaels Hospital	**Implementing a framework for action from the Canadian Task Force for Adolescents and Young Adults (AYA): a new paradigm for AYA cancer control** Sonja De Pauw, Coordinator, Canadian Task Force on Adolescent and Young Adult Cancer
Changing use of selected oral chemotherapy agents in Canada: public and private payers Heather Logan, Executive Director, Canadian Association of Provincial Cancer Agencies	**Improving the patient experience through better cancer symptom management - a system-wide improvement collaborative** Wenonah Mahase, Project Lead, Cancer Care Ontario
Characterizing health utility values of Canadian cancer patients Hiten Naik, Medical Student, University of Toronto	**Information referral program for cancer patients at an outpatient cancer centre** Helena Daudt, Clinical Research Manager, BC Cancer Agency-Vancouver Island Centre
Clinical guideline-driven personalized self-management diary for paediatric cancer survivors Samuel Alan Stewart, PhD, Dalhousie University	**Knowledge Translation Research Network (KT-Net)'s request for proposals process: building capacity in cancer knowledge translation** Mary Ann O'Brien, Assistant Professor, Department of Family and Community Medicine, University of Toronto
Control, appropriateness and performance: a qualitative study of Ontario health system leaders' views on the promises of accountability Jessica Bytautas, Graduate Student, University of Toronto	**Latent inequities in cervical cancer screening among Colombian women: a multilevel analysis of a nationwide survey** Silvia Bermedo-Carrasco, PhD candidate, School of Public Health, University of Saskatchewan
Cost-effectiveness of directly mailed FOBT kits in a hard-to-reach population in colorectal cancer screening Nicole Mittmann, Executive Director, Hope Research Centre	**Patient satisfaction with wait-times for breast cancer surgery in Newfoundland and Labrador** Maria Mathews, Professor, Memorial University
Cost-efficacy of the RGDOx regimen (Rituximab, Dexamethasone, Gemcitabine and Oxaliplatin) in relapsed/refractory B-Cell Non-Hodgkin Lymphoma Marco Lefebvre, Resident, University of Sherbrooke	**Population-based trends in radiation therapy for a Canadian breast cancer cohort** Nicole Mittmann, Executive Director, Hope Research Centre
Developing a new provincial sarcoma services plan through regional involvement Cassandra Howse, Policy Research Analyst, Cancer Care Ontario	**Predictors of having heard about human papillomavirus (HPV) vaccination among Colombian women: critical factors for education of cervical cancer prevention** Silvia Bermedo-Carrasco, PhD candidate, School of Public Health, University of Saskatchewan
Early dysphagia intervention for patients undergoing chemoradiotherapy for head and neck cancer: preliminary findings. Rosemary Martino, Canada Research Chair, Associate Professor, University of Toronto, Princess Margaret Cancer Centre	**PROSPER: Probing the Scientific Review of the Patented Medicines Prices Review Board** Lori Yin, Reimbursement Strategy and Health Economics Co-op Student, Roche Canada

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Public engagement in priority-setting: results from a pan-Canadian survey of decision makers in cancer control Dean Regier, Senior Health Economist, ARCC, BC Cancer Agency	**The diagnostic interval of colorectal cancer patients in Ontario by degree of rurality** Leah Hamilton, Student, Queen's University
Redefining knowledge translation: inclusive knowledge translation Eleni Wener, PhD Student, University of British Columbia	**Treatment patterns and progression free survival (pfs) in first-line metastatic colorectal (mCRC) patients (pts) on an oxaliplatin-based chemotherapy** Aline Mamo, Clinical Research Associate, Jewish General Hospital
Representing AML treatment decisions using visual modeling software Emily McPherson, ARCC, BC Cancer Agency	**Trends and jurisdictional variations in radical prostatectomy for prostate cancer in Canada, 2006-07 to 2012-13** Adam Sherk, Senior Analyst, Canadian Institute for Health Information
Setting targets for measuring performance of breast, cervical and colorectal cancer screening programs Leanne Lindsay, Student, Cancer Care Ontario and University of Toronto	**Urban and rural differences among primary care physicians (PCPs) in the diagnostic work-up (DWU) of patients with suspected cancer** Andriana Barisic, Research Associate, Cancer Care Ontario
Smokeless tobacco and non-tobacco products and risk of oral cancer in South Asia: a meta-analysis Kiran Sapkota, The University of Iowa	**Using online chemotherapy and biotherapy education to support standardized clinical care: a knowledge translation outcome evaluation** Jiahui Wong, Manager, Curriculum and Program Evaluation, de Souza Institute
Social support as a determinant of health related quality of life in breast cancer survivors Faiza Rab, Researcher, University of Western Ontario	**'Your experience matters' - a pilot to evaluate patient education at a provincial level** Tory Andrien, Policy Research Analyst, Cancer Care Ontario
The association between tobacco retailer density and alternative tobacco product use among Canadian secondary school students Adam Cole, Graduate Student, School of Public Health and Health Systems, University of Waterloo	

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A critical look at the need for the much requested MRI in breast cancer patients Angel Arnaout, Breast Surgical Oncologist and Clinician, Ottawa Hospital and Ottawa Hospital Research Institute	**Costing & resource utilization of cervical cancer treatment in British Columbia** Zenia Ferreira, Health Economics Co-op Research Assistant, ARCC, BC Cancer Agency
A pilot randomized controlled trial of an online communication tool for collaborative care in cancer patients Teja Voruganti, MD/PhD Student, University of Toronto	**CRC 1st Steps Study: a new model to support the adoption of physical activity in colorectal cancer survivors** Helena Daudt, Clinical Research Manager, BC Cancer Agency-Vancouver Island Centre
A population-based cohort of metastatic melanoma patients in Ontario, Canada Elizabeth McCarron, Postdoctoral Fellow, Ivey Business School at Western University	**Defining palliative care physicians using health administrative data** Lisa Barbera, Clinician Scientist, Odette Cancer Centre
A systematic review of factors influencing older adults' decision to accept or decline the proposed cancer treatment Martine Puts, Lawrence S. Bloomberg Faculty of Nursing, University of Toronto	**Describing best practice for psychosocial and palliative care through pathways** Katharina Forster, Associate Project Lead, Cancer Care Ontario
AFFORD (Appropriate eFective eFficient Oncology Reimbursement Decisions) study protocol Dominika Wranik, Associate Professor, Dalhousie University	**Development of a knowledge translation plan for childhood, adolescent and young adult cancer survivor care and support in British Columbia** Mary McBride, Distinguished Scientist, BC Cancer Agency
An evaluation of the methodological quality of clinical practice guidelines and consensus statements in oncology Dr. Carmel Jacobs, The Ottawa Hospital	**eClaims: a strategic and necessary tool in today's growing and complex system of cancer drug funding** Suzanne Bojthy, Provincial Drug Reimbursement Associate, Cancer Care Ontario
An evaluation of screening activity reports for the ColonCancerCheck Screening Program Alex Lee, Research Associate, Cancer Care Ontario	**Economic evaluation protocol: A Survivorship Action Partnership (ASAP) Canada** Lisa Masucci, Health Economist, St. Michael's Hospital
An exploratory economic analysis of psychosocial services and healthcare utilization in the cancer setting Dolly Han, Graduate Student, University of Toronto	**EQ-5D health utilities are estimated subject to considerable uncertainty** Eleanor Pullenayegum, Associate Professor, Hospital for Sick Children
Annual vs. biennial lung cancer screening - using the Cancer Risk Management Model (CRMM) to fill gaps in evidence Natalie Fitzgerald, Program Manager, Economics, Cancer Risk Management, Canadian Partnership Against Cancer	**Evaluation of a pharmaceutical pay-for-performance risk-sharing agreement when patients are screened for the probability of success** Greg Zaric, Professor, Western University
Barriers to breast screening and recommendations for improvement among under/never screened groups in Ontario Victoria Nadalin, Senior Research Associate, Cancer Care Ontario	**Evidence of a significant reduction in cervical dysplasia due to publicly funded human papillomavirus (HPV) vaccination in Ontario** Leah Smith, Graduate Student, McGill University
Building psychosocial oncology resource intensity weights for inclusion in the new systemic treatment funding model Victoria Zwicker, Policy Research Analyst, Cancer Care Ontario	**Exploring the impact of structural uncertainty in partitioned survival models for oncology** Jaclyn Beca, Research Manager, Pharmacoeconomics, Cancer Care Ontario, St. Michael's Hospital
Caregiver Self-Administered Financial Expenditures (C-SAFE) for pediatric cancer: adapting an established instrument. Jason Pole, Scientist, Pediatric Oncology Group of Ontario	**Factors influencing adherence to cancer treatment in older adults with cancer: a systematic review** Martine Puts, Lawrence S. Bloomberg Faculty of Nursing, University of Toronto
Community-based palliative home care for people living with cancer: variations in cost and caregiver time Ruby Redmond-Misner, Graduate Student, University of Toronto	**Feasibility of population-based collection of patient reported outcome measures in a provincial radiotherapy program** Helena Daudt, Clinical Research Manager, BC Cancer Agency-Vancouver Island Centre
Comparing the health, economic impacts and colonoscopy needs of screening strategies for colorectal cancer (CRC) aimed at increased risk individuals using the Cancer Risk Management Model (CRMM) Andrew Coldman, VP Population Oncology, BC Cancer Agency	**The willingness of cancer patients to regularly complete the EQ-5D health utility questionnaire** Hiten Naik, Medical Student, University of Toronto
Comparing the health, economic impacts and colonoscopy needs of screening strategies for colorectal cancer (CRC) using fecal immunochemical tests (FIT) with different cutpoints using the Cancer Risk Management Model (CRMM) Andrew Coldman, VP Population Oncology, BC Cancer Agency	**Health care resource utilization in the management of chronic lymphocytic leukemia at an Ontario cancer centre** Nicole Mittmann, Executive Director, Hope Research Centre

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Homecare utilization and costs in Stage IV lung cancer: a Canadian public payer experience Nicole Mittmann, Executive Director, Hope Research Centre	**Population-based assessment of primary care physician visits and acute care utilization among women receiving adjuvant chemotherapy for breast cancer** Sarah Bastedo, Student, University of Toronto
How linked in are Canadian oncologists? Results of a national survey of social media use Robyn Leonard, Medical Oncology Research Student, BC Cancer Agency	**Primary care for 'unattached' patients: implementation and early evaluation of a survivorship nurse practitioner role** Lisa McCune, Program Facilitator, Provincial Survivorship Program, BC Cancer Agency
How should RT services be scheduled to meet patient preferences for time of day, day of week and travel duration to receive radiation therapy? Ivo Olivotto, Head, Radiation Oncology, Tom Baker Cancer Centre	**REthinking the way we perform Clinical Trials in Canada (REaCT)** Mark Clemons, Medical Oncologist, The Ottawa Hospital Cancer Centre
'I appreciate it was a human being giving me information': use of a testimonial to promote colorectal cancer screening with fecal occult blood test Samanthika Ekanayake, Research Associate, Sunnybrook Research Institute	**Screening and surveillance of chronic gastroesophageal reflux disease for Barrett's Esophagus and esophageal adenocarcinoma: a systematic review** Wasifa Zarin, Research Assistant, Dalla Lana School of Public Health, University of Toronto
Identification and description of cancer of unknown primary cohort in Ontario Chong (Danny) Kim, Western University	**Smoking intensity and intent to continue smoking among menthol and non-menthol adolescent smokers in Canada** Sunday Azagba, Scientist, Propel Centre for Population Health Impact
Intravenous vitamin C and cancer: a systematic review Heidi Fritz, Naturopathic Doctor, Research Fellow, Canadian College of Naturopathic Medicine	**Stage-based utilization of chemotherapy agents in a breast cancer population** Nicole Mittmann, Executive Director, Hope Research Centre
Knowledge translation in complementary and integrative cancer care Heidi Fritz, Naturopathic Doctor, Research Fellow, Canadian College of Naturopathic Medicine	**The Choosing Wisely Canada® cancer initiative** Gunita Mitera, Quality Initiatives Specialist, Canadian Partnership Against Cancer
Messages promoting colorectal cancer screening may need to be different for men and women: findings from focus groups with screen-eligible Ontarians Jorge Ginieniewicz, Research Associate, Sunnybrook Research Institute	**The cost-effectiveness of 2nd line crizotinib in EML4-ALK rearranged advanced NSCLC in Ontario** Sandjar Djalalov, Health Economist, ARCC, Cancer Care Ontario
New methods for assessing the burden of occupational cancer in Canada Joanne Kim, Research Associate, Occupational Cancer Research Centre	**The patient patient: the importance of knowing your navigator** Sarah Wheeler, Research Associate, Evaluation, Cancer Care Ontario
No change in the rate of bilateral mammographies after BRCA1/2 testing among true non-carriers Geneviève Larouche, PhD Candidate, Laval University	**Transition of colorectal cancer (crc) survivors to primary care: results of a Cancer Care Ontario (CCO) pilot project** Jonathan Sussman, Chair, Survivorship Advisory Committee, Cancer Care Ontario
'No man is an island': cancer patient autonomy and decision making about clinical trial participation Jennifer Bell, Bioethicist and Scientist, Psychosocial, Princess Margaret Hospital	**Transparency in Canadian public drug advisory committees** Zahava Rosenberg-Yunger, Assistant Professor, Ryerson University
Ontario wait times in interventional radiology oncology procedures Colleen Bedford, Project Coordinator, Cancer Imaging Program, Cancer Care Ontario	**Variation in the uptake of lung cancer practice guidelines for NSCLC in Ontario** Aryn Gatto, Project Coordinator, Disease Pathway, Cancer Care Ontario
Pemetrexed vs. Erlotinib as 2nd-line treatment of advanced non-small-cell lung cancer: a real world cost-effectiveness analysis Ian Cromwell, Health Economist, ARCC, BC Cancer Agency	**What counts as a potential harm of lung cancer screening? Findings from focus groups with current and recent former heavy smokers in Ontario** Diego Llovet, Lead Researcher - Qualitative, Sunnybrook Research Institute
Pilot implementation of survivorship care plans Frances Wong, Radiation Oncologist, BCCA-Fraser Valley Centre	**What matters most in quality end-of-life care: perspectives from palliative care providers** Hsien Seow, Cancer Care Ontario Research Chair in Health, McMaster University
Politics and policy-making in Canada's drug review process: the role of Avastin funding in Ontario in shaping the Pan-Canadian Oncology Drug Review Anson Tang, Clinical Lecturer, University of Waterloo	

Morning Concurrent Sessions
10:35AM to 12:05PM

Health Services Research

ORAL CANCER DRUG THERAPY USE AND COSTS HAVE DRASTICALLY INCREASED SINCE 2006: THE SASKATCHEWAN EXPERIENCE
Presented by: Darryl Boehm, Provincial Manager, Oncology Pharmacy Services, Saskatchewan Cancer Agency

To determine whether use and cost of oral cancer drug therapy has changed in Saskatchewan over the past 8 years (from calendar years 2006-2013). Data on prescriptions and cost for 'injectable and oral cancer drugs' (TOTAL Rx) were extracted from the Saskatchewan Cancer Agency Pharmacy system, including 43 oral cancer drugs (ORALRx): Abiraterone, Anagrelide, Anastrozole, Bicalutamide, Busulfan, Capecitabine, Chlorambucil, Crizotinib, Cyclophosphamide, Cyproterone, Dasatinib, Erlotinib, Etoposide, Everolimus, Exemestane, Fludarabine, Flutamide, Gefitinib, Hydroxyurea, Imatinib, Lapatinib, Lenalidomide, Letrozole, Lomustine, Medroxyprogesterone, Megestrol, Melphalan, Mercaptopurine, Methotrexate, Mitotane, Nilotinib, Nilutamide, Pazopanib, Prednisolone, Prednisone, Procarbazine, Sorafenib, Sunitinib, Tamoxifen, Temozolomide, Thioguanine, Tretinoin, and Vemurafenib. Excluded were compassionate program drugs, free drug supplies, Health Canada Special Access Program drugs, and drugs used in clinical trials. Drug rebates were not included in cost calculations. The absolute number of prescriptions for ORALRx has increased by 61%. However, the ratio oral to total chemotherapy prescriptions has remained constant (~ 29%,) indicating a parallel rise in injectable cancer drug prescriptions. As a proportion of the total cancer drug budget, the cost for ORALRx has increased by 63%.

Co-authors: Scott Livingstone, President and Chief Executive Officer, Saskatchewan Cancer Agency; Heather Logan, Executive Director, Canadian Association of Provincial Cancer Agencies; Max Coppes, President, BC Cancer Agency

QUALITY OF END-OF-LIFE CANCER CARE IN CANADA: A FOUR PROVINCE STUDY
Presented by: Lisa Barbera, Clinician Scientist, Odette Cancer Centre

Access to palliative care can improve quality of life in the time leading up to death. Our objective was to describe the quality indicators of end of life health care amongst cancer patients by comparing the use of health services by cancer patients across Canada at the end of life. A retrospective cohort study of patients 19 years and older at the time of death, and with a cancer confirmed cause of death between 2004 and 2009 was carried out in British Columbia, Alberta, Ontario and Nova Scotia. Administrative health databases were linked to examine health service indicators commonly related to the quality of care at the end of life. Aggregate measures of aggressive and supportive care combining selected indicators were also developed. Descriptive statistics were used to compare individual and aggregate indicators across provinces over time and overall. During the study period, 200 304 cancer deaths meeting our eligibility criteria were identified from the four provincial cancer registries. The mean age at death was 71.4 ± 12.9 years and 47% were females. Deaths in an acute care hospital varied from 50% in British Columbia to 59% in Alberta. Provincial values were also calculated for home care use, emergency department visits, hospital and ICU admissions and receipt of chemotherapy at the end of life. Aggressive care was calculated from visits to an emergency department or hospitalization more than once, or ICU admission in the last 30 days of life. Supportive care comprised of access to palliative home care in the six months prior or physician house calls in the two weeks prior to death. We successfully used administrative health care data to create identical cohorts with commonly defined indicators across four provinces in Canada. Differences among provinces were modest though there is opportunity for improvement in these end of life quality indicators.

Co-authors: Anna Chu, Institute for Clinical Evaluative Sciences; Rinku Sutradhar, Institute for Clinical Evaluative Sciences; Ying Liu, Institute for Clinical Evaluative Sciences; Fred Burge, Dalhousie University; Bev Lawson, Dalhousie University; Kim McGrail, University of British Columbia, Centre for Health Services and Policy Research; Reka Pataky, British Columbia Cancer Agency; Stuart Peacock, British Columbia Cancer Agency; Konrad Fassbender, University of Alberta; Alex Popatov, University of Alberta; Hsien Seow, McMaster University

THE DURATION OF THE ACUTE TREATMENT CANCER JOURNEY AMONG ONTARIO PATIENTS DIAGNOSED WITH COLORECTAL CANCER
Presented by: Saul Melamed, Director, Clinical Programs - Diagnosis, Cancer Care Ontario

Improving wait times for cancer treatment is an ongoing priority among Canadian stakeholders, though our understanding of the overall duration of the cancer journey is limited. We defined and measured the overall duration of the acute treatment journey experienced by Ontario patients diagnosed with colorectal cancer. We used Ontario administrative databases (hospital and physician billing) to measure the acute treatment journey duration for patients diagnosed in calendar year 2010. Entry into the cancer system was defined in three ways: through screening; through an emergency room visit; or, through primary care provider. The end point of treatment was the date of last surgical, radiation, or chemotherapy treatment when followed by a two-month period of no treatments. Since non-resection of a primary tumour ostensibly precludes cure, we also defined main treatment types in four ways: resective surgery; non-resective surgery; no surgery (only radiation or chemotherapy); or, no treatment. There were 5671 patients diagnosed with colorectal cancer in Ontario in 2010. The median time from entry into the cancer system to the date of final acute treatment was 84 days. Durations were significantly influenced by patient disease site (colon versus rectal cancer), gender, age, cancer stage, mode of entry, and treatment type received ($p<0.01$ for all). For example, median journey duration among patients receiving resective surgery, non-resective surgery, no surgery, or, no treatment, respectively, was 94 days, 125 days, 171.5 days and 8 days ($p<0.01$). We provide a robust understanding of the acute treatment journey duration experienced by Ontario patients diagnosed with colorectal cancer. Results may be used to better understand the drivers of treatment duration, to inform the design of benchmarks for performance improvement, and to help set patient and provider expectations.

Co-authors: Marko Simunovic, Surgical Oncologist and Associate Professor, Juravinski Cancer Clinic; Hamilton Health Sciences; Sue Su-Myat, Senior Analyst, Cancer Care Ontario; Jacqueline Liberty, Research Associate, Cancer Care Ontario; Jennifer Liu, Informatics Team Lead, Cancer Care Ontario

CAN WE ACCURATELY IDENTIFY CHEMOTHERAPY RELATED ACUTE CARE VISITS IN ADMINISTRATIVE DATA?
Presented by: Monika Krzyzanowska, Associate Professor, University of Toronto, University Health Network, ICES

Administrative health data is increasingly being used to evaluate treatment related complications that can result in acute care visits (emergency department visits (ED) or hospitalizations (H)). We determined the accuracy of billing codes for identifying chemotherapy related acute care visits (CRVs) among women receiving adjuvant chemotherapy for breast cancer. We prospectively developed an algorithm to identify CRVs from administrative data in women receiving adjuvant chemotherapy for breast cancer in Ontario. Sensitivity (SN) and specificity (SP) were calculated for 3 scenarios: chemotherapy related ED visit, chemotherapy related H, and febrile neutropenia (FN) related visit using the chart as the gold standard. Since there is no specific billing code for FN, three different definitions of FN were considered: liberal (defined as fever or infection or neutropenia as main reason for visit), moderate (neutropenia as main reason for visit) or strict (fever or infection plus neutropenia). The population based cohort was generated by linking several Ontario healthcare databases to identify women who received adjuvant chemotherapy between 2007-2009 and had at least one ED or H during treatment. The validation cohort consisted of 496 randomly selected cases from this cohort. The population based cohort consisted of 8359 patients of which 43.4% had at least one ED+H including 1496 patients who had multiple visits resulting in 8,393 unique ED+H. Of these, 73.1% were considered CRVs based on our algorithm. The algorithm performed well in identifying CRVs that included a hospitalization either from ED (SN 90%, SP 100%) or directly from home (SN 91%, SP 93%) but less well for ED visits that did not result in hospitalization (SN 65%, SP 80%). Depending on which FN algorithm was used, 4.8-24% of visits were considered FN related. The liberal FN algorithm had excellent SN regardless of whether the visit involved hospitalization (94-98%) but specificity was moderate (64-80%). The strict algorithm had good SP (79-99%) but sensitivity was highly variable (13-89%). The moderate FN algorithm provided the best tradeoff between SN (69-97%) and SP (83-98%). CRVs including FN related visits can be identified from administrative data with reasonable confidence, obviating the need for chart abstraction to evaluate chemotherapy related serious events.

Co-authors: Rahim Moineddin, PhD, University of Toronto; Katherine Enright, MD, University of Toronto; Lingsong Yun, Institute for Clinical Evaluative Sciences; Eva Grunfeld, MD, DPhil, University of Toronto

IMPACT OF A MULTI-PRONGED INTERVENTION TO IMPROVE THE USE OF SINGLE FRACTION RADIOTHERAPY FOR BONE METASTASES ACROSS SIX CENTRES
Presented by: Ivo Olivotto, Head, Radiation Oncology, Tom Baker Cancer Centre

To evaluate the impact of a mulit-pronged intervention designed to increase the use of Single fraction (SF) radiotherapy (RT) for bone metastases across six centres in BC, previously shown to have SFRT rates of 26% to 73% ($p<0.001$). Several province-wide interventions were implemented during 2012 to improve use of SFRT, including meeting with Radiation Oncology practice leaders, and a province-wide presentation describing the practice variation by physician (anonymized) and centre (not anonymized) and to discuss practice guidelines. The majority of radiation oncologists in the province attended the presentation. The use of SFRT for bone metastases from 2007-2011 inclusive was compared to utilization of SFRT in 2013, to assess the impact of the interventions. 16,898 courses of RT for bone metastases were delivered from 2007-2011 and 3,549 courses were delivered in 2013. Overall, the use of SFRT increased from 49.2% (2007-2011) to 54.3% (2013) after the intervention ($p < 0.001$). The rates of SFRT use in 2007, 2008, 2009, 2010, 2011, and 2013 were 50.5%, 50.9%, 48.3%, 48.5%, 48.0%, and 54.3%, respectively. The proportion of patients treated with SFRT increased at each centre, including the one with the highest pre-intervention rate. The individual centres' increased utilizations were: Centres A 25.5% to 30.0%, B 36.1% to 50.9%, C 38.5% to 49.0%, D 48.8% to 53.9%, and E 73.4% to 75.0%, but the variation in use of SFRT between centres persisted (range 30%-75%). Centre B, with the largest SFRT increase (14.8%) had additional rounds presentations on SFRT evidence, in addition to the province-wide interventions. This study demonstrated that SFRT use for bone metastases increased after a province-wide intervention to increase SFRT use including dissemination of actual practice by centre and physician. A prior trend to decreasing use of SFRT was reversed. This suggests programmatic comparisons and dissemination of quality indicators can lead to increased uptake of evidence-based practice.

Co-authors: Robert Olson, BC Cancer Agency; Manpreet Tiwana, BC Cancer Agency; Mark Barnes, MSc, University of Northern BC; Ross Halperin, BC Cancer Agency; Stacy Miller, BC Cancer Agency; David Hoegler, BC Cancer Agency; John French, BC Cancer Agency

Health Technology Assessment

ONCOLOGY HTA - CANADIAN VERSUS INTERNATIONAL EXPERIENCES
Presented by: Isabelle Chabot, Principal Consultant, EvAccess

Conventional HTA criteria pose particular challenges for reimbursement decision-making with respect to advanced cancer treatments. The objectives of this analyses were to comprehensively review and compare the recommendations of Canada's INESS and pCODR, alongside NICE, and identify patterns that could lead to best practices for HTA assessment in the advanced cancer setting. Recommendations were identified from the three agencies from January 1, 2002 to June 1, 2013. Recommendations were limited to five disease sites (lung, breast, colon, kidney, blood) and to metastatic/advanced settings. Descriptive analyses examined frequency of positive recommendation, and factors related to a positive recommendation. For each recommendation, only publicly available information posted on the agency website was used to abstract data. There was a wide variation in the rate of positive recommendations, ranging from 48% for NICE to 95% for Canada's national process (among the 74% of its recommendations that were publicly posted). Inter-agency agreement was low, with full agreement for only 6 of the 14 drugs commonly reviewed by all three agencies.

Agencies took different approaches to perceived poor cost-effectiveness. NICE was most likely to yield a negative recommendation **O**n these grounds, while Canada's national process was most likely to yield a positive recommendation with a required pricing arrangement. Evidence of a survival gain was not necessary for a positive recommendation; payers were satisfied with progression-free survival, understanding the limitations of cross-over contamination in an advanced setting. Caution is needed when interpreting cross-agency comparisons between HTA agencies, especially as recommendations may not correspond directly to subsequent funding decisions and actual patient access. This may be a concern, given the high profile internationally of HTA assessments conducted by the reviewed agencies.

Co-authors: Angela Rocchi, Principal, Axia Research

COST-EFFECTIVENESS OF A MICROARRAY-BASED GENE EXPRESSION TEST FOR IDENTIFYING PRIMARY TUMOR IN PATIENTS WITH CANCER OF UNKNOWN PRIMARY

Presented by: Malek Hannouf, Department of Epidemiology and Biostatistics, Schulich School of Medicine and Dentistry, Western University

The tissue of origin (TOO) test uses microarray-based gene expression of a tumor biopsy specimen to potentially identify the primary tumor site. We sought to investigate the cost-effectiveness of TOO testing in patients with metastatic cancer of unknown primary site (CUP) from the perspective of the Canadian public healthcare system. A decision analytic model was created to project the lifetime clinical and economic consequences of CUP. It was assumed the TOO test would either be positive or indeterminate, and positive tests could either be correct or incorrect. This would lead to generic or correct/incorrect definitive anticancer treatment. The model was parameterized using 2 year follow up data from the Manitoba Cancer Registry, cost data from Manitoba Health administrative databases and secondary sources. Costs are presented in 2013 Canadian dollars (CAD), and future costs and benefits were discounted at 5%. In the base case, the TOO-based strategy compared to current clinical practice led to an increase of 0.28 life year (LY) and 0.24 quality-adjusted life year (QALY) and an increase in cost of $10,807 CAD per person, resulting in an incremental cost effectiveness ratio (ICER) of $37,774 per LY gained and $44,151 per QALY gained. The ICER was most sensitive to the TOO test accuracy, diagnostic results following positive TOO tumor classification, and patient survival following correct primary diagnosis. The TOO test appears cost effective in the Canadian healthcare system and could be considered for adoption in patients with CUP. However, field evaluations of the test to establish its real world impact on the management of CUP and clinical outcomes are warranted to verify our results.

Co-authors: Eric Winquist, Department of Oncology, Schulich School of Medicine and Dentistry, Western University; Salah Mahmud, Department of Epidemiology and Cancer Registry, CancerCare Manitoba; Muriel Brackstone, Department of Surgery and Oncology, Schulich School of Medicine and Dentistry, Western University; Jeffery Hoch, Department of Health Policy Management and Evaluation, University of Toronto; Sisira Sarma, Epidemiology and Biostatistics. Schulich School of Medicine and Dentistry, Western University; George Rodrigues, Department of Radiation Oncology, London Regional Cancer Program; Peter Rogan, Departments of Biochemistry, Schulich School of Medicine and Dentistry, Western University; Gregory S. Zaric, Ivey Business School, Western University

COST-EFFECTIVENESS OF CETUXIMAB AND PANITUMUMAB IN FIRST-LINE TREATMENT FOR PATIENTS WITH KRAS WILD-TYPE METASTATIC COLORECTAL CANCER IN ONTARIO

Presented by: Emmanuel Ewara, Health Economics Analyst, Centre for Excellence in Economic Analysis Research, St. Michael's Hospital

The purpose of this study was to assess the cost-effectiveness of the use of either cetuximab or panitumumab plus FOLFIRI compared to the current clinical practice of the use of bevacizumab plus FOLFIRI for patients with KRAS wild-type metastatic colorectal cancer (MCRC) from the perspective of the Ontario healthcare payer. A Markov model was developed to simulate the lifetime patient outcomes and costs of each first-line treatment strategy and subsequent lines of treatment until death from the perspective of the Ontario healthcare payer. The model was parameterized using data from the Ontario Cancer Registry, Ontario health administrative databases and published randomized control trials. Patient outcomes were measured in quality-adjusted life years (QALYs) and costs were measured in monetary terms. Both costs and outcomes were discounted at 5% and expressed in 2012 $CAD. Incremental cost-effectiveness ratios (ICERs) were calculated as costs per QALY and extensive sensitivity analyses were carried out. The treatment strategy consisting of bevacizumab plus FOLFIRI was found to dominate the other two first-line treatment strategies for KRAS wild-type MCRC patients. Sensitivity analyses revealed that the ICER values were sensitive to estimates of the effectiveness of treatment, the costs of bevacizumab and cetuximab and health utility values. Bevacizumab plus FOLFIRI is the most cost-effective first-line treatment strategy for KRAS wild-type MCRC patients in Ontario. The cost-effectiveness of cetuximab plus FOLFIRI needs to be further investigated as the costs and outcomes of this strategy were found to be superior to that of bevacizumab plus FOLFIRI under certain circumstances.

Co-authors: Greg Zaric, Associate Professor, University of Western Ontario; Sisira Sarma, Assistant Professor, University of Western Ontario

IS THE PRIMARY PROPHYLAXIS OF FEBRILE NEUTROPENIA IN BREAST CANCER ECONOMICALLY JUSTIFIED?

Presented by: Chris Skedgel, Research Health Economist, Atlantic Clinical Cancer Research Unit

Febrile neutropenia (FN) during adjuvant chemotherapy is associated with worse outcomes and substantial costs, so patients on adjuvant chemotherapy often receive primary or secondary FN prophylaxis with granulocyte-colony stimulating factors (G-CSF). We sought to identify the threshold FN risk at which primary prophylaxis would represent acceptable value-for-money. Chemotherapy dosages for patients at risk of recurrent FN are often reduced and this may adversely affect chemotherapy effectiveness, although the precise impact of such reductions on outcomes is not clear. Prophylaxis with G-CSF can help prevent dose reductions. Our analysis framework incorporated the upfront costs, FN risk with primary, secondary, and no prophylaxis strategies, as well as the expected lifetime costs and QALYs for patients completing adjuvant chemotherapy with and without recurrent FN. G-CSF efficacy was derived from a recent meta-analysis. We report cost-utilities for different combinations of FN risk and relative chemotherapy effectiveness given dose reductions. Cost-utility estimates were sensitive to the underlying risk of FN and to assumptions around the relative effectiveness of chemotherapy given dose reductions. Assuming no loss of relative effectiveness, the minimum FN risk necessary to meet a $100,000 per QALY gained threshold was 22%. This threshold is consistent with recent clinical guidelines for primary prophylaxis, but as relative effectiveness decreased, the minimum threshold increased and the cost-utility of primary prophylaxis relative to a secondary strategy worsened. Primary prophylaxis appears to offer acceptable value-for-money in patients with higher FN risk, but the threshold risk is highly dependent upon the impact of reduced chemotherapy dosages on breast cancer outcomes. Future clinical research should seek to clarify the relative effectiveness of chemotherapy given dose reductions.

Co-authors: Tallal Younis, Capital Health; Daniel Rayson, Capital Health

A QUANTITATIVE APPROACH TO RADIATION TREATMENT MACHINE ALLOCATION IN ONTARIO
Presented by: Jonathan Wang, Senior Analyst, Cancer Care Ontario

Published in 2012, the radiation treatment capital investment strategy (RTCIS) for Ontario specifies the number of machines required in the next decade to meet the growing demand. The objective was to develop a quantitative methodology to identify the priority and timing of the allocation of radiation treatment machines in Ontario. One of the recommendations of the RTCIS was to fill the existing empty rooms and swing bunkers in the province with radiation machines before securing capital to build new radiation treatment rooms. What was not addressed in the RTCIS was the question about which regional cancer programs should receive the capital investments first and in what year they should receive it. To address this problem, we used a mathematical optimization algorithm called Integer Programming to formulate the problem and choose an allocation that minimizes the ratio of the projected demand to capacity estimates at each facility (namely, the objective function). There are 14 regional cancer programs in the province with 17 associated radiation treatment facilities. Additionally, there are 16 existing empty rooms and swing bunkers spread across the radiation treatment facilities. A five year window from 2013-2017 was used for the allocation. The algorithm stopped looking for a new allocation strategy when the change to the objective function was less than 0.01. Using integer programming, the recommended timing and number of machines were assigned to the facilities, and the results had face validity with the clinical and business groups consulted. These recommendations informed the regional and provincial consultation process which is currently ongoing. In addition, capital funding requests to the provincial government were aligned to reflect the model's outcomes. This methodology provides a rigorous and quantitative approach to allocation, while allowing the solution to be adjusted to account for factors that the model does not consider, like regional readiness. This methodology for allocation can be extended to other areas to provide a quantitative foundation for resource allocation decision making.

Co-authors: Lisa Favell, Director, Capital Planning, Cancer Care Ontario; Eric Gutierrez, Clinical Program Manager, Cancer Care Ontario; Junell D'Souza, Planning Officer, Cancer Care Ontario; Padraig Warde, Interim Vice-President, Clinical Programs and Quality Initiatives, Cancer Care Ontario

Patients and Families

CANADIAN ADOLESCENTS' PERSPECTIVES OF CANCER RISK
Presented by: Roberta Woodgate, University of Manitoba

Research examining adolescents' understandings of cancer and cancer risk is limited. Accordingly, we conducted a qualitative study that sought to extend our limited understanding of Canadian adolescents' perspectives of cancer and cancer prevention including how adolescents conceptualize cancer risk. This presentation addresses findings specific to adolescents' perspectives of cancer risk. Seventy-five adolescents (11-19 years old) took part in the study. Two individual open-ended interviews were planned for each adolescent with the second interview occurring four to five weeks after the first interview. The second interview was complemented by the use of photovoice. Four focus groups, composed of the adolescents who took part in the individual interviews, were also conducted. Data analysis involved both thematic and content analysis. Findings revealed that adolescents conceptualized cancer risk in terms of specific risk factors, with lifestyle factors (e.g., smoking, diet/nutrition, and physical inactivity) dominating their discourse. Adolescents rationalized risky health behaviours through use of cognitive strategies that included questioning and evaluating risk information, considering the benefits-costs of the cancer risk, and downplaying the impact of the cancer risk. Use of these cognitive strategies helped to make cancer risks more acceptable to adolescents. While adolescents felt that cancer could not always be prevented, they did feel it was possible for individuals to delay getting cancer by lowering the impact of cancer risks through making the right choices. This study affords a deeper appreciation of adolescents' beliefs of cancer risk, as well as how adolescents evaluate cancer risk factors, rationalize risky health behaviours, and make the right choices to ward off cancer. The findings from this study may help to inform cancer prevention and risk communication programs and policies.

Co-authors: Jalal Safipour, University of Manitoba; Ketan Tailor, PhD student, Marquette University

TRANSITION FROM PEDIATRIC TO ADULT CARE FOR CHILDHOOD CANCER SURVIVORS IN NL
Presented by: Roger Chafe, Assistant Professor, Memorial University; Peter Wilton, Graduate Student, Memorial University

This study examines the existing literature pertaining to transitions of care for survivors of childhood cancers and conducts a situational analysis of the care for survivors of childhood cancers who have recently transferred to adult care in Newfoundland and Labrador. PubMed, The Cochrane Library and the EBSCO database are being searched as part of the literature review. The situational analysis will include document reviews and qualitative interviews examining how care transitions are occurring for survivors of childhood cancers in NL. These semi-structured interviews will capture patient's experiences with the transition and identify possible service gaps, unmet needs and opportunities for improving care. Preliminary results from the examination of literature reveal an inconsistent approach to transitions of care for survivors of childhood cancer. Results so reveal that many survivors and care providers favor an individual approach to tailoring a transition of care. Interview data will be collected starting in March and preliminary results will be available by early May. Transitions to adult care is a very important issue for survivors of childhood cancers. The state of transition of care models for survivors of pediatric cancer in Canada is not well known. This project will help address some of the gaps in our knowledge in NL, a province in which this topic has not been previously studied.

CANCER-RELATED FATIGUE AND ITS IMPACT OF THE LIVES OF BREAST CANCER SURVIVORS
Presented by: Jennifer Jones, Director of Research, Cancer Survivorship, Princess Margaret Cancer Centre

Cancer-related fatigue (CRF) is a well documented symptom following breast cancer (BrCa) treatments. The purpose of the current study was to examine and compare the social activities, work status, and the use of health and supportive care resources between breast cancer survivors with and without CRF. One-time cross-sectional survey. Preliminary data analyses were conducted on a sample of n= 236 early stage (0-III) BrCa survivors (1-5 years post-treatment). Fatigue was measured using the FACT-F. Those with (<34) and without (>34) significant CRF were compared on the Social Difficulties Inventory (SDI-21); WHO Health and Work Performance Questionnaire; and Service Utilization Questionnaire. 92 (38.7%) of participants met the cut-off for CRF. Those with and without CRF did not differ on age, time since treatment, or treatments received. Respondents with CRF had higher levels of social difficulties: SD-16 Total ($p<0.0001$), Everyday living ($p<0.0001$), Money matters ($p<0.001$), and Self and others ($P<0.0001$). In addition, those with CRF were more likely to be unemployed ($p=0.039$) or on medical leave ($p<0.0001$); reported lower levels of absolute presenteeism ($p<0.0001$); and higher use of physician ($p=0.043$), hospital ($p=0.025$), allied health ($p=0.007$) and psychosocial ($p<0.0001$) services. CRF was related to higher levels of social difficulties and health care utilization and less work productivity. These finding help to personify the impact of CRF and highlights the need for active screening procedures and interventions which include these outcomes. Full data set (n=300) and analyses will be presented.

Co-authors: Christopher Longo, Director, Health Services Management, McMaster University; Karin Olsen, Professor, Nursing, University of Alberta; Philippe Bedard, Medical Oncologist, Princess Margaret Cancer Centre; Eitan Amir, Medical Oncologist, Princess Margaret Cancer Centre; Dr. Doris Howell, RBC Chair, Oncology Nursing Research, Princess Margaret Cancer Centre

PROSTATE CANCER PATIENTS' SATISFACTION WITH WAIT-TIMES FOR RADIATION THERAPY IN NEWFOUNDLAND AND LABRADOR
Presented by: Dana Ryan, Memorial University

What influences prostate cancer patients' satisfaction with wait-times for radiation therapy? We describe and compare the demographic, clinical and wait related characteristics associated with short and long waits and high and low levels of wait related satisfaction. We considered the interval from first visit with an oncologist to start to radiation therapy. We surveyed and audited the charts of 59 prostate patients who presented at cancer clinics to gather information about dates in the care seeking process, satisfaction with wait times, treatment and clinical and socio-demographic characteristics. Radiation was their primary treatment. We calculated long (> median) and short (< median) wait time from first visit with an oncologist to start of radiation. Satisfaction with this interval was asked using a 5 point Likert scale and recoded as unsatisfied (1-2) and satisfied (3-5). We used chi-square tests and logistic regression to examine the relationship between predictors, wait time and satisfaction. The median wait-time was 55.0 days and 82.8% were satisfied with their wait time. There were no significant differences in the characteristics or of men with long and short waits. There was no significant difference in the level of satisfaction of men with long and short waits. Compared to unsatisfied patients, a larger proportion of satisfied patients had were satisfied with their diagnosis wait times (20.0% vs. 79.2%, $p=0.008$). These findings did not change when outliers (wait times > than 95th percentile) were removed. For prostate cancer patients, satisfaction with wait time for radiation therapy is influenced by earlier experiences in cancer care pathway than the actual wait for radiation therapy itself. Our findings highlight the importance of timely diagnosis in prostate patients' perceptions of cancer care wait-times, including for wait times after diagnosis.

MEASURING END-OF-LIFE CARE QUALITY AND EXPERIENCE: PERCEPTIONS OF BEREAVED CAREGIVERS
Presented by: Hsien Seow, Cancer Care Ontario Research Chair in Health, McMaster University

End-of-life (EOL) care quality is most accurately measured from the perspective of the patient and family, however, data collection that is not burdensome at end-of-life is a research challenge. This study's objective is to understand the perception of EOL care quality and experience from bereaved caregivers. We implemented a survey that captured the EOL care experiences of homecare patients and their families. The survey is based on two validated instruments: FamCare to measure satisfaction with care and VOICES to measure care experience. The survey consisted of 87 questions featuring scaled, multiple choice, and opened-ended items that asked about EOL care experiences across multiple settings and providers types. Bereaved family caregivers of homecare patients in six regions in Ontario were invited to complete the survey online or in paper form. 320 surveys were completed (response rate=75%); half completed online. Half the patients were male, 60% were 70+ years, and 94% had cancer. The percent of caregivers who rated EOL care as either poor or fair in respective settings were: homecare 6%, primary doctor 13%, hospital 14%, and residential hospice 4%. 70% reported they got as much support from these services as needed. 15% rated the management of pain as either poor or fair in the last week of life. The majority (75%) of respondents provided a detailed account of what was good (n=245) and/or bad (n=150) about the care experience; 20% of the 'bad' comments focused on 1 or 2 providers. Detailed analysis of responses will be presented. Most respondents reporting a positive EOL care experience; but we were also able to discern areas for service improvement. We demonstrate that assessing EOL care experiences from bereaved caregivers is both feasible and purposeful for quality improvement.

Afternoon Concurrent Sessions
1:30PM to 3:00PM

Personalized Medicine

TOWARDS A NATIONAL STRATEGY FOR IMPROVING CLINICAL TRIAL ACCRUAL OF ADOLESCENTS AND YOUNG ADULTS (AYA) DIAGNOSED WITH CANCER

Presented by: Ronald Barr, Professor of Pediatrics, McMaster University

The Clinical Trials Working Group of the National Task Force on AYA Cancer includes oncologists, senior cancer system administrators, and a representative of the Canadian Cancer Society. Its main objective is to develop and implement a comprehensive strategy aimed at improving accrual of AYA diagnosed with cancer to clinical trials. The Working Group (WG) was formed in early 2013 based on the recommendations of the NTF (JAYAO 2011, 1(1):53-59) and its 2012 Framework for Action (JAYAO 2013, 2(2):72-76). The WG focus has been in three key areas: 1) assessment of current AYA accrual in clinical trials, 2) identifying barriers and developing strategies for improving accrual of AYA in clinical trials, and 3) implementing, monitoring and evaluating these strategies. Work on assessment of data sources for clinical trial accrual is on-going. The group has been actively building partnerships and recruiting key stakeholders necessary to implement change in AYA clinical trial accrual. Data sources for AYA clinical trial accrual rates have been identified and are being assessed. Gaps in data and barriers to accrual have been identified and research proposals have been submitted to address them. Partnerships with various groups and stakeholders are being developed, including: Health Canada, NCIC CTG affiliated with the Canadian Cancer Society, the North American co-operative cancer clinical trials groups administered by the US National Cancer Institute, and the Canadian Cancer Clinical Trials Network. These partnerships will allow the WG to capitalize on existing initiatives. Strategies for increased enrolment of AYA in trials are being developed. A work plan to create and implement these strategies has been framed. Current clinical trial accrual rates for AYA with cancer are lower than for children or adults with cancer, impeding progress towards advances in optimal care. Improved rates of AYA accrual are part of the NTF's work of redressing inequities of care for AYA with cancer and ultimately improving outcomes.

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OPTIMIZING IMPLEMENTATION OF FECAL IMMUNOCHEMICAL TESTING IN ORGANIZED COLORECTAL CANCER SCREENING: A RANDOMIZED CONTROLLED TRIAL

Presented by: Jill Tinmouth, Lead Scientist, ColonCancerCheck, Cancer Care Ontario

Fecal immunochemical testing (FIT) for colorectal cancer (CRC) screening improves detection of CRC and advanced adenomas compared to guaiac fecal occult blood testing (gFOBT). However, FIT is reported to be unstable over time and at extreme temperatures. Prior to implementation in Ontario's CRC screening program, a pilot study of FIT was conducted. The objective of the study was to inform the implementation of FIT in Ontario, particularly, to determine the impact on participation rates of (1) different methods of FIT distribution and (2) different methods of FIT return. This was a factorial cluster randomized controlled trial. Participants comprised all patients eligible for screening enrolled with 28 Ontario family physicians. Interventions included 2 distribution methods (direct mail-out of FIT vs. mailed invitation to pick-up FIT at family doctor's office) and 2 return methods (FIT returned via regular mail vs. drop-off at a laboratory service centre). One sample quantitative FIT kits (either I-FOBT Hemoglobin NS-Plus, Alfresa Pharma Corp., Japan or OC-Sensor DIANA IFOB Test System, Eiken Chemical Company Ltd., Japan) were used. The primary outcome was return of a completed one sample FIT kit. Patients with positive results (75 ng hgb/mL) were recommended colonoscopy. The primary outcome was compared by distribution method, return method and kit type using multivariate regression to adjust for patient, physician factors and kit type. Of the 3780 patients in our cohort, 685 (18%) returned a completed FIT kit. Of the 1839 that were mailed a kit, 436 (24%) returned it compared to 249 (13%) of the 1941 who were asked to visit their family physician to pick up a kit. Rates of return were similar in those who were asked to drop off a kit (330 of 1890 (18%)) and those who were asked to mail it back (344 of 1818 (19%)). After adjustment for kit type as well as patient and physician factors, FIT kit return was significantly associated with distribution method (single mail out vs. pick up: O.R. 2.97, 95% C.I. 2.04 - 4.32, $p < 0.0001$ and repeat mail out vs. pick up: O.R. 2.75, 95% C.I. 2.27 - 3.33, $p < 0.0001$) but not with method of return. 13.6% of participants had result of 75ng hgb/ml or greater while 10.9% had a result of 100 ng hgb/ml or higher. Positivity rates declined with increasing time from stool collection to testing. Improved participation rates were associated with directly mailing the FIT kit but not with method of return. Our findings are of considerable interest to decision-makers in jurisdictions where FIT is being considered or is used in organized CRC screening.

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CONSIDERATIONS IN MODELING THE COST-EFFECTIVENESS OF GENOMIC TESTS THAT ARE USED TO INFORM CRITICAL TREATMENT DECISIONS IN ACUTE MYELOID LEUKEMIA

Presented by: Sonya Cressman, Health Economist, ARCC, BC Cancer Agency

Genomic tests are currently used to aid decisions for or against stem cell transplantation in acute myeloid leukemia (AML) with the goal of reducing relapse and transplant-related death. Our objective was to model the cost-effectiveness of novel diagnostics with consideration to the relevant decision problems and subclass-specific nature of AML. A hybrid decision-tree and Markov modeling approach was used to conceptualize the choices and chances involved in AML diagnosis and treatment. Outcomes from patients treated at the Vancouver General Hospital were used to inform transition probabilities in the model and estimates of the health benefits to be gained as a result of genomic testing. A separate cost dataset was built for each of the health states and 90-day cycles in the model. Probabilistic analysis and literature inputs were then applied to develop cost-effectiveness scenarios that assessed the impact of the genomic tests. AML patients who undergo stem cell transplant in their first complete remission incur higher costs than those who are treated with chemotherapy alone but also have a reduced risk of relapse than chemotherapy patients. The model predicts a 34% chance that qualifying AML patients would be transplanted in first complete remission without molecular testing. Our first scenario projected the impacts of testing for two, clinically relevant, mutations. The results of the tests indicate that 15% more stem cell transplants could be expected for an increased cost of $4,822 (2013 CAD) and gain of 27 days of life per-person, on average. The resulting incremental cost-effectiveness ratios fall within the range of cancer interventions that would be likely to be considered cost-effective. Modeling the impact of genomic tests requires a comprehensive understanding of the disease. The approach should include all relevant chances and choices that could be affected by the test. In the instance of AML, genomic testing is likely to offer a cost-effective method to facilitate a critical treatment decision.

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THE VALUE OF PERSONALIZING MEDICINE: MEDICAL ONCOLOGISTS' VIEWS ON GENE EXPRESSION PROFILING IN BREAST CANCER TREATMENT
Presented by: Yvonne Bombard, Scientist, Assistant Professor, Li Ka Shing Knowledge Institute, St. Michael's Hospital

Guidelines recommend gene-expression profiling (GEP) tests to identify early-stage breast cancer patients who may not benefit from chemotherapy, potentially reducing toxicity and healthcare costs. Several GEP tests are clinically-validated yet limited evidence exists about their impact on chemotherapy decisions (clinical utility). We explored medical oncologists' perspectives on GEP's clinical utility. We used a qualitative study design, comprising individual telephone interviews with medical oncologists (n=14; 10 academic, 4 in the community) from Ontario, Canada. Academic medical oncologists were recruited through participating academic oncology clinics, professional advertisements and referrals from the research team. Medical oncologists practicing in community hospitals were recruited through e-mail invitations and referrals from the research team. Interviews were digitally audio-recorded, transcribed and coded for both anticipated and emergent themes pertaining to participants' use of and reservations about the test and its perceived clinical utility. Qualitative data were analysed using interpretative methods, including content analysis and constant comparison techniques. Oncologists' opinions were mixed about GEP's utility for early-stage breast cancer chemotherapy decisions. Some considered it as a tool that provided additional comfort or confidence to their established approach to risk assessments, while others described it as 'critical' and used it to resolve their uncertainty about recommending chemotherapy. Some community oncologists also valued the test as confirmation of what they felt were inconsistent pathology reports. On balance, oncologists believed GEP tests led to 'more appropriate chemo use'. However, some raised concerns about its reliability, proprietary nature, high cost, inappropriate/over-use and variability in interpretation of results within their medical community. Paradoxically, oncologists felt it was simple to explain the test to patients but remained uncertain about patients' understanding of the results and their implications for treatment. Oncologists valued the test as an additional decision support tool, despite their concerns about its reliability, cost, inappropriate use by other oncologists and patients' limited understanding. Results identify a need for patient decision aids and clinical practice guidelines to support patients' understanding and standardized use and interpretation of the test.

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THE INFLUENCE OF GENE EXPRESSION PROFILING (GEP) ON DECISIONAL CONFLICT IN CHEMOTHERAPY TREATMENT DECISION-MAKING FOR EARLY-STAGE BREAST CANCER (BrCa)
Presented by: Karen MacDonald, Research Associate, University of Calgary

Individuals with BrCa have high decisional conflict with respect to treatment decisions. GEP of tumours informs risk prediction, potentially affecting decisions about adjuvant chemotherapy in early BrCa, where only 15% will experience recurrence. We aimed to examine whether GEP reduces decisional conflict in chemotherapy treatment decision-making. We embedded the validated Decisional Conflict Scale (DCS) into our discrete choice experiment survey examining preferences for chemotherapy treatment in early BrCa. Of the 1004 general population participants, 200 completed the DCS before (DCS-1; no GEP test score in scenario) and after (DCS-2; GEP test score added to scenario) the discrete choice experiment. The 16-item DCS was scored from 0-100 with five subscores. Mean total and subscores, standard deviations and change in scores were calculated, with significance based on matched pairs t-tests ($p<0.05$). We anticipated GEP would decrease decisional conflict in individuals unsure of their chemotherapy treatment decision. As anticipated, total score and all subscores (uncertainty, informed, values clarity, support, and effective decision) decreased significantly (all $p<0.05$) in the group of respondents (n=33) who indicated uncertainty about taking chemotherapy in DCS-1 but changed to no chemotherapy after receiving a GEP test score in DCS-2. In the group of respondents (n=25) who indicated they would undergo chemotherapy in DCS-1 but changed to unsure in DCS-2, their effective decision subscore increase significantly (24.5 to 34.5, $p<0.05$). In the overall sample (n 0), total decisional conflict decreased from DCS-1 to DCS-2 by 0.5 ($p=0.3$) and all subscores had non-significant decreases with the exception of effective decision, which had a non-significant increase. GEP influences chemotherapy treatment decisional conflict in individuals who are initially unsure in their treatment decision-making. However, we do not observe this effect in individuals who do not change their chemotherapy treatment decisions.

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Cancer Costing

PHASE-SPECIFIC AND LONG-TERM COSTS OF CANCER CARE IN ONTARIO

Presented by: Claire de Oliveira, Independent Scientist/Health Economist, Centre for Addiction and Mental Health

Cost estimates of cancer care are a useful tool to inform and help formulate national cancer programs and policies. Furthermore, they are an important input for economic evaluations. We estimated phase-specific and long-term (5-year) net costs of care for the 21 most prevalent cancers, and remaining tumour sites combined, in Ontario. We selected patients diagnosed with cancer between 1997 and 2007 at >19 years of age, with valid ICD-O and histology codes, who survived >30 days after diagnosis, and had no second cancer within 90 days of the initial cancer, from the Ontario Cancer Registry (N= 402,399). We linked these patients to administrative health care databases, and radiation therapy data from Cancer Care Ontario. Net costs (i.e., difference in cost for cancer patients and noncancer control subjects) were estimated by phase of care and applied to 5-year cancer survival curves to estimate 5-year costs of care and extrapolated to the adult Canadian population diagnosed with cancer in 2009. Mean net costs of care were highest in the initial and terminal phases of care and lowest in the continuing phase of care. In particular, phase-specific costs were, on average, lowest for melanoma, thyroid and prostate cancers and highest for esophageal, multiple myeloma and brain cancers. Mean 5-year net costs varied substantially: from less than $20 000 for melanoma, thyroid, and prostate cancers to more than $40 000 for esophageal, multiple myeloma and brain cancers. Aggregate 5-year net costs of care to the Ontario health care system are estimated to be over $10 billion; these were highest for lung, colorectal, prostate and breast cancers, due to underlying incidence, survival, and phase-specific costs. The costs of cancer care in Ontario are substantial and vary by tumour site. Inpatient hospitalizations comprise the largest portion of the cost of care for all cancers. Our cost estimates will improve the quality of future cancer-related economic evaluations and are of value to researchers and policy makers.

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FIRST TWO YEARS OF HEALTH SYSTEM RESOURCES AND COSTS FOLLOWING A STAGE DEFINED BREAST CANCER DIAGNOSIS: A POPULATION-BASED APPROACH

Presented by: Nicole Mittmann, Executive Director, Hope Research Centre

To determine the publicly funded health care costs associated with breast cancer (BC) by stage of disease in the first two years following diagnosis. Incident cases of female invasive BC (ICD-9 174.x) diagnosed between 2005 and 2009 were extracted from the provincial cancer registry and linked by their encrypted health card number to administrative datasets. The type and usage of publicly funded health care services used were stratified by disease stage over the first two years following diagnosis. BC cases were matched to controls (women without cancer). Overall average costs (2008$CAN) and costs per resource per BC case were compared to a control group from a public payer perspective. The attributable cost for the two-year time horizon was determined. There were 39,655 BC cases and 190,520 controls in our cohort study. The average age was 61.1 years old and 60.9 years old, respectively. The majority of cases were Stage I (34.4%) and Stage II (31.8%). Eight percent of the entire cohort died within the first two years of diagnosis. The overall mean cost per BC case in the first two years following diagnosis was $41,686. The mean cost increased by stage: Stage I ($29,938), Stage II ($46,893), Stage III ($65,369) and IV ($66,627). When compared to controls, the net cost for BC cases was $31,732. Cost drivers were cancer clinic visits, physician billing and inpatient hospitalizations. Costs increased by stage of disease. Cost drivers were identified and a net cost was calculated. This data will allow for planning and decision making around limited healthcare resources.

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CHANGES IN TAKE HOME MEDICATIONS (THM) CANCER DRUG THERAPY DISPENSED FROM FY06 TO FY13 IN THE BRITISH COLUMBIA PROVINCIAL ONCOLOGY DRUG PROGRAM

Presented by: Susan Walisser, Provincial Pharmacy Professional Practice Leader, BC Cancer Agency

In order to determine whether safe patient care strategies require adjusting, we determined whether usage of Take Home Medications (THM), that is all oral (po) subcutaneous (SC) and intramuscular (IM) cancer drug therapy has changed in British Columbia over the past 8 years. Provincial prescription data from FY06 to FY13 were extracted from BCCA's Pharmacy Data Warehouse. Prescriptions were filled at a BCCA Regional Cancer Centre or from one of the Communities Oncology Network centres located throughout the province. The total number of prescriptions filled were determined. From these THM prescriptions were identified, dispensed either in inpatient or outpatient setting. THM included all po, sc, and im drugs on the BCCA Drug Benefit List, used within the context of a clinical trial, or accessed through Health Canada's Special Access Program. Drug rebates and free drug programs were not included in cost calculations. The percentage of po drugs that make up the THM prescriptions increased from 76.4% in FY06 to 80.8% FY13. The % of cost for po drugs within the THM envelope increased from 59.4% in FY06 to 75.3% in FY13. The proportion THM dispensed (43.4% in FY13) has remained relatively constant, with the greatest change occurring in FY07. Similarly the proportion of BCCA's total drug budget spent on THM drugs has only increased by 3.8%. Within the THM funding envelope, the proportion spent on po drugs has increased by 15.9%.

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CANADIAN COST COMPARISON OF DIFFERENT FORMS OF ANDROGEN ABLATIVE THERAPIES PRIOR AND DURING THE CASTRATION-RESISTANT PROSTATE CANCER

Presented by: Alice Dragomir, Assistant Professor, McGill University

Medical or surgical castration are the treatments of choice for hormone-sensitive prostate cancer with a high-risk of disease recurrence or progression. In addition, androgen ablation (ADT) maintenance is recommended during the castration-resistant prostate cancer phase. The objective of this study was to perform a cost comparison of different ADT forms, including luteinizing hormone releasing hormone agonists (LHRHa) medications and surgical castration, given prior to and during the castration-resistant prostate cancer (CRPC) phase. A Markov model was developed in order to simulate survival since ADT initiation and associated costs as per Quebec's public healthcare system, in patients with a high-risk of disease recurrence or progression. The model includes recently approved additional lines of treatment given after docetaxel (i.e. abiraterone and cabazitaxel). Survival was based on clinical trial results and clinical practice guidelines found through a literature review. Costs are in 2014 Canadian dollars ($). The mean per patient ADT cost in CRPC over an average period of 28.1 months was estimated at: $1,413 for surgical castration, $8,346 for Leuprolide (Eligard), $8,514 for Triptorelin (Trelstar), $9,891 for Buserelin (Suprefact Depot), $10,032 Leuprolide (Lupron Depot), and $10,172 for Goserelin (Zoladex). The corresponding values in the period prior to CRPC, over 75.1 months, were: $1,413, $22,305, $22,755, $26,435, $26,811 and $27,186, respectively. For each annual Canadian cohort of 4,000 CRPC patients, the total cost of ADT during the CRPC phase was estimated at $5.6 million for surgical castration, and between $33.4 and $40.7 million for LHRHa therapy. Over the period prior to CRPC, the total cost for surgical castration remained the same and was between $89.2 and $108.8 million for LHRHa therapy. Our study estimates the costs associated with the use of different ADT prior and over the CRPC phase. Increasing the use of least costly forms of ADT will result in potential cost savings.

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TRANSLATING EVIDENCE-INFORMED SYSTEMIC THERAPY CLINICAL PRACTICE INTO A PATIENT-BASED SYSTEMIC TREATMENT FUNDING MODEL

Presented by: Vicky Simanovski, Sr. Manager, Regional Systemic Treatment, Cancer Care Ontario; Bill Evans, Clinical Lead; Carlin Lalonde, Project Lead, Cancer Care Ontario

In alignment with the Ontario Ministry of Health's direction for Health System Funding Reform, Cancer Care Ontario (CCO) is developing and implementing a patient-based funding model for systemic treatment. The new funding model will transition funding from life-time per case funding to reimbursement based on evidence-informed episodes of care. Provincial Disease Site Group (DSG) experts reviewed all chemotherapy regimens administered in Ontario over the previous two years and for each disease site identified the treatment regimens for which there was evidence of clinical benefit according to the intent of treatment (curative/adjuvant vs palliative or both). DSG leads also advised on the appropriate number of treatment cycles, treatment/clinic visits and any special requirements for treatment delivery. The workload to deliver each regimen was defined by nursing, pharmacy and psychosocial oncology experts. Standard provincial rates were then applied to micro-cost each regimen and episode of care. Approximately 1000 regimens were reviewed by the DSGs: ~100 were deemed to be evidence informed for use with adjuvant/curative intent; 305 had evidence supporting use in the palliative setting; ~90 had evidence supporting use in both settings. After all regimens were micro-costed, they were grouped into bands from low to high cost: 4 bands for adjuvant/curative intent and 3 for palliative intent based on weighted average cost. Only a few regimens were very high cost outliers and these regimens will be funded individually. The methodology reproduces very closely what the provincial cost would be if each regimen was funded individually. To complete the funding model development, evidence guided the pricing for bundles related to consultation, palliative/supportive care and active follow-up not currently requiring treatment. The funding model development required extensive clinical engagement with disease site experts, nurses, pharmacists and psychosocial oncology care providers and close attention to evidence in support of quality patient care. While further refinements will be needed, a strong foundation has been established for a systemic treatment patient-based funding model.

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Decision Making

A QUALITATIVE STUDY EXPLORING THE INFLUENCE OF CANCER LABELS ON GENERAL PUBLIC'S PREFERENCES

Presented by: Helen McTaggart-Cowan, Health Economist, ARCC, BC Cancer Agency

Difficult policy decisions in cancer are increasingly being based on general public health state values. The states are generally not labelled as cancer, to avoid eliciting negative emotions; however, this has not been qualitatively explored. This study explores the effect of cancer and other disease labels on general public's preferences. Twenty-four members of the general public completed a think-aloud discrete choice experiment (DCE). The DCE was designed to evaluate individuals' preferences for different health scenarios pertaining to colorectal cancer, type 2 diabetes, and rheumatoid arthritis. Twelve participants completed a four-attribute DCE (health state before treatment, health state after treatment, duration of life, and disease type). The remaining 12 completed a three-attribute DCE (disease type excluded); after each question they were asked if they would change their answers if a specific disease label was applied. All individuals participated in a semi-structured interview, where they elaborated on their responses in the DCE. There were no consistent differences in preferences between those completing either DCE version. Disease labels had an effect on some participants because they elicited different perceptions about, and experiences with, the diseases under investigation. The primary reason for participants not being affected by the label was their preference to achieve the greatest improvement in health state, independent of disease label; i.e., a longer life was more important than having a specific disease. This was in part due to a belief that they could adapt to their condition, and also from a hope that longer life gave more time for medical advancements to improve their quality of life. However, some of these participants appeared to disproportionately focus on the cancer label during the think-aloud exercise. The provision of disease labels, including cancer, encouraged further consideration by the general public respondents, but whether they materially affected the valuation depended on the participants' individual perception of the disease state and their experience with similar diseases. This will be further explored in an upcoming large-scale online study.

Co-authors: Dean Regier, Senior Health Economist, ARCC, BC Cancer Agency; Stuart Peacock, Co-director, ARCC, BC Cancer Agency

HEALTH SYSTEM-LEVEL FACTORS INFLUENCE THE IMPLEMENTATION OF COMPLEX INNOVATIONS IN CANCER CARE
Presented by: Robin Urquhart, Assistant Professor, Dalhousie University

The movement of new knowledge and tools into healthcare settings continues to be a slow, complex, and poorly understood process. The objective of this paper is to present the system-level factors important to the implementation of synoptic reporting tools (SRTs) in two cases of cancer care in Nova Scotia, Canada. This study used case study methodology to examine the multi-level factors influencing the implementation of SRTs for endoscopy and cancer surgery reporting. SRTs capture and present information about a medical or surgical procedure in a structured, checklist-like format and typically report only items critical for understanding the disease and subsequent impacts on patient care. Data were collected through interviews with 40 key informants, document analysis, nonparticipant observation, and tool use/examination. Analysis involved production of case histories, an in-depth thematic analysis of each case, and a cross-case analysis to compare and contrast the themes across cases. The structural, infrastructural, and socio-historical components of the healthcare system influenced SRT implementation in both cases. Specifically, the healthcare system's care delivery and support structure, information technology infrastructure, policy environment, and history of limited collaboration and weak inter-organizational relationships were problematic in the context of SRT implementation. Navigating and managing these system components required substantial time and effort on the part of the implementation teams and necessitated additional (human and information technology) resources. In both cases, key informants discussed historical relationships and interactions within the healthcare system as being a major barrier to SRT implementation and emphasized the importance of managing inter-organizational relationships to successfully implementing these and other similar tools across provincial healthcare organizations. The findings provide an in-depth, nuanced understanding of how healthcare system components can influence the implementation of a new tool in clinical practice. As SRTs spread across Canada, implementation teams need to understand the potential influence of such components to effectively manage and/or leverage them during planning and implementation efforts.

Co-authors: Lois Jackson, Dalhousie University; Joan Sargeant, Dalhousie University; Geoffrey Porter, Dalhousie University; Eva Grunfeld, University of Toronto

ADVANCING QUALITY IN CANCER CONTROL AND SYSTEM PERFORMANCE: DEVELOPING A STRATEGY TO ADDRESS UNCERTAINTY IN HEALTH POLICY DECISION-MAKING
Presented by: Melissa Brouwers, Associate Professor, McMaster University

Our project objectives were to: identify and categorize all sources of uncertainty faced by health policy decision-makers; develop a tool that would assist decision-makers in managing uncertainty in the decision-making process; and pilot test our tool with members of the health policy community via a video-based online survey. We developed a framework characterizing uncertainty faced by health policy decision-makers based on our integrated review of the literature. Using this framework, we created a 'decision guide' intended to assist policy-makers in systematically considering any uncertainty present in a given policy decision. The framework and decision guide are currently undergoing review by members of the health policy community for completeness, relevance, usefulness, and areas for improvement. Participation includes applying the decision guide to a mock policy scenario. To facilitate participation and evaluation, we developed an online video-based survey platform. Our framework is comprised of four core domains of uncertainty (scientific, structural, normative, inherent) and 12 subdomains. Based on the framework, the decision guide is comprised of six questions, which address each domain/ subdomain of uncertainty, and answered on a 'Yes, No' response scale. The guide supports the systematic consideration of potential sources of uncertainty and their potential impact for a given policy decision. Our external review is currently in progress. Individuals from health policy-related organizations such as Cancer Care Ontario, the pan-Canadian Oncology Drug Review, the Ministry of Health and Long-Term Care, and the Ontario Health Technology Advisory Committee and health policy trainees and researchers have been invited to participate. We expect to complete the external review and have results available by March 2014. Based on the results of the stakeholder review, we will reach a final Framework of Uncertainty in Health Policy Decision-making and a Decision Guide tool to support health policy decision-making. The Framework and Guide will be publicly released and available for use in mid-2014.

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THE CANCER PREVENTION CENTRE: A MODEL OF VERTICAL INTEGRATION BETWEEN A RESEARCH UNIVERSITY AND A COMMUNITY ORGANIZATION
Presented by: Carolyn Gotay, Professor, University of British Columbia

The Cancer Prevention Centre (CPC) is a joint project between the University of British Columbia and the Canadian Cancer Society BC Yukon. The CPC's objective is to lower incidence of cancer and other chronic diseases through research and research, policy, and practice connections. This presentation describes how vertical integration contributes to increased coherence between these organizations. Since the collaborative project began in 2008, an approach we call 'vertical integration' has evolved, whereby research informs and is informed by CCS priorities, programs, and policies, and CCS priorities and programs inform and are informed by research. Three case studies are presented that involve collaboration between the research and CCS communities: Workplace Assessment and Knowledge Study; Worksite Wellness program; and Cancer Risk Communication in Gender and Sexually Diverse Communities. Each projects reflects different CCS roles, including generating the idea, designing the intervention, implementing the intervention, collecting and analyzing data, disseminating and transferring project results, and identifying options for sustainability. We will compare and contrast key features of different projects. Certain key components need to be considered whenever joint projects are undertaken. These include recognition of different 'cultures' in the research and community organization environments; the need to consider organizational priorities; the need to identify champions to move projects forward; the necessity to obtain appropriate resources (financial and staff) for all involved in the research; understanding of different rewards in different environments. Building effective relationships, trust, and communication strategies requires long-term commitment. Vertical integration provides a way to capitalize on the respective strengths of researchers and community organizations to enrich each group. Closer connections between researchers and organizations such as the CCS offer the potential to reduce the time lag between the generation of research findings and their application in policy and practice.

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INTEGRATION OF CANCER CARE IN THE MANAGEMENT OF COMPLEX PATIENTS

Presented by: Sima Gandhi, Epidemiologist, Institute for Clinical Evaluative Sciences;

From diagnosis through to survivorship or end of life care, many cancer patients require ongoing management for other chronic conditions. The objective of this research was to identify common care trajectories that could inform opportunities for care integration between cancer care and other health system care providers. The study team included a multi-sector panel of stakeholders to achieve the study objectives. Methods included empirical analyses of administrative data and a literature review to identify examples of integrated care measures. The panel used these to identify opportunities for improved integrated care between cancer system and other care providers. We analyzed administrative data for a cohort of 88,749 adults, newly diagnosed with cancer between April 1st 2009 and September 30th 2010. We categorized patients by their pre-cancer, cancer, and post-cancer care intensity to describe the population and to create patient vignettes that were used by the panel in deliberations. Five groupings of pre-, during- and post-cancer represented over 70% of all cancer patients. Groupings included new cancer patients with short episodes, little prior use of the health system, and successful outcomes, to patients with multiple conditions and ongoing cancer treatment or death. The team has constructed representative vignettes for each of the five trajectory types to inform the identification of potential interventions to improve care integration. Each vignette is based on real data from a group of patients that have a common set of health conditions and a common care trajectory in terms of provider visits, hospital visits (admissions and emergency room use). Integrated care requires a coordinated approach to ensure early identification, management of comorbid conditions, surveillance of long-term treatment effects, potential recurrence, and end of life care. The interaction of an expert panel using empirical data summarized as clinical vignettes is proposed to support an informed and pragmatic approach to identify opportunities for improved integrated care. Results of panel discussions are currently being analyzed.

Co-authors: Jonathan Sussman, Associate Professor, Department of Oncology, McMaster University; Longdi Fu, Analyst, Institute for Clinical Evaluative Sciences; Marnie MacKinnon, Director, Integrated Care Project, Cancer Care Ontario; Walter Wodchis, Associate Professor, University of Toronto

Sunday Poster Sessions
5:00PM to 7:00PM

A CRITICAL LOOK AT THE NEED FOR THE MUCH REQUESTED MRI IN BREAST CANCER PATIENTS
Presented by: Angel Arnaout, Breast Surgical Oncologist and Clinician, Ottawa Hospital and Ottawa Hospital Research Institute

Despite the fact that MRI for breast cancer has NOT been shown to improve outcomes, it is still widely ordered. In addition, patients post-MRI are subjected to additional imaging and biopsies. This study specifically evaluates the extent of requirement of these additional tests and the implications on the healthcare system. In conjunction with our radiologists, we critically evaluated the impact of performing a preoperative MRI on a breast cancer patient at our institution. A retrospective chart review was performed on all female breast cancer patients diagnosed and awaiting surgery at a tertiary care center from 2010-2012. BRCA mutation carriers were excluded. Imaging and clinico-pathological data was extracted from the charts. The primary outcome was the volume and results of MRI-induced diagnostic tests. Out of 1660 breast cancer patients treated at our institution, a total of 1159 patients underwent a preoperative MRI. 421/1159 (36%) of MRI patients underwent at least one additional confirmatory imaging tests, most of which was ultrasound (67%). 24% of patients needed at least 2 additional imaging tests. 421/1159 (36%) of MRI patients underwent at least one additional confirmatory biopsy; 104/1159 (9%) of which were at least two biopsies. 446/481(93%) of the post-MRI biopsies were breast; 35/481(7%) were axillary. Of the breast biopsies, 68% were ipsilateral, of which 37% were benign. 35% of the breast biopsies were contralateral, of which 70% were benign. 22/35 (62%) of the axillary biopsies were benign. Post-MRI biopsies resulted in upstaging (DCIS to invasive cancer; node negative to node positive) in 25/1159 (2%) of patients. MRI patients had a trend to a longer OR wait time, but this result was not statistically significant (p=0.063). After surgery 32% the MRI patients had an additional 6 month follow-up of equivocal/benign lesions. Preoperative MRI only benefitted 2% of breast cancer patients, with a significant proportion undergoing additional unnecessary imaging tests/biopsies. We believe that this information will be of significant use not only in the counseling of patients/programs for breast MRI; but by administrators who can utilize the data for health care costs.

Co-authors: Valerie Deslauriers, General Surgical Resident, Ottawa Hospital; Mehrzad Namazi, Research Associate, Ottawa Hospital Research Institute; Fatima Haggar, Research Associate, Ottawa Hospital Research Institute

A PILOT RANDOMIZED CONTROLLED TRIAL OF AN ONLINE COMMUNICATION TOOL FOR COLLABORATIVE CARE IN CANCER PATIENTS
Presented by: Teja Voruganti, MD and PhD Student, University of Toronto

Our objective is to conduct a pilot trial to evaluate the feasibility of a full scale randomized controlled trial assessing use of a communication tool in cancer patients. Our tool provides a shared virtual space for patients, caregivers and health care providers to communicate, for the purpose of collaborative care. This is a pilot pragmatic stratified cluster randomized controlled trial. Physicians from oncology or palliative care will be stratified by specialty. Randomization to the intervention or control group will be done at the level of the physician within each stratum with patients as the unit of analysis. Patients and their care team (health care providers and caregivers) will receive either the intervention or usual care, as allocated to the physician to which they are registered. Patients with Stage III cancer on active treatment, Stage IV cancer or those cancer patients referred to palliative care will be eligible to participate. The primary outcome of interest is feasibility of conducting a full scale trial (as assessed by the proportion of eligible patients who consent, completeness of outcome ascertainment, health care provider participation rate). The main outcome of the full scale study will be mean difference of scores at baseline and the end of the study on the Picker Ambulatory Cancer Care Survey Coordination and Continuity subscales. Secondary outcomes include patient-reported quality of life, caregiver burden, health services outcomes, and primary care involvement. Qualitative data of user experiences will also be collected. We anticipate that this novel tool will facilitate improved continuity of care for patients requiring complex care.

Co-authors: Amna Husain, Temmy Latner Center for Palliative Care; Eva Grunfeld, Ontario Institute for Cancer Research

A POPULATION-BASED COHORT OF METASTATIC MELANOMA PATIENTS IN ONTARIO, CANADA
Presented by: Elizabeth McCarron, Postdoctoral Fellow, Ivey Business School at Western University

Median survival for metastatic melanoma is less than one year. However, recent therapeutic advances offer the potential for an improved prognosis. This study uses population-based administrative data, which reflect the impact of existing treatments, to establish a baseline against which 'new' treatments for melanoma could be compared. We used administrative data from patient registries to capture a cohort of patients with metastatic melanoma in Ontario, Canada. We accessed these patient level data through the Ontario Cancer Data Linkage Project (cd-link). In order to identify patients most likely to be candidates for newly developed treatments, we screened patients based on two main criteria: 1) they had unresectable metastatic melanoma; and 2) they had received first line systemic therapy. We reported patient characteristics and used Kaplan-Meier curves and Cox proportional hazards regression to examine survival. Of the 33,585 patients diagnosed with melanoma in Ontario from January 1, 1991 to December 31, 2010, 399 met our inclusion criteria. The majority of these patients were male (61%). On average they were about 58 years of age at initial diagnosis. The most common site of origin for the melanoma was the trunk (32%). Overall survival was estimated at 37%, 18% and 8% for months 12, 60 and 96, respectively. It took about 3 years for the cancer to metastasize, for an average age of 61 years at diagnosis of metastatic disease. Brain metastases were identified in 18% of the metastatic patients. As patients presented with brain metastases, survival for this group decreased from 34% at 12 months to 14% at 24 months. This study demonstrates the ability of administrative data to capture a population-based cohort at a point in time. In the face of a changing treatment paradigm for metastatic melanoma, the establishment of such a baseline group offers valuable guidance for appraising the potential improvement of 'new' treatments.

Co-authors: Scott Ernst, Head, Division of Medical Oncology, London Regional Cancer Program; Jeffrey Cao, Radiation Oncologist, London Regional Cancer Program; Gregory Zaric, Associate Professor, Ivey Business School at Western University

A SYSTEMATIC REVIEW OF FACTORS INFLUENCING OLDER ADULTS' DECISION TO ACCEPT OR DECLINE THE PROPOSED CANCER TREATMENT
Presented by: Martine Puts, Lawrence S. Bloomberg Faculty of Nursing, University of Toronto

The majority of patients with cancer are 65 years and older and studies have reported they decline cancer treatment more often than younger patients. We conducted a systematic review to synthesize the evidence why older adults accept or decline treatment for cancer. A comprehensive search of ten databases from inception to February 2013 (Medline, Embase, Cinahl, Psychinfo, Web of Sciences, Cochrane database, Ageline, Amed, Sociological Abstracts, Applied Social Sciences Index and Abstracts) was conducted by an experienced librarian. Study selection and data abstraction was completed by two independent reviewers using Excel.Qualitative and qualitative studies were eligible. The quality of included studies was assessed with the Mixed Methods Appraisal Tool. Of 17343 abstracts reviewed, 56 publications reporting on 51 unique studies were included. 38 studies examined actual treatment decisions and 13 studies examined a hypothetical decision. Regarding study design, fivewere prospective, 20 were cross-sectional, 18 were qualitative and eightwere retrospective studies. The majority focused on decisions for prostate and breast cancer. The most important factors accepting treatment were trust in the physician and following the physician's recommendation. Factors most important for refusing cancer treatments were perceived feeling discomfort of the treatments, fear of side effects and transportation difficulties. The studies examining hypothetical scenarios showed that older adults are willing to accept cancer treatments for varying levels of benefit, but in general required larger benefits than younger patients. The reasons why older adults accepted or refused treatment vary considerable.Further studies using large representative samples and exploring treatment decision-making incorporating health literacy and comorbidities are needed.

Co-authors: B. Tapscott, Lawrence S. Bloomberg Faculty of Nursing, University of Toronto; M. Fitch, Odette Cancer Centre, Sunnybrook Health Sciences Centre; D. Howell, Princess Margaret Cancer Centre, University Health Network; M. Krzyzanowska, Princess Margaret Cancer Centre, University Health Network; N. Leighl, Princess Margaret Cancer Centre, University Health Network; J. Monette, Jewish General Hospital, McGill University; E. Springall, Gerstein Science Information Centre, University of Toronto; D. Wan-Chow-Wah, Jewish General Hospital, McGill University; S. Alibhai, Toronto General Hospital, University Health Network

AFFORD (APPORPRIATE EFECTIVE EFFICIENT ONCOLOGY REIMBURSEMENT DECISIONS) STUDY PROTOCOL
Presented by: Dominika Wranik, Associate Professor, Dalhousie University

The objective of this poster is to inform the research community of our study plan and obtain feedback, and to engage interest members of the research community in our project. The objective of the project for which we are presenting the study protocol is to reduce barriers to the use of economic evidence in multi-criteria decision environments. Our focus is on pCORD. Our study is a mixed methods study where the qualitative and quantitative components are both complementary and will be triangulated. The quantitative component has two parts (i) a stated preferences elicitation, where members of pCODR and similar committees participate in a simulation experiment, and (ii) a revealed preferences estimation, where the past decisions of pCODR are assessed. The qualitative component focuses on the understanding of processes used by the committee and committee members in the use of economic, clinical, ethical and other evidence to support funding decisions. The qualitative methods include semi-structured interviews, an interactive web-based discussion, and a roundtable discussion. The poster is to present the study methodology, and not results. The poster will provide a visual representation of the methods and the linkages between them, and a verbal description. Our objective is to receive feedback, therefore the poster will highlight a few points, where feedback would be most helpful. We will provide methods for the audience to provide feedback, and also to get involved in the project. This project is in nature collaborative and relies heavily on the inclusion of stakeholders in all stages of the research. The ARCC conference will serve as one avenue to engage stakeholders in the development of methods. The conference will also provide exposure for our project, and inform stakeholders of opportunities via which they can participate in the project.

Co-authors: Jeff Hoch, ARCC, St Michaels Hospital; Adrian Levy, Dalhousie University; Chris Skedgel, Capital District Health Authority; Mark Dobrow, University of Toronto

AN EVALUATION OF THE METHODOLOGICAL QUALITY OF CLINICAL PRACTICE GUIDELINES AND CONSENSUS STATEMENTS IN ONCOLOGY
Presented by: Carmel Jacobs, The Ottawa Hospital

Evidence-based consensus statements (CS) and clinical practice guidelines (PG) are widely available and used to enhance patient care. Despite subtle differences in their definition and purpose CS and PG are often used interchangeably. We explored the methodological quality of CS and PG published in 3 commonly read cancer-specific journals from North America and Europe. Three cancer-specific journals were searched for CS and PG published between January 2005 and August 2013. Each publication was appraised by two independent reviewers using AGREE II (Appraisal of Guidelines for Research and Evaluation II) an appraisal tool developed to standardise the formulation of guidance documents. We used the domains; rigour of development and editorial independence. We also evaluated CS and PG using standards from the Institute of Medicine and author guidelines, if available, from each journal. 35 CS and 69 PG were published during the study period. Preliminary results from the first journal analysed show overall CS consistently scored lower than PG with limited AGREE II scores of 40.8% (SD 21.2%) for CS compared to 77.6% (SD 21.8%), for PG ($p<0.05$). Discrepancy scores for the two reviewers were low. Potential sources of this reduced quality will be explored. A trend for CS to endorse products marketed by the statement funding source was also seen. Guidance documents are an essential part of oncology care. Such statements should be subjected to a rigorous development process. It is evident the quality of CS was consistently lower than that of PG. Given their lower quality the widespread use of CS should be challenged.

Co-authors: Ian Graham, Ottawa Hospital Research Institute; Julie Makarski, Ottawa Hospital Research Institute; Dean Fergusson, Ottawa Hospital Research Institute; Mark Clemons, The Ottawa Hospital and Ottawa Hospital Research Institute; Michael Chasse, Ottawa Hospital Research Institute

AN EVALUATION OF SCREENING ACTIVITY REPORTS FOR THE COLONCANCERCHECK SCREENING PROGRAM
Presetned by: Alex Lee, Research Associate, Cancer Care Ontario

The ColonCancerCheck (CCC) Screening Activity Report (SAR) was developed to support primary care providers in improving colorectal cancer screening rates. The objective of this evaluation was to measure the impact of the CCC SAR on screening participation and follow up rates for colon cancer. A longitudinal study was utilized to examine the impact of the SAR on screening participation and follow up rates for colon cancer 6 months following the release of SAR. CCO's administrative screening database was used to integrate patient, physician, and screening information. A multivariate logistic regression analysis using generalized estimating equations was used to measure the impact of the SAR on colon cancer screening rates. All Patient Enrollment Model (PEM) providers who were registered for eHealth Ontario's ONEID system were eligible to receive their SAR report when it was released whereas primary care providers who were PEM but not registered for ONEID were not eligible to access their SAR. The results showed that patients of ONEID-registered providers were 6% more likely (AOR: 1.06) to have been screened with a fecal occult blood test (FOBT) 6 months following the release of SAR compared to patients of non-ONEID registered providers. This effect increased when only examining patients of ONEID-registered providers who actually viewed their SAR compared to patients of ONEID-registered providers who did not view their SAR. The release of the February 2013 CCC SAR resulted in moderate but significant impact on screening uptake for colon cancer and this effect increased when providers viewed their reports. Future directions include addressing barriers to adoption of SAR and including breast and cervical screening data in addition to colon.

Co-authors: Jill Tinmouth, Lead Scientist, ColonCancerCheck, Cancer Care Ontario; Rinku Sutradhar, Institute for Clinical Evaluative Sciences; D. Carr; Joanne Hader, Senior Manager, Evaluation and Reporting, Cancer Screening, Cancer Care Ontario; J. Garay

AN EXPLORATORY ECONOMIC ANALYSIS OF PSYCHOSOCIAL SERVICES AND HEALTHCARE UTILIZATION IN THE CANCER SETTING
Presented by: Dolly Han, Masters Student, University of Toronto

Psychosocial oncology (PSO) services can improve quality of life and reduce distress. In other disease areas, psychosocial interventions have been associated with reduced healthcare utilization. The objective of this retrospective observational study was to explore whether use of PSO services among cancer patients was associated with reduced healthcare utilization and costs. Administrative databases held at Cancer Care Ontario, (Activity Level Reporting (ALR), Ontario Health Insurance Plan (OHIP), and National Ambulatory Care Reporting System (NACRS)), were used to identify patients diagnosed in 2011 and collect healthcare utilization up to December 31st, 2012. PSO services included visits to a psychologist, psychiatrist or social worker within this period. Patients were grouped based on their highest Edmonton Symptom Assessment System (ESAS-r) depression score in a three month period (between October and December 2011). A generalized linear model was used to predict patient costs incurred from visits to: oncologists, general practitioners (GP), emergency department (ED), and PSO services. There were 11, 280 patients identified with 1871 (16.6%) patients who had at least one PSO visit in 2011-2012. Compared to patients who did not use PSO services, those who had at least one PSO visit in the study timeframe were more likely to be female, report higher ESAS depression scores, live in neighbourhoods with lower income, and die within the study period. PSO service users had on average more visits to oncology, GP, and ED. After adjusting for gender, age, disease site, income quintile, diagnosis date, and ESAS-r depression score, those who had at least one PSO visit had costs that were double the group who had no PSO visits. Users of PSO services appear to have higher healthcare utilization and cost compared to non-users. This may reflect a correlation with more active or pro-active treatment among PSO users or suggest extra costs are needed to provide appropriate care and follow-up. Future research may account for confounding factors such as active treatment or co-morbidity.

Co-authors: Jaclyn Beca, Research Manager, Pharmacoeconomics, Cancer Care Ontario, St. Michael's Hospital; Zahra Ismail, Program Manager, Nursing, Psychosocial Oncology and Patient Education, Cancer Care Ontario; Reena Tabing, Interim Program Manager, Nursing, Psychosocial Oncology and Patient Education, Cancer Care Ontario; Tory Andrien, Policy Research Analyst, Nursing, Psychosocial Oncology and Patient Education, Cancer Care Ontario; Dr. Madeline Li, Psychiatrist, Princess Margaret Hospital; Laura Macdougall, Director, Clinical Programs – Patient Experience; Esther Green, Program Head, Nursing and Psychosocial Oncology, Cancer Care Ontario; Dr. Jeffrey Hoch, Director, Pharmacoeconomics Research Unit, Cancer Care Ontario

ANNUAL VS. BIENNIAL LUNG CANCER SCREENING - USING THE CANCER RISK MANAGEMENT MODEL (CRMM) TO FILL GAPS IN EVIDENCE
Presented by: Natalie Fitzgerald, Program Manager, Economics, Cancer Risk Management, Canadian Partnership Against Cancer

The National Lung Screening Trial (NLST) demonstrated a mortality reduction with annual low-dose computed tomography (LDCT) screening in current and former smokers with a 30 pack-year history. CRMM was used to assess if annual screening is necessary or if a longer interval (biennial screening) would be cost-effective. We assessed the impact of lengthening the lung cancer screening interval from annual to biennial in Canadians who complied with the NLST eligibility criteria, measuring as outcomes lung cancer incidence, mortality, the number of interval cancers, system costs and incremental cost-effectiveness ratios (ICERs). Developed by the Canadian Partnership Against Cancer, CRMM 2.1 simulates at an individual level and incorporates Canadian demographic data, cancer risk factors, registry data, diagnostic and treatment algorithms and costs, and health utilities. ICERs have been discounted at 3%. A reduction in lung cancer mortality of 20% after 10 years of annual lung cancer screening using LDCT would be achieved. Increasing the screening interval from annual to biennial was slightly less effective, with a reduction in lung cancer mortality of 17%. However, the total cost of screening and treatment was 20% less with biennial compared to annual screening, because of fewer screens and unnecessary interventions. The estimated rate of over-diagnosis was reduced from 6.8% to 4.3%. The ICER for biennial screening was estimated to be $30,000/quality-adjusted life-year (QALY), compared with $62,000/QALY for annual screening. This analysis using the CRMM indicates that lengthening the lung cancer screening interval from annual to biennial would have a limited effect on lung cancer mortality and result in a more favourable ICER. This could have considerable implications for decision-making within Canada.

Co-authors: John Goffin, Associate Professor, McMaster University; Saima Memon, Analyst, Analytic Capacity, Cancer Risk Management, Canadian Partnership Against Cancer; Anthony B Miller, Professor Emeritus, Dalla Lana School of Public Health; William M Flanagan, Chief of Microsimulation, Statistics Canada; William Evans, Regional Vice President, Cancer Care Ontario

BARRIERS TO BREAST SCREENING AND RECOMMENDATIONS FOR IMPROVEMENT AMONG UNDER/NEVER SCREENED GROUPS IN ONTARIO
Presented by: Victoria Nadalin, Senior Research Associate, Cancer Care Ontario

The Ontario Breast Screening Program (OBSP) offers free mammograms to eligible women without referral, yet some groups are never screened, or are screened less than is recommended. This project learns from women under/never screened about their: barriers to mammography, suggestions to increase participation, and makes recommendations for program improvement. Researchers partnered with community agencies in northern/rural, inner-city and suburban areas of Ontario (Timmins, Toronto, Peel region) that work with groups typically under/never screened for breast cancer. Three peer-led focus groups were held in each region with women aged 50-69 who had never had a mammogram, or had not had one in the last two years (n=74). Participants were asked about their barriers to breast screening, and suggestions for improving the OBSP. Data were analyzed in a two-day workshop with project partners, peer researchers, staff, and an external facilitator. Illustrative quotes were identified, themes refined, and recommendations formed. Fear was a barrier across regions, e.g., what to expect, pain, of finding cancer, of having a male technologist. Other barriers were the belief that breasts are private, that screening is unnecessary, incorrect or limited knowledge (uncertainty, possible cost, referral need), concerns about test safety and accuracy, the medical system, and difficulties with transportation, distance and safety. Self-neglect was another barrier. No respondent reported difficulty obtaining a mammogram. Suggested ways to increase participation were used to create a set of recommendations around a) education and promotion improvements such as partnering with community agencies and educating health providers about their role in attendance, b) improvements in the booking and screening process and c) improved information and services, such as expanding clinic hours, and creating pictorial materials. Our findings reveal similarities to the Canadian literature on screening barriers and augment what is known with qualitative insight, unique findings, and recommendations for improvement.

Co-authors: Julie Maher, Ontario Women's Health Network; Christina Lessels, Ontario Women's Health Network; Anna Chiarelli, Cancer Care Ontario; Nancy Krieger, Cancer Care Ontario

BUILDING PSYCHOSOCIAL ONCOLOGY RESOURCE INTENSITY WEIGHTS FOR INCLUSION IN THE NEW SYSTEMIC TREATMENT FUNDING MODEL
Presented by: Victoria Zwicker, Policy Research Analyst, Cancer Care Ontario; Tory Andrien, Policy Research Analyst, Cancer Care Ontario

As part of a Ministry of Health and Long-Term Care's Health System Funding Reform initiative, Cancer Care Ontario (CCO) developed a new funding model for systemic therapy. The goal of this work is to ensure funding corresponds to patient needs, including psychosocial oncology (PSO) services. Expert PSO clinicians from across the province formed six discipline-specific advisory groups: social work, psychology, nutrition, physiotherapy, occupational therapy, and speech language pathology. For each cancer type, type of treatment intent (curative, adjuvant, neo-adjuvant, palliative), and episode of care, advisory groups were asked to identify: 1) proportion of patients who require their services, 2) length of an average visit, and 3) average number of visits required. This information was used to calculate the average "cost" for PSO services per patient. Evidence and best practice was used to inform the advisory groups' consensus. Each advisory panel was composed of three to nine participants and met two to six times over four months to reach consensus on PSO workload for each component described above. The majority of groups' utilized online surveys to generate estimates to use as a starting point for discussion. Differences in the resource intensity weights recommended were partially due to each discipline's conceptual approach to 'patient need'. Several themes emerged including: inconsistent approaches to the screening of patient needs, overlapping scopes of practice, and regional variation in access to community resources. Limitations to this process included a lack of rigorous evidence, limited time, and a payment model inconsistent with the nature of PSO service delivery. This work is an initial attempt to identify PSO resource intensity weights. While the capture and calculation of resource intensity weights is novel for PSO care, this effort resulted in expert-informed recommendations. Further efforts are underway to collect more fulsome data on actual patient visits for specific services.

Co-authors: Tory Andrien, Policy Research Analyst, Psychosocial Oncology, Nursing and Patient Education, Cancer Care Ontario; Esther Green, Provincial Head, Psychosocial Oncology and Nursing, Cancer Care Ontario; Zahra Ismail, Program Manager, Psychosocial Oncology, Nursing and Patient Education, Cancer Care Ontario; Vicky Simanovski, Senior Manager, Regional Systemic Treatment Program, Cancer Care Ontario; Carlin Lalonde, Project Team Lead- Funding Reform, Regional Systemic Treatment Program, Cancer Care Ontario; Dr. Leonard Kaizer, Provincial Lead, Systemic Treatment, Cancer Care Ontario; Reena Tabing, Interim Program Manager, Psychosocial Oncology, Nursing and Patient Education, Cancer Care Ontario

CAREGIVER SELF-ADMINISTERED FINANCIAL EXPENDITURES (C-SAFE) FOR PEDIATRIC CANCER: ADAPTING AN ESTABLISHED INSTRUMENT
Presented by: Jason Pole, Scientist, Pediatric Oncology Group of Ontario

To adapt the Caregiver Self-Administered Financial Expenditures (C-SAFE) instrument for use in the pediatric cancer context. The C-SAFE will be used to measure the longitudinal financial burden among caregiver's of pediatric cancer patients and to identify the characteristics of those financial burdens. Focus group methodology was used to evaluate the face validity and understandability of C-SAFE in pediatric cancer. 16 individuals were invited to review the current C-SAFE instrument in a face-to-face meeting. Participants included a diverse group of health care professionals (physicians, nurses, social workers, and pharmacists) and parents of children diagnosed with cancer. In advance of the focus group, participants were asked evaluate each item with regard to (1) importance of each item related to costs; and (2) understandability. During the focus group, an independent facilitator worked question-by-question probing participants with regard to the essential nature of the concept, understandability, face validity and appropriate use of examples. The revised C-SAFE was provided for additional comments to participants. All 16 invited participants provided pre-meeting evaluations of the C-SAFE. A total of 9 participants attended the face-to-face meeting. The focus group responses provided clarity in three main areas: recall timeframe, concept clarity and the need for more overall explanation and specific examples. The C-SAFE was then restructured by the team with individual questions being grouped in three sections. An introduction that describes the focus of the questions in each section along with definitions used throughout was generated. Each question was revised to focus recall to the past 4 weeks. The format, wording and examples for each question were revised based on feedback. Utilization of a multi-disciplinary focus group to help in the adaptation of an established instrument for a new, but unique, population provided invaluable insight. The focus group participants drove a thoughtful re-design of the instrument, ultimately resulting in an instrument that is more focused, easier to understand and provides clear instruction and examples. Future work will include evaluating content validity and understandability among parents of children receiving active treatment for cancer.

Co-authors: Christopher Longo, McMaster University; Aleksandra Zuk, POGO; Lillian Sung, SickKids

COMMUNITY-BASED PALLIATIVE HOME CARE FOR PEOPLE LIVING WITH CANCER: VARIATIONS IN COST AND CAREGIVER TIME
Presented by: Ruby Redmond-Misner, MSc Candidate, University of Toronto

To analyze the total societal and (isolated) caregiver time cost of palliative care in the outpatient oncology setting in Ontario, incorporating primary diagnosis into an econometric model. The purpose of this is to assess whether an overall and time cost difference exists between nine malignant neoplasm primary diagnoses. Data were collected from patient-caregiver households admitted into two Ontario home care programs in Toronto and Hamilton in 2011-12. Micro-costs, including caregiver time, were generated using the Ambulatory and Home Care Record. All patients had malignant neoplastic conditions as primary diagnoses and were categorized using the 10th International Classification of Diseases. Using bi-weekly total and caregiver time costs as dependent variables, robust log-linear multiple regressions with indicator variables are employed to assess the role of primary diagnosis controlling for potential confounders established in previous literature, including proximity to death (days), demographic indicators, household preferences and Charlson Comorbidity Index scores. Empirical findings surrounding cancer type include statistically significant beta coefficients for malignant neoplasms of female genital organs (+), head or neck (+) and male genital organs (-) when (ln)bi-weekly total cost is the dependent variable (R2=.26). Micro-costs must not be included in the model due to collinearity, but graphics are used to show how differences in cost are spread across various public, private and informal resources. When using (ln)bi-weekly caregiver time cost, malignant neoplasms of the head or neck (+), male genital organs (-) and urinary tract (-) are statistically significant (R2=.23). Comorbidity scores were not significant drivers with primary diagnosis included in the model. Proximity to death, household preferences and caregiver demographics appear to contribute to overall healthcare and caregiver time consumption. Further development of community-based home care is endorsed by several recent policy reports (Health Council Canada, 2013; Health Quality Ontario, 2012; Ontario Seniors' Secretariat, 2013; Drummond et al, 2012). It is important to understand the suitability of this care trajectory for different palliative patients, many of whom live with cancer.

Co-authors: Peter C. Coyte, University of Toronto

COMPARING THE HEALTH, ECONOMIC IMPACTS AND COLONOSCOPY NEEDS OF SCREENING STRATEGIES FOR COLORECTAL CANCER (CRC) AIMED AT INCREASED RISK INDIVIDUALS USING THE CANCER RISK MANAGEMENT MODEL (CRMM)
Presented by: Andrew Coldman, VP Population Oncology, BC Cancer Agency

To compare the health, economic impacts and colonoscopy needs of screening strategies for elevated and normal risk individuals. The CRMM version 2.1 was used to analyse the impact of screening high risk individuals with colonoscopy and using fecal immunochemical tests (FIT) in others. The CRMM is a continuous-time, Monte-Carlo micro-simulation model that simulates the natural history of CRC from onset within the colon or rectum, and progression to mortality through different stages of cancer. Individuals were allocated into elevated and normal risk based upon family history of CRC. Three definitions of high risk were considered: 1st degree family history by diagnosis age of relative affected (any age, <60, <45). Strategies compared were colonoscopy in all, biennial FIT in all and colonoscopy in high risk with FIT in normal risk. The model considered lifetime cohorts with 100% participation and screening starting at age 50. Colonoscopy screening at age 50, 60 and 70 was found to result in reduced deaths, increased life-years-gained and reduced lifetime costs compared to biennial FIT performed between the ages of 50 and 74 for all risk groups. Application of colonoscopy screening in the high risk groups with FIT in normal risk resulted in reduced lifetime demand for colonoscopy services compared to a colonoscopy only scenario (0.72-0.98 versus 2.95 per subject) and reduced colonoscopies per death averted (32-45 versus 123). Colonoscopy screening scenarios of high risk were at, or close to, the cost-effectiveness boundary within the general pool of screening strategies. Modelling indicated using colonoscopy screening only in high risk with FIT in others represents a cost-effective strategy which substantially reduces demand for colonoscopy services. Using alternative definitions of high-risk individuals facilitates the management of short-term colonoscopy demand in relation to available resources.

Co-authors: Anthony Miller, University of Toronto; William Flanagan, Statistics Canada; Craig Earle, University of Toronto; Natalie Fitzgerald, Canadian Partnership Against Cancer; Saima Memon, Canadian Partnership Against Cancer; Claude Nadeau, Statistics Canada; Michael Wolfson, University of Ottawa; Gina Lockwood, Canadian Partnership Against Cancer; Norm Phillips, BC Cancer Agency

COMPARING THE HEALTH, ECONOMIC IMPACTS AND COLONOSCOPY NEEDS OF SCREENING STRATEGIES FOR COLORECTAL CANCER (CRC) USING FECAL IMMUNOCHEMICAL TESTS (FIT) WITH DIFFERENT CUTPOINTS USING THE CANCER RISK MANAGEMENT MODEL (CRMM)
Presented by: Andrew Coldman, VP Population Oncology, BC Cancer Agency

To compare the health, economic impacts and requirement for colonoscopy of screening strategies for Canadians for FIT tests using 100 and 50 ng/ml thresholds. The Cancer Risk Management Model (CRMM) 2.1 was used to analyse the lifetime impact of altering the threshold by changing the test parameters in the model The CRMM is a continuous-time, Monte-Carlo micro-simulation model that simulates the natural history of CRC from onset within the colon or rectum, and progression to mortality through different stages of cancer. The research literature was reviewed and studies were selected which reported results by FIT cutpoint with colonoscopy of all subjects. Two levels were selected for FIT: 100 ng/ml (manufacturers' recommended cutpoint) and 50 ng/ml representing a level with potentially increased sensitivity and lower specificity. The model considered lifetime cohorts with 100% participation and screening starting at age 50 Five published articles were identified which satisfied the eligibility criteria. Sensitivities at the different cutpoints were identified for polyps by size: 5mm, 6-9mm, ≥10mm and cancer. Four scenarios, for each threshold, were considered (base case) biennial 50-74, 50-79 and 45-74 and annual 50-74. In the base case the lower threshold resulted in increased cancers prevented (0.041 versus 0.038), increased life-years (0.29 versus 0.27) and increased colonoscopies (0.72 versus 0.62) per subject. All scenarios, for both thresholds, resulted in negative additional costs compared to no screening. For each scenario considered the lower threshold (50 ng/ml) dominated the conventional threshold (100 ng/ml). The quantitative nature of the FIT tests provides the opportunity for the control of anticipated outcomes. Lowering the threshold of FIT testing resulted in predicted improved health and financial outcomes.

Co-authors: Anthony Miller, University of Toronto; William Flanagan, Statistics Canada; Craig Earle, University of Toronto; Natalie Fitzgerald, Canadian Partnership Against Cancer; Saima Memon, Canadian Partnership Against Cancer; Claude Nadeau, Statistics Canada; Michael Wolfson, University of Ottawa; Gina Lockwood, Canadian Partnership Against Cancer; Norm Phillips, BC Cancer Agency

COSTING & RESOURCE UTILIZATION OF CERVICAL CANCER TREATMENT IN BRITISH COLUMBIA
Presented by: Zenia Ferreira, Health Economics Co-op Research Assistant, ARCC, BC Cancer Agency

To assess health care resource utilization and cost of cervical cancer from the perspective of British Columbia's health care system. Retrospective observational data on women diagnosed with cervical cancer between 2004 and 2009 was utilized to calculate patient-level resource utilization from diagnosis to death or 5-year discharge. Domains of resource use included hospitalization, chemotherapy, radiotherapy, brachytherapy, medically necessary services such as laboratory, physician and diagnostics billed under B.C.'s Medical Services Plan and medication dispensed under B.C.'s Pharmacare program. Unit costs were applied to health care resources, producing per-patient costs. Relevant costs, presented in 2012 CDN dollars, were further separated by chemotherapy protocol, stage at diagnosis, screening history, progression date and age. The average cost of treating cervical cancer in B.C. was $32 023, (95% CI: $29 785 - $34 260). Hospital costs were the largest proportion of cost at a mean proportion of 37.8% (95% CI: 35.8, 39.8) of total cost. Mean length of inpatient hospital visits was 11.2 days, with 2 outpatient hospital visits per patient. Costs were also calculated by relevant clinical subgroups, including progression, age, stage, screening history and treatment protocol on cost and resource utilization. Cervical cancer resource utilization and costs are substantial in B.C.'s health care system. Such data is necessary for decision makers in designing and implementing screening and disease management policy. Results will provide inputs for the HPV FOCAL Study, a prospective investigation into the cost-effectiveness of utilizing the detection of HPV infection as a primary screening tool in B.C.

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CRC 1ST STEPS STUDY: A NEW MODEL TO SUPPORT THE ADOPTION OF PHYSICAL ACTIVITY IN COLORECTAL CANCER SURVIVORS
Presented by: Helena Daudt, Clinical Research Manager, BC Cancer Agency-Vancouver Island Centre

Exercise is emerging as a useful therapeutic tool for the cancer population, improving quality of life (QoL) and decreasing or attenuating fatigue and treatment side effects. Though colorectal cancer (CRC) has the third highest incidence, few studies have analyzed the efficacy of physical activity interventions designed for CRC patients. Our study addresses this gap by evaluating the effect of the CRC-1stSteps Intervention, a 6-week supervised physical activity program followed by a 21/2 month telephone-delivered maintenance strategy, when compared to a usual care control group. Patients, who are undergoing treatment, or are no more than 6 months post-treatment, are accrued from the BC Cancer Agency Vancouver Island Centre. The intervention is based on the social cognitive theory, focusing on self-efficacy, goal setting and overcoming barriers. All participants are assessed on outcome variables at three time points. Both descriptive and qualitative methods will be used to analyze the data. We have been actively recruiting participants since April 2013. Participants are satisfied with the program and value the telephone-delivery maintenance strategy. We expect that the intervention group will have greater levels of physical activity, QoL, and health-related fitness upon completion of the study than the control group. We expect the outcomes of this study to parallel results obtained from a pilot study done using the same patient population from the BC Cancer Agency Vancouver Island Centre. We anticipate that the results from this randomized control trial will provide data supporting the implementation of a supervised physical activity program into 'standard of care' practices. In doing so, this study expands the body of knowledge outlining the therapeutic benefits of exercise in the CRC population.

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DEFINING PALLIATIVE CARE PHYSICIANS USING HEALTH ADMINISTRATIVE DATA
Presented by: Lisa Barbera, Clinician Scientist, Odette Cancer Centre

Early introduction of palliative care for patients with cancer has been shown to be associated with longer survival and improved quality of life. Little is known about the palliative care physician workforce size in Canada, therefore we sought to create a tool to estimate the workforce in Ontario, Canada. We retrospectively reviewed Ontario Health Insurance Plan (OHIP) billing data from 2008 to 2011 to identify physicians who were billing for palliative care using a collection of palliative care specific physician billing feecodes within health administrative data. We surveyed physicians across Ontario from March to November 2013 to self-identify themselves as physicians that practice mostly palliative care or occasionally to rarely. Several algorithms using the proportion of OHIP claims that were palliative care were created and tested against the reference standard, the survey. Sensitivity, specificity and predictive values were calculated. A total of 125 physicians responded and 7 were excluded because they could not be linked to the databases or had no billings, leaving 118 for analysis. The algorithm of having billed at least 10% of their claims as palliative care claims was shown to have optimal performance with sensitivity 76.0% (95% confidence interval (CI), 68.3-83.7%), specificity 97.8% (95% CI, 95.1-100.0%), positive predictive value 90.5% (95% CI, 85.2-95.8%), and negative predictive value 93.8% (95% CI, 89.4-98.2). Using a threshold of 5% and 3%, respectively sacrificed specificity while not improving sensitivity. Physician full time equivalent status was explored and did not change the findings. Administrative data can be used to establish a baseline for the palliative care workforce size to assess system change and to inform system development. Further study is required to understand the extent to which palliative care is being provided by these physicians and the impact of different remuneration models.

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DESCRIBING BEST PRACTICE FOR PSYCHOSOCIAL AND PALLIATIVE CARE THROUGH PATHWAYS
Presented by: Katharina Forster, Associate Project Lead, Cancer Care Ontario

Cancer Care Ontario (CCO) is a provincial agency responsible for continually improving cancer services ensuring that patients receive better care every step of the way. The Disease Pathway Management (DPM) team provides a unifying approach to the way CCO sets priorities for cancer control, plans cancer services and improves the quality of cancer care by describing and depicting best practice along the care continuum for specific cancers through pathways. In collaboration with the Palliative Care and Psychosocial Oncology Programs, DPM recently added a new dimension to the pathways by integrating psychosocial, palliative and end-of-life care best practices alongside recommendations for cancer specific treatments. The project encompassed two phases: First, a standalone pathway was developed to provide an overview of the ideal psychosocial, palliative and end-of-life care a cancer patient in Ontario may receive, regardless of the type of cancer being treated. The pathway references evidence-based guidance documents and resources to facilitate: 1) regular screening and assessment of symptoms and psychosocial needs; 2) appropriate symptom management; 3) Collaborative Care Planning and the shared care model. During the second phase of the project, the recommendations from the standalone Psychosocial Oncology and Palliative Care Pathway were integrated into the Lung and Colorectal Cancer Pathways with links to specific psychosocial, palliative and end-of-life care references. The revised cancer specific pathways highlight the importance of identifying the need for psychosocial, palliative and end-of-life care support early in the patient's journey. Furthermore, the newly added care elements are displayed as equally important to cancer specific interventions or treatments and thus represent psychosocial, palliative and end-of-life care as integral parts to a whole person treatment approach. Upon publication, the standalone Psychosocial Oncology and Palliative Care Pathway as well as the expanded Lung and Colorectal Cancer Pathways were disseminated to healthcare providers and other stakeholders in the cancer system. They provide a framework to evaluate current practice against the ideal and help drive system performance.

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DEVELOPMENT OF A KNOWLEDGE TRANSLATION PLAN FOR CHILDHOOD, ADOLESCENT AND YOUNG ADULT CANCER SURVIVOR CARE AND SUPPORT IN BRITISH COLUMBIA
Presented by: Mary McBride, Distinguished Scientist, BC Cancer Agency

This research aims to address barriers to health, educational and vocational success faced by young cancer survivors. Cancer and its treatment can have lasting negative impacts. This work will develop decisionmaker partnerships and gather information to inform strategies for policy change to minimize these risks and maximize quality of life. This project has three methodological steps: 1. An environmental scan and literature review summarizing the risks faced by childhood cancer survivors in the domains of health, education, and vocation, and facilitators and barriers to appropriate care. 2. Individual interviews with stakeholders, including content experts, decisionmakers and survivors, confirming the support goals and priorities of each group, and describing potential interventions. 3. Confirmation of results and a production of a report, as well as other knowledge translation materials to disseminate to key stakeholders including participating decision makers. Progress to date: The literature review identified issues, barriers, and models of care in other jurisdictions. The environmental scan identified currently-available supports in British Columbia and Canada. Interviews were conducted with 32 individuals, including family practitioners, oncologists, health authority officials, Ministry of Health executives, school district administrators, vocational counsellors, and survivor representatives. Four main gaps in care were identified: lack of clear care pathways from treatment to follow-up care, psychosocial support, care provider survivorship expertise, and medical information management. Potential strategies to overcome these gaps include: development and implementation of formal risk-based care policies and pathways, involvement of multidisciplinary care teams, personalized surveillance tools, electronic medical records, and institutional partnerships. Principles of quality care and support were identified: accessibility, appropriateness, cont inuity, cost-effectiveness, patient self-advocacy, and provincial focus. This study has identified stakeholders, outlined a situational analysis, and provided recommendations and next steps to address gaps in provision of risk-based, quality care for this survivor cohort. A key recommendation is for a policy for an organized system of transition and adult follow-up.

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ECLAIMS: A STRATEGIC AND NECESSARY TOOL IN TODAY'S GROWING AND COMPLEX SYSTEM OF CANCER DRUG FUNDING
Presented by: Suzanne Bojthy, Provincial Drug Reimbursement Associate, Cancer Care Ontario

This poster will provide an overview of the newly developed CCO eClaims web-based adjudication system that was created as a strategic and necessary tool in today's growing and complex system of cancer drug funding. CCO eClaims was developed out of a growing need for accurate and timely adjudication of cancer drug claims, the need for high quality data capture, and the need to improve the transparency of eligibility criteria and patient treatment histories among Cancer Care Ontario and hospitals and Regional Cancer Centers. CCO eClaims helps in facilitating the ultimate goal of equal access to cancer drugs funded by the New Drug Funding Program across the province, while collecting utilization and quality of care data for research and analysis. . real-time system adjudication on patient enrolments and treatment claims with the addition of manual adjudication by CCO Reimbursement Associates as required . improved transparency on adjudication and enrolment policies . increased validation and edit checks on data submissions . immediate availability of all NDFP and EBP policies as they come into effect, are amended or are discontinued . central location for all information on a patient enrolment (i.e., enrolments, treatments, supporting clinical documentation and patient specific communication) . the ability for providers within the circle of care across multiple sites to view patient enrolment details and treatment history (including uploaded supporting documentation) . descriptive self-service reports . improved productivity, streamlined workflow, and overall cost and time savings CCO eclaims is a necessary, adaptable web-based program able to help navigate health care providers through the complex world of drug funding, balancing the needs of managing equal access to funded drugs through the New Drug Funding and Evidence-Building Program while collecting valuable real time data.

ECONOMIC EVALUATION PROTOCOL: A SURVIVORSHIP ACTION PARTNERSHIP (ASAP) - CANADA
Presented by: Lisa Masucci, Health Economist, St. Michael's Hospital

Movember has established A Survivorship Action Partnership (ASAP) to develop and implement programs that aim to improve the lives of prostate cancer survivors in Canada and internationally. The objective of this study is to describe a protocol for conducting an economic analysis of the ASAP program in Canada. Men with prostate cancer experience ongoing ill effects from the treatment and psychological distress from the disease. As a result, from the leadership of Prostate Cancer Canada (PCC), 11 ASAP initiatives are being introduced and studied in Canada to provide support in key survivorship areas. The study design ranges from a single-arm observational study to a clinical trial. The analysis will be conducted from the perspective of the public payer using data from each initiative as well as the literature. A budget impact analysis will be conducted to estimate the cost of delivering the ASAP initiatives. When plausible, we will examine the cost-effectiveness of the initiative. This economic evaluation will provide: 1) estimates of the total cost of setting up and implementing each of the chosen initiatives over a specified time period; and 2), when feasible, the cost and effect of the proposed initiative when compared to usual care. The results from the economic evaluations will enable ASAP to assess the economic evidence related to the funded initiatives, which may help define the success and support for future funding. In addition, information on the cost to deliver the initiatives may be helpful to others who are interested in adopting the specific initiatives in their areas (e.g., in determining the economic feasibility of implementing such initiative). The ASAP initiatives will offer support to patients who experience adverse effects of treatment and their partners, family members or caregivers. Understanding the economic impact of the ASAP initiatives in Canada may assist decision- and policy-makers in the planning and resource allocation of key survivorship areas.

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EQ-5D HEALTH UTILITIES ARE ESTIMATED SUBJECT TO CONSIDERABLE UNCERTAINTY
Presented by: Eleanor Pullenayegum, Associate Professor, Hospital for Sick Children

Health utilities are used in many economic evaluations. The EQ-5D is often used to measure health utilities. Uncertainty in the EQ-5D scoring algorithm is routinely ignored. We aim to quantify the extent of uncertainty in the US EQ-5D-3L scoring algorithm, which was based on the largest valuation study to date. The United States EQ-5D-3L scoring algorithm was based on data from 3773 respondents. We re-fitted the US scoring algorithm using the same data and functional form as was originally used, omitting each health state in turn and examining the error in the predicted mean utilities. We then used a mixed effects model, including a random effect for health state, and adopted a Bayesian perspective to estimate the predictive distribution of the mean utilities for health states not included in the valuation study (the study captured 43 of 243 health states). This allowed us to estimate uncertainty in the scoring algorithm. The mean absolute error for predicted mean utilities on cross-validation was 0.033; the mean absolute error for a perfect model, accounting for sampling error in the observed mean utilities, would have been 0.01. The root mean squared error was 0.042; for a perfect model it would have been 0.013. The standard deviation for the random effect for health state was 0.03, suggesting that the width of the confidence interval for the mean utility for a randomly selected health state is around 0.12. Results of the Bayesian model indicate that the width of the 95% credible interval for the mean utilities varied from 0.03 to 0.45, with a median width of 0.18 and interquartile range of 0.15 to 0.22. EQ-5D health utilities are subject to considerable uncertainty (for comparison, the MID for EQ-5D utilities is 0.05 to 0.08). Other countries' scoring algorithms are based on smaller sample sizes and are hence subject to greater uncertainty. This uncertainty should be accounted for when using EQ-5D health utilities in economic evaluations.

Co-authors: Feng Xie, McMaster University

EVALUATION OF A PHARMACEUTICAL PAY-FOR-PERFORMANCE RISK-SHARING AGREEMENT WHEN PATIENTS ARE SCREENED FOR THE PROBABILITY OF SUCCESS
Presented by: Greg Zaric, Professor, Western University

Pharmaceutical risk sharing agreements are a type of contract between drug manufacturers and third party payers. These agreements are increasingly being used as part of formulary listing decisions for new oncology products. We develop a game theoretic model of a pay for performance agreement. We model interactions between the payer and manufacturer as a Stackelberg game. The pharmaceutical firm chooses the drug price and then the payer chooses which patients will be eligible for treatment. Following treatment the manufacturer pays a rebate to the payer for all patients who did not respond to the new drug. We solve for the optimal price and treatment decisions by both parties. We define the social welfare as the sum of the payer's and manufacturer's objective functions, and investigate whether a combination of taxes, subsidies and additional rebates can result in the optimal social welfare being chosen by the two parties acting independently in a decentralized system. We find a threshold rebate rate beyond which it is optimal to make the drug available to those patients who are least likely succeed rather than those who are most likely to succeed. We create several numerical examples to investigate how the distribution of the probability of success throughout the population influences the profits of the drug manufacturer and the net health benefits purchased by the payer. We find that a single rebate based on performance does not, in general, lead to socially optimal outcomes, but that that socially optimal outcomes can be achieved using appropriately designed taxes and subsidies. A pay for performance risk sharing agreement may be welfare-improving for certain ranges of rebate rate. Formulary managers should be aware of the incentives created by different types of agreements when negotiating with drug manufacturers.

Co-authors: Reza Mahjoub, Western University; Fredrik Odegaard, Western University

EVIDENCE OF A SIGNIFICANT REDUCTION IN CERVICAL DYSPLASIA DUE TO PUBLICLY FUNDED HUMAN PAPILLOMAVIRUS (HPV) VACCINATION IN ONTARIO

Presented by: Leah Smith, Student, McGill University

Provincial publicly funded, school-based HPV vaccination programs were implemented in 2007 to help reduce cervical cancer in the Canadian population; however, little is known about their effectiveness to date. Therefore, we assessed the impact of Ontario's Grade 8 HPV Immunization Program on the risk of cervical dysplasia in adolescent girls. We used Ontario's administrative health and immunization databases to identify a population-based cohort of all girls in Grade 8 in 2005/06-2006/07 (program ineligible) and 2007/08-2008/09 (program eligible). Vaccine exposure (three doses) was ascertained during Grades 8-9 and outcomes during Grade 10 until March 31 of Grade 12. Using a novel, quasi-experimental, instrumental-based variable approach (the Regression Discontinuity Design), we employed one- and two-stage local linear regression to estimate absolute changes in the incidence of dysplasia attributable to program eligibility and program vaccination, respectively. Similarly, we employed and one- and two-stage log-binomial regression to estimate these risks on the relative scale. The cohort was comprised of 221,014 girls (112,155 ineligible, 108,859 eligible). Baseline characteristics and follow-up time (4.6 years) were similar between groups. 1.0% of ineligible girls were HPV vaccine exposed, as were 50.6% of eligible girls. We identified a total of 2470 cases of cervical dysplasia among cohort members and observed a statistically significant absolute reduction in cervical dysplasia attributable to the program eligibility {cumulative incidence difference (CID)=-2.82 cases per 1000, 95% confidence interval (CI) -4.84, -0.81} and vaccination (CID=-6.96 cases per 1000, 95% CI -11.94, -0.20). We also observed a strong protective effect of program eligibility and vaccination on the relative scale {cumulative incidence ratio (CIR)=0.78, 95% CI 0.66, 0.93, CIR=0.55, 95% CI 0.37, 0.83, respectively}. Results were robust to sensitivity analyses. Our study provides strong evidence that publicly funded HPV vaccination is causing a significant reduction in cervical dysplasia, a precursor to cervical cancer, among Canadian females. Moreover, we observed this effect among girls as young as 14-17 years, suggesting these program benefits are manifesting at an early age.

Co-authors: Erin Strumpf, McGill University; Jay Kaufman, McGill University; Aisha Lofters, University of Toronto; Michael Schwandt, University of Toronto; Linda Levesque, Queen's University

EXPLORING THE IMPACT OF STRUCTURAL UNCERTAINTY IN PARTITIONED SURVIVAL MODELS FOR ONCOLOGY

Presented by: Jaclyn Beca, Research Manager, Pharmacoeconomics, Cancer Care Ontario, St. Michael's Hospital

Economic evaluations in oncology built using partitioned survival analysis do not permit analysis of the post-progression period separate from the progression-free period. Moreover, trial benefits are usually assumed to continue for the duration of the model. The objective of this study is to discuss possible methods to address structural uncertainty in partitioned survival models. Options for addressing the long-term benefits in partitioned survival models are explored using a hypothetical economic model with three states (progression-free, progressed disease, and death). The methods include the standard approach of projecting treatment group PFS and OS outcomes using parametric survival curves, using time-varying hazard ratios to modify the relative benefits between treatments, calculating and modifying treatment-related Markov probabilities following progression in the cohort, and truncating the analysis. The survival outcomes produced by the model are presented graphically to illustrate the impact of the different methods, along with the magnitude of change in the incremental benefits and the resulting incremental cost-effectiveness ratios (ICERs) using the various methods compared to the standard approach. Capturing and quantifying the structural uncertainty in partitioned survival analysis is not well developed in the literature. This study demonstrates the uncertainty and the potential for bias from choosing one method of extrapolating outcomes for an economic evaluation using a partitioned survival analysis. The study proposes options for exploring the uncertainty that could be used to present a balanced analysis and avoid bias in economic evaluations for oncology research.

Co-authors: Jeffrey Hoch, Co-Director, ARCC

FACTORS INFLUENCING ADHERENCE TO CANCER TREATMENT IN OLDER ADULTS WITH CANCER: A SYSTEMATIC REVIEW

Presented by: Martine Puts, Lawrence S. Bloomberg Faculty of Nursing, University of Toronto

Cancer is a disease that mostly affects older adults. Treatment adherence is crucial to obtain optimal outcomes such as cure or improvement in quality of life. The aim of this systematic review was to examine factors that influence adherence to cancer treatment in older adults with cancer. We conducted a systematic review of the literature published between inception of the databases and February 2013. Studies published in English, Dutch, French and German-language articles reporting cross-sectional or longitudinal, intervention or observational studies of cancer treatment adherence were included. Data sources included MEDLINE, EMBASE, PsychINFO, CINAHL, Web of Science, ASSIA, Ageline, AMED, SocAbstracts and the Cochrane Library. Two reviewers reviewed abstracts and abstracted data using standardized forms. Study quality was assessed using the Mixed Methods Appraisal Tool 2011. No study was excluded based on the quality assessment. Twenty-two manuscripts were identified reporting on 18 unique studies. The quality of most studies was good. Most studies focused on women with breast cancer and adherence to adjuvant hormonal therapy. More than half of the studies used data from administrative or clinical databases or chart reviews. The adherence rate varied from 52% to 100%. Only one qualitative study asked older adults about reasons for non-adherence. Factors associated with non-adherence varied widely across studies. Non-adherence was common across studies but little is known about the factors influencing non-adherence. More research is needed to investigate why older adults choose to adhere or not adhere to their treatment regimens taking into account geriatric syndromes and comorbidities.

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FEASIBILITY OF POPULATION-BASED COLLECTION OF PATIENT REPORTED OUTCOME MEASURES IN A PROVINCIAL RADIOTHERAPY PROGRAM
Presented by: Helena Daudt, Clinical Research Manager, BC Cancer Agency-Vancouver Island Centre

Systematic collection of patient reported outcome measures (PROMs) during clinical care and a process to improve patient support following radiation therapy (RT) were identified as goals of the BC Cancer Agency's Radiotherapy Program. Patients receiving RT for bone metastases were chosen to pilot the process. Process design emphasized feasibility and practical use during clinical care. Through a modified Delphi approach, 3 questions from a validated questionnaire were selected to capture patient's perception of pain, function, and distress using a 5-point scale. Data was captured within the oncology information system. Patients were asked the questions by a radiation therapist at CT simulation, and 3 weeks after RT by RN phone call. RNs also offered support during the follow-up phone call. All 6 cancer centres in BC participated. From May to Dec 2013, 563 patients were approached at CT-sim and 408 were called by the RN 3 weeks after RT, with response rates of 92% and 76%, respectively. 63% of the RN calls took < 5 minutes. RNs' organized radiation oncologist or family physician appointments were required for only 3% and 6% of patients, respectively. 13% of patients received symptom-management support from the RN. There were highly statistically significant improvements in pain, function, and distress ($p<0.001$for all 3 domains), which did not vary significantly by treatment site ($p=0.50$). Of those with a concern, 88% reported at least a 1-point improvement in one domain, while 55% reported improvement in all 3 domains. Population-based collection of PROMs was feasible during routine clinical care without incremental staff resources. The burden on RNs to collect information and offer support was low. The beneficial effects of palliative RT for bone metastases to improved pain, function, and distress were confirmed in a real world population.

Co-authors: Vincent Lapointe, BC Cancer Agency; Joanne Stephen, Psychosocial and Survivorship Researcher, BC Cancer Agency; John French, Provincial Program Senior Director, BC Cancer Agency; Ross Halperin, VP Radiation Therapy Program, BC Cancer Agency; Wayne Beckham, Professional Practice Leader, Medical Physics, BC Cancer Agency; Ivo Olivotto, Former Head, Radiation Therapy Program, BC Cancer Agency; Robert Olson, Radiation Oncologist, Health Services and Quality of Life Researcher, BC Cancer Agency

THE WILLINGNESS OF CANCER PATIENTS TO REGULARLY COMPLETE THE EQ-5D HEALTH UTILITY QUESTIONNAIRE
Presented by: Hiten Naik, Medical Student, University of Toronto

To better inform policy decisions, collecting health utility information from cancer patients regularly through routine administration of the EQ-5D instrument would be beneficial. Currently, cancer patients in Ontario routinely complete symptom assessment surveys. We sought to assess their willingness to also complete the EQ-5D. 618 adult cancer survivors across all non-CNS solid and hematologic cancer sites at the Princess Margaret Cancer Centre completed a survey of socio-demographic questions, the EQ-5D instrument, and a series of questions regarding willingness to complete/burden associated with completing the EQ-5D. Results were analyzed using descriptive statistics and multivariate logistic regression. The mean (SD) EQ-5D score was 0.81 (0.15). Amongst those surveyed, 88% reported that the EQ-5D was easy to complete. 91% took less than 5 minutes and 88% were satisfied with its length. 85% were satisfied with the types of questions asked on the EQ-5D, but 57% felt that the questions were similar to others they completed from other questionnaires that day (namely the Edmonton Symptom Assessment Scale, or ESAS). Importantly, 92% reported that they would complete the EQ-5D, even if it were used solely for research purposes and 73% agreed with the notion of completing it regularly at their clinic visits. Patients with lower EQ-5D scores ($p=0.0006$), and non-Caucasians ($p=0.0024$; 60% willing) were less willing to complete the instrument on a regular basis. Curability of tumor, disease site, age, and gender did not affect willingness. The vast majority of cancer patients across disease sites are willing to complete the EQ-5D instrument regularly, even if it were solely for research purposes. Routine collection of EQ-5D in the cancer clinic is feasible, but a potential bias is the under-representation of non-Caucasians and patients with lower EQ-5D scores.

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HEALTH CARE RESOURCE UTILIZATION IN THE MANAGEMENT OF CHRONIC LYMPHOCYTIC LEUKEMIA AT AN ONTARIO CANCER CENTRE
Presented by: Nicole Mittmann, Executive Director, Hope Research Centre

To collect health care resource utilization (HCRU) in the management of chronic lymphocytic leukemia (CLL) patients who have relapsed/refractory disease, and had at least one previous chemotherapy treatment. A retrospective, longitudinal, cohort study design is being used involving three cancer centres in Ontario, Canada. A convenience sample of 90 CLL patients was selected with inclusion criteria of adult age at diagnosis, date of diagnosis between January 1, 2006 to 2012, relapsed/refractory disease that required at least one previous therapy, and minimum of one oncology visit. Demographics and HCRU data were collected with descriptive statistics to be presented. Costs are in 2013 Canadian dollars. 30 CLL patients were evaluated at the Juravinski Cancer Centre (Hamilton, Ontario). 22 were male, mean age at diagnosis was 65.2 years and 43% had genetic testing. Chemotherapy-wise, 73.3% of patients received fludarabine-based first-line treatment, 26.7% received chlorambucil as first-line treatment and 40% were given rituximab. 90% of patients who needed other medications utilized a mean number of 6.0 drugs. Half of the cohort visited the emergency department for a total of 19 times and experienced 25 adverse events. The total cost of diagnostic tests/procedures was $17,502, $28,895 for hospitalizations, and $49,794 for specialist visits. Preliminary results from one cancer centre indicate substantial HCRU associated with CLL management. The authors plan to complete data extraction at the two remaining cancer centres in order to determine HCRU and cost results for the full cohort.

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HOMECARE UTILIZATION AND COSTS IN STAGE IV LUNG CANCER: A CANADIAN PUBLIC PAYER EXPERIENCE
Presented by: Nicole Mittmann, Executive Director, Hope Research Centre

There is limited information on the type, quantity and cost of homecare services in lung cancer. The objective was to determine the utilization and costs of homecare services for a population of individuals with Stage IV lung cancer. New cases of Stage IV lung cancer were extracted from a provincial cancer registry (Ontario Cancer Registry, 2005-2009) and linked to the homecare services administrative datasets from the health system payer perspective. The type and proportions of homecare services used were determined by phase of disease (initial≥6 months after diagnosis; terminal≤6 months prior to death; continuation=terminal minus initial). Homecare utilization and costs for cases were determined ($CAN 2012) ($1 CAD = 0.75 Euro). There were 18,187 cases of lung cancer in the cohort. 11,929 were staged. 6,115 (51.3%) were Stage IV lung cancer cases. 75.5% of the Stage IV cases used homecare. Of those using homecare services, there were 66.3 homecare visits per person per annum. The mean cost per person per annum was $6,076. There were 243,236 homecare visits in the cohort, 57.3% of which were nursing visits and 32.8% were homemaking and personal support care visits. There were 5,255 Stage IV cases in the terminal care phase (≤6 months prior to death), 75.8% used homecare services. The mean (95%CI; median) number of homecare visits per 30-day period was 7.7 (7.4-8.0; 4). The homecare cost per 30 days was $798 ($766-$830; $472). End of life lung cancer patients utilized a number of homecare services resulting in high 30 day and annual costs. Attributable costs and costs for other stages of the disease will be determined.

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HOW LINKED IN ARE CANADIAN ONCOLOGISTS? RESULTS OF A NATIONAL SURVEY OF SOCIAL MEDIA USE
Presented by: Robyn Leonard, Medical Oncology Research Student, BC Cancer Agency

Cancer care requires coordinated and efficient communication from many healthcare providers. Social media (SM) has the potential to increase collaboration among oncologists, further research in oncology and improve patient care. The extent to which SM is used amongst physicians in Canada is currently unknown. A nine-item survey was circulated anonymously via email to 680 oncologists, residents, and medical students across Canada. Respondents were asked their age, profession, which SM websites they use, how often they use SM, and whether they use it for professional development. Specifically, respondents were asked the frequency and use of ASCO Connection, Facebook, Google+, LinkedIn, OncologyEducation.com, Twitter and Women in Cancer (WinC)/All in Cancer (AlinC). The results were analyzed using descriptive statistics. Of 680 surveys sent, there was a 30% response rate (207 respondents). Of all respondents, 72% claimed to be SM users. There was a significant difference in the use of SM between those aged 18-34 and 45-54, (91% vs 39%, $p < 0.001$). Overall, 48% stated that they use SM for personal use, while 37% indicated using it primarily for professional development. Despite the ability of SM to improve professional networking, respondents indicated a low frequency of use. The frequency of SM use was reported as: multiple times per day 1%, usually once per day 1%, less than five times per week 8%, once or twice a month 19%, rarely or never 71%. Lack of time was identified as the main barrier to SM use. Despite advances in SM and the general interest of physicians to collaborate online, the frequency of use for professional development remains low. The main identified barrier to SM use was lack of time. Given the geographical dispersion of oncologists across Canada, SM may improve physician collaboration across the country.

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HOW SHOULD RT SERVICES BE SCHEDULED TO MEET PATIENT PREFERENCES FOR TIME OF DAY, DAY OF WEEK AND TRAVEL DURATION TO RECEIVE RADIATION THERAPY?
Presented by: Ivo Olivotto, Head of Radiation Oncology, Tom Baker Cancer Centre

To identify patient preferences regarding the time of day, day of week and acceptable travel duration to receive RT for cancer. Patients completing a course of RT at six cancer centres (2-9 Linacs per centre), were invited to complete a 17-question survey to rate their preferences (5-point scale) for time of day and day of week for RT, their actual, ideal and reasonable travel durations for RT and their actual, ideal and reasonable times between referral and first consultation. Surveys were distributed proportional to centre service volumes. Patients receiving single-fraction RT or brachytherapy alone were excluded. Between February 18 and May 17, 2013, 1053 surveys were returned. 54% of respondents were female and 76% received >15 fractions. Respondent distributions were similar to the centres' service volumes. Among patients expressing a strong preference, 90% preferred RT between 7:30AM and 5PM, 1% preferred RT prior to 7AM, 4% after 6PM and 29%-34% to NOT receive RT prior to 7:30AM or after 6PM. Among all respondents, 88% agreed or strongly agreed that RT was preferred between 8AM and 4:30PM, 14-15% preferred 7:30-8AM or 4:30-5PM, 10% between 5-6PM, and 6% preferred time intervals prior to 7:30AM or after 6PM. 30% preferred to NOT receive RT prior to 7:30AM or after 6PM. 18% and 11% preferred, and 52%-55% preferred NOT to receive RT, on Saturday or Sunday, respectively. Across 6 centres, 73% travelled less than 1 hour for RT but 61% felt travel of 1 hour or more was reasonable. Patients with longer actual travel times were more likely to report that longer travel was reaso nable. 88% and 73% of patients felt it ideal or reasonable, respectively, for the referral to consultation interval to be <2 weeks. RT services could be redesigned to meet patient preferences. Most patients preferred RT between 8AM and 4:30PM on weekdays, but a patient-centered service would make at least 10-20% of RT capacity available between 7:30-8AM, 4:30-6PM and on weekends. Travel duration preferences correlated with actual experience. Approximately 80% of patients preferred a <2 week wait from referral to first consultation, shorter than provided at the time of the survey.

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'I APPRECIATE IT WAS A HUMAN BEING GIVING ME INFORMATION': USE OF A TESTIMONIAL TO PROMOTE COLORECTAL CANCER SCREENING WITH FECAL OCCULT BLOOD TEST

Presented by: Samanthika Ekanayake, Sunnybrook Research Institute, Sunnybrook Health Sciences Centre

The success of communication campaigns promoting colorectal cancer screening depends on the identification of messages that the target audience will find compelling. This study explores how individuals eligible for screening react to a written testimonial from someone sharing his/her positive experience of completing a fecal occult blood test. In 2013, seven focus groups were conducted with 52 individuals in Barrie, Scarborough, Guelph and Hamilton. Participants were recruited through random digit-dialling. Participants were: ages 50-74, 40% female, 54% Canadian-born, 30% high-school graduates or lower, 30% never-screened for colorectal cancer. Male and female groups were held separately. Participants were shown a brief testimonial (stand-alone or embedded in a letter of invitation to screening) from someone sharing his/her positive experience of completing the fecal occult blood test. Participants were asked whether the testimonial was compelling, believable, acceptable and clear. Focus groups were audio-recorded, transcribed verbatim and analyzed using NVivo. The testimonial was well-received by most participants. The 'human feeling' and the 'personal tone' of the message made it credible and reassuring to many. Several participants appreciated hearing about the screening experience from 'someone like them'. The message also helped participants see the FOBT as a 'normal' thing to do and reinforced the sense that the test is easy to complete. However, a few participants disliked the testimonial, saying that it may not be personally relevant, that it felt 'gimmicky', and that it may not be real; others preferred 'factual' as opposed to 'anecdotal' messages. Testimonials from people who had a good experience with FOBT create a positive frame of mind towards screening among some eligible individuals. Testimonials can be used to persuasively convey key facts and arguments about colorectal cancer screening. Testimonials may be considered for inclusion in communication campaigns promoting screening with FOBT.

Co-authors: Diego Llovet, Lead Researcher - Qualitative, Sunnybrook Research Institute; Jorge Ginieniewicz, Research Associate, Sunnybrook Research Institute; Lawrence Paszat, Senior Scientist, Institute for Clinical Evaluative Sciences

IDENTIFICATION AND DESCRIPTION OF CANCER OF UNKNOWN PRIMARY COHORT IN ONTARIO

Presented by: Chong (Danny) Kim, M.Sc., Western University

Cancer of unknown primary origin (CUP) is defined by the presence of pathologically identified metastatic tumour without clinical or radiological evidence of a primary tumor. Our objective was to identify incident cases of CUP in Ontario and determine the influence of histology and sites of metastases on overall survival. We used the Ontario Cancer Registry (OCR) and Same Day Surgery and Discharge Abstract Database (SDS/DAD) to identify patients diagnosed with CUP in Ontario between January 1, 2000 and December 31, 2005. Patient files in the OCR with CUP cancer diagnosis codes were linked with records from the SDS/DAD. This linkage verified the CUP designation between both datasets and increased the available patient information. Four distinct subgroups were used to categorize CUP cases: cancer of unknown primary with metastatic sites localized to lymph nodes (ICD-9:196/ICD-10:C77), respiratory or digestive systems (ICD-9:197/ICD-10:C78), other specified sites (ICD-9:198/ICD-10:C79) or without specification of site (ICD-9:199/ICD-10:C80). We identified 1743 with CUP. The majority of patients had their diagnosis confirmed via histological examination (n=1075). The most common metastatic site was the respiratory or digestive systems (n=746), followed by other specified sites (n=457), unspecified site (n=349) and lymph node (n=191). The most common cell types in this cohort were adenocarcinoma (n"9), unspecified carcinoma (n=475), squamous cell carcinoma (n=173) and undifferentiated histology (n=139). Three year survival rates were 3.5%, 5.3%, 41.6% and 3.6% among adenocarcinoma, unspecified carcinoma, squamous cell carcinoma and undifferentiated histology, respectively. We also stratified by location and observed three year survival of 40%, 2.4%, 8.0% and 4.6% among CUP patients with metastases localized to lymph nodes, respiratory or digestive systems, other specified sites, and unspecified sites, respectively. CUP patients with metastases localized to lymph nodes or metastases of any site with squamous cell histology displayed enhanced survival over their CUP peers. Both characteristics in tandem appear to further confer improved survival. These results represent the first large CUP cohort described in Canada.

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INTRAVENOUS VITAMIN C AND CANCER: A SYSTEMATIC REVIEW

Presented by: Heidi Fritz, Naturopathic Doctor, Research Fellow, Canadian College of Naturopathic Medicine

Intravenous vitamin C (IVC) is a contentious adjunctive cancer therapy, widely used in naturopathic and integrative oncology settings. We conducted a systematic review of human interventional and observational studies assessing the safety and efficacy of IVC in cancer patients. We searched MEDLINE, EMBASE, The Cochrane Library, CINAHL, and AMED from inception to April 2013 for human studies examining the safety, effectiveness, or pharmacokinetics of IVC use in cancer patients. Of 897 records, a total of 39 reports of 37 studies were included: two RCTs, 15 uncontrolled trials, six observational studies, and 14 case reports. IVC dosing ranged from 50-100g ascorbic acid typically administered two to three times weekly. IVC does not appear to increase toxicity or interfere with anti-tumor effects of gemcitabine/ erlotinib therapy or paclitaxel and carboplatin. Based on one RCT and data from uncontrolled human trials, IVC may improve time to relapse and possibly enhance reductions in tumor mass and improve survival in combination with chemotherapy. IVC may improve quality of life (QOL), physical function, and toxicities associated with chemotherapy, including fatigue, nausea, and insomnia. Case reports document several instances of tumor regression and long-term disease-free survival associated with use of IVC. There is limited high quality clinical evidence on the safety and effectiveness of IVC. The existing evidence is preliminary and cannot be considered conclusive, but is suggestive of a good safety profile and potentially important anti-tumor activity; however more rigorous evidence is needed to conclusively demonstrate these effects.

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KNOWLEDGE TRANSLATION IN COMPLEMENTARY AND INTEGRATIVE CANCER CARE
Presented by: Heidi Fritz, Naturopathic Doctor, Research Fellow, Canadian College of Naturopathic Medicine

There is an urgent need to support evidence-informed decision-making related to complementary therapies within cancer care. Our objectives are to: 1) synthesize available evidence on commonly used complementary therapies in cancer care; and, 2) share summarized evidence through monographs developed for cancer patients and their health professionals. We are conducting a series of systematic and rapid reviews. A health librarian develops strategies to search medical databases (e.g., PubMed, AMED, Cochrane Library) for articles published in English that describe human studies assessing commonly used complementary therapies for the purpose of cancer treatment or prevention, reduction of symptoms and side effects, or potential interactions. Search results are screened by one reviewer, who consults with a second reviewer for questionable items. Data are then extracted into a standardized form. Results are summarized descriptively by topic, including mechanism of action, pharmacokinetics, effectiveness, adverse events and side effects, interactions, contraindications and dosing. To date, we have developed ten full-length monographs for a health professional audience, in addition to ten summarized versions for a lay audience. Topics include intravenous vitamin C, mistletoe, green tea, acupuncture, dichloroacetic acid (DCA) and flax, soy, vitamin D, black cohosh and red clover for breast cancer. Highlights will be presented at the conference, including a 'clinical bottom line'. For example, we reviewed five RCTs assessing the use of soy for menopausal symptoms in breast cancer survivors. All five RCTs found 15-50% symptom reductions in both soy and control groups, but the difference between groups was not significant. Four large observational studies suggest that soy isoflavones (40-60mg/d) do not likely interfere with hormonal therapies (e.g., tamoxifen or anastrozole) although prospective randomized studies are needed. Our research team is taking a leading role in Canada in synthesizing and translating scientific evidence to support informed complementary therapy decision making by patients and health professionals. We expect the development and broad circulation of our monographs will improve communication between patients, health professionals, researchers and decision-makers.

Co-authors: Lynda Balneaves, Associate Professor, University of British Columbia; Laura Weeks, Senior Research Fellow, Ottawa Integrative Cancer Centre; Raina Cordell, Research Assistant, Ottawa Integrative Cancer Centre

MESSAGES PROMOTING COLORECTAL CANCER SCREENING MAY NEED TO BE DIFFERENT FOR MEN AND WOMEN: FINDINGS FROM FOCUS GROUPS WITH SCREEN-ELIGIBLE ONTARIANS
Presented by: Jorge Ginieniewicz, Research Associate, Sunnybrook Research Institute

Communication campaigns that promote colorectal cancer screening can only be effective if they are able to give eligible members of the public compelling reasons for screening. This study explores whether men and women respond differently to assorted types of arguments presenting screening as a desirable course of action. Four focus groups were conducted (January, 2013) with 30 persons eligible for colorectal cancer screening in Scarborough, Barrie, Hamilton and Guelph. Male and female groups were held separately. Participants were recruited through random-digit dialling. Participants were aged 50-74, 47% female, 37% Canadian-born, 30% high school graduates or lower, 30% never-screened for colorectal cancer. Participants were shown ten stand-alone arguments promoting colorectal cancer screening and asked whether they viewed them as compelling, believable, acceptable and clear. An invitation letter to complete stool testing was developed using an argument preferred by men and tested in two additional focus groups with 14 males. Gender differences in argument preference were found in one of ten arguments presented to participants. Most men liked a message that presented screening as a way to lower the chances of suffering physical symptoms common in the later stages of colorectal cancer (diarrhoea, constipation, stomach pain), while most women rejected it. Most men said that these are scary symptoms that they would like to avoid, that the information on symptoms is 'realistic', 'easy to understand' and 'attention-catching', and that it is 'good information to have' on the consequences of cancer. The majority of women rejected this message because referring to relatively common occurrences such as diarrhoea, constipation and stomach pain would cause unnecessary anxiety, and also because these symptoms are rather mild. Men and women may respond differently to various types of arguments promoting colorectal cancer screening. Unlike women, men seem to be motivated by messages linking screening to a reduced chance of suffering common later-stage colorectal cancer symptoms. Planners may consider similar messages for inclusion in screening promotion efforts.

Co-authors: Diego Llovet, Lead Researcher - Qualitative, Sunnybrook Research Institute; Samanthika Ekanayake, Research Associate, Sunnybrook Research Institute; Lawrence Paszat, Senior Scientist, Institute for Clinical Evaluative Sciences

NEW METHODS FOR ASSESSING THE BURDEN OF OCCUPATIONAL CANCER IN CANADA
Presented by: Joanne Kim, Research Associate, Occupational Cancer Research Centre

A project is underway to assess the human and economic impact of carcinogenic exposures in Canadian workplaces, using increased methodological sophistication than previous similar projects. This presentation will focus on the methods used to estimate the human burden, using diesel engine exhaust (DEE) as an example. The Canadian Burden of Occupational Cancer project incorporates detailed labour force dynamics in its model for estimating the number of people ever exposed over the risk exposure period (1961 - 2001). Historical employment trends are based upon census data at multiple time-points by province, sex, industry, and occupation. Annual labour force data from 1976 to 2010 was used to attribute age and tenure distribution characteristics for each 5-year interval, by province, sex, age-group, and industry. Survival to the target year 2011 was adjusted to age at entry into the exposure model. The model predicts the number of workers ever exposed to diesel engine exhaust over the risk exposure period, with detailed characteristics, along with their age reached in the target year. This allows cancer burden to be calculated by province, sex, age, industry and occupation. Approximately 1.4 million workers were exposed to diesel engine exhaust during the risk exposure period. The initial estimated AFs for DEE-related lung cancers are: 4.9% for males, 0.3% for females, and 2.7% overall. These preliminary burden estimates are somewhat higher than recent estimates from other groups (1.3 - 1.8%). They account for the most recent evidence for the risk of lung cancer from occupational DEE exposure, as well as detailed historical exposure assessment and labour force trends. Incorporating detailed labour force characteristics will increase the validity of our burden estimates. The project will also assess the economic impact of occupational cancers in Canada, which will provide much-needed information for policy makers to target cancer prevention initiatives.

Co-authors: Chris McLeod, Assistant Professor, University of British Columbia; Cheryl Peters, Occupational Exposures Lead Scientist, CAREX Canada; Calvin Ge, Occupational Exposures Researcher, CAREX Canada; Paul Demers, Director, Occupational Cancer Research Centre; Manisha Pahwa, Research Associate, Occupational Cancer Research Centre; Sally Hutchings, Research Fellow in Statistics, Imperial College of London; Lesley Rushton, Reader, Imperial College of London

NO CHANGE IN THE RATE OF BILATERAL MAMMOGRAPHIES AFTER BRCA1/2 TESTING AMONG TRUE NON-CARRIERS
Presented by: Geneviève Larouche, PhD Candidate, Laval University

The majority of women true non-carriers should be encouraged to adopt the same cancer screening practices as those recommended to women of the same age in the general population. The aim of this study is to compare the rate of bilateral mammographies after BRCA1/2 testing to that prior. Information from the Quebec Health Insurance Board ('RAMQ') was used to identify all registered bilateral mammographies done between May 1, 1998 and March 31, 2012 among a cohort of 143 French Canadian unaffected true non-carriers. The Cox proportional hazards model for repeated events, with women's age as the time scale, was used to obtain hazard ratios of bilateral mammographies. The rate of mammographies did not change after BRCA1/2 testing, neither globally (HR=3D0.93, p=3D0.22), nor by age (<50 years HR=3D0.81, p=3D0.13; 50 years HR=3D1.01, p=3D0.84). Although women <50 years had a lower rate of mammographies than women 50 years (HR=3D0.55; 95% CI =3D 0.43-0.70) after genetic testing, 74% still continued to be screened, which is not generally recommended to women of the same age group in the general population. In our cohort of true non-carriers of familial of BRCA1/2 mutation, genetic testing information did not have a significant effect on mammography screening of true non-carriers. Clear-cut recommendations for the follow-up of non-carriers of the BRCA1/2 familial mutation are needed.

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'NO MAN IS AN ISLAND': CANCER PATIENT AUTONOMY AND DECISION MAKING ABOUT CLINICAL TRIAL PARTICIPATION
Presented by: Jennifer Bell, Bioethicist and Scientist, Psychosocial Oncology and Palliative Care, Princess Margaret Hospital

Low accrual to cancer clinical trials (CTs) threatens scientific advancement and may prevent people with cancer from benefiting from cutting-edge treatment. The objective of this study was to explore cancer patients' CT decision-making process through a relational autonomy lens. Relational autonomy acknowledges relational and socio-political context may influence patients' CT decisions. Interpretive description and grounded theory guided in-depth interviews with 12 CT personnel, 40 breast and prostate cancer patients, and 11 support persons to address the study objective. Interviews were transcribed and analyzed using constant comparative techniques. A critical feminist lens enriched the relational and gender analysis of the data. CT decision making is a complex endeavor composed of phases and processes that are not only personally but also socially and structurally located. Three major themes were uncovered that impacted patients' decision-making process and ability to exercise their relational autonomy within this process: (1) problematic power differentials between patients and physicians, (2) therapeutic misconception, and (3) inequities in access to CTs. The overarching core construct, 'no wo/man is an island', captured patients' CT decision-making process and experiences of autonomy, including the relational complexity of CT decisions and the key influences on this process. Practice implications include targeted education for CT personnel and patients to equalize power relationships within CT recruitment. Additionally, standardization of drug approval, better monitoring and follow-up care, and more accessible health care can address structural barriers to support patients' relational autonomy within the context of CTs, and potentially improve CT accrual.

Co-authors: Lynda Balneaves, University of British Columbia; Anita Ho, University of British Columbia; Paddy Rodney, University of British Columbia; Karen Gelmon, BC Cancer Agency; Kim Chi, Senior Scientist, BC Cancer Agency

ONTARIO WAIT TIMES IN INTERVENTIONAL RADIOLOGY ONCOLOGY PROCEDURES
Presented by: Colleen Bedford, Project Coordinator - Cancer Imaging Program, Cancer Care Ontario

A stakeholder survey demonstrated a perception in Ontario of long wait times for oncology-related interventional radiology (IR) procedures. Although many institutions monitor wait times, methods vary and results are not centrally reported; there are also no provincial wait time targets. To determine wait times for selected IR procedures and guide target recommendations, Cancer Care Ontario's Cancer Imaging Program systematically collected data from participating hospitals. PICC (peripherally inserted central catheter) Lines, portacaths and CT-guided lung biopsies (CTBx) were selected for study based on volumes and patient impact. Wait times were self-reported monthly; 34 hospitals volunteered to submit their first- and second-available appointment dates, assuming a standardized requisition date, over six months. Data collection was limited to radiology departments. The percentage of hospitals with wait times within 7, 14 and 28 days was determined. All data reported as %hospitals within 7, 14, 28 days. PICCs: 74%, 97%, 97% first-available; 56%, 94%, 97% second-available. Portacaths: 17%, 67%, 92% first-available; 8%, 50%, 92% second-available. CTBx: 27%, 67%, 100% first-available; 15%, 55%, 100% second-available. The results suggest there may not be an issue with wait times for PICC lines in Ontario. Fewer hospitals have wait times within 7 or 14 days for portacaths and CT-guided lung biopsies; however, evidence-based wait time targets are needed to assess clinical impact. This data provides the framework for discussion for target development for IR procedures, and may assist in improving access for Ontario patients.

Co-authors: Deanna Langer, Manager - Cancer Imaging Program, Cancer Care Ontario; Martin E. O'Malley, Radiologist, Princess Margaret Hospital; John Nadeau, Radiologist, Royal Victoria Hospital; Peter Bevan, Interim Manager - Cancer Imaging Program, Cancer Care Ontario; Julian Dobranowski, Clinical Program Head – Cancer Imaging Program, Cancer Care Ontario

PEMETREXED VS. ERLOTINIB AS 2ND-LINE TREATMENT OF ADVANCED NON-SMALL-CELL LUNG CANCER: A REAL WORLD COST-EFFECTIVENESS ANALYSIS

Presented by: Ian Cromwell, Health Economist, ARCC, BC Cancer Agency

The management of advanced-stage non-small cell lung cancer (NSCLC) involves the use of systemic therapy agents. We compared the cost-effectiveness of two existing drug treatments used as second-line therapy. A cost-effectiveness analysis was performed using retrospective electronic patient data from NSCLC patients in British Columbia. Eligible patients had received either pemetrexed or erlotinib as second-line therapy. Resource utilization between the beginning of second-line treatment and death for drugs, radiotherapy, hospitalization, and services covered by provincial insurance was abstracted from patient records. Incremental costs and incremental survival were compared using non-parametric tests and Kaplain-Meier survival analysis. 353 records met the inclusion criteria and were analyzed. Our analysis found that patients treated with second-line pemetrexed had higher overall costs than patients treated with second-line erlotinib ($40,856 vs. $34,681; p = 0.003). Overall survival and progression-free survival were similar in both groups (162 vs. 149 days, 111 days vs. 86 days; p = 0.85, 0.86 respectively). Sub-groups within this population were also examined. The addition of pemetrexed to the complement of second-line NSCLC treatments currently available delivers similar overall survival, but at a higher cost at an aggregate level. In addition to patient and provider preference, likely cost-effectiveness should be included in second-line treatment decisions.

Co-authors: Shing Yu Jade Wong, Co-op Student, ARCC, BC Cancer Agency; Barbara Melosky, Medical Oncologist, BC Cancer Agency; Stuart Peacock, Co-director, ARCC, BC Cancer Agency

PILOT IMPLEMENTATION OF SURVIVORSHIP CARE PLANS

Presented by: Frances Wong, Radiation Oncologist, BC Cancer Agency-Fraser Valley Centre

The study objectives are to compare two approaches of survivorship care planning implementation for patients discharged from active treatment or follow up, and to develop a framework for guiding BC Cancer Agency Forty breast cancer patients are to be recruited, 20 starting adjuvant therapy (experimental arm), and 20 just prior to discharge (conventional arm). Participants take part in a survivorship care plan (SCP) appointment with a Breast Cancer Care Nurse following discharge, during which they review a treatment summary and other relevant information to assist in their transition to community care. Experimental arm participants self-complete their summaries, while conventional arm participants have their summaries completed by the Cancer Care Nurse. Checklists and questionnaires provide data on patients' understanding of their treatment and care as well as satisfaction with their cancer centre experience. Our early analyses show that the intervention is providing benefits both to increase patient education as well as to decrease centre staff time. As the experimental arm patients progress through their treatment, they show an increased understanding of their disease, treatment and care prior to discharge. Conventional arm patients show an increased understanding after SCP appointments, most notably knowing the name of their cancer and who is primarily responsible for their care following discharge from the cancer centre. The time spent by the Cancer Care Nurse is also being tracked: on average, 50 minutes is required to prepare conventional patient treatment summaries, and 59 minutes is required to conduct a SCP appointment. We believe that patients engaged in education about their cancer treatment will be better informed and less anxious at treatment completion, and that a treatment summary created in part by the patients themselves may ease the document's implementation as it relieves some of the burden on health care professionals.

Co-authors: Mara Long, Research Assistant, Provincial Survivorship Program, BC Cancer Agency; Angela Bedard, Program Facilitator, Provincial Survivorship Program, BC Cancer Agency; Helena Daudt, Clinical Research Manager, BC Cancer Agency; Arminee Kazanjian, Professor, School of Population and Public Health, University of British Columbia, University of British Columbia

POLITICS AND POLICY-MAKING IN CANADA'S DRUG REVIEW PROCESS: THE ROLE OF AVASTIN FUNDING IN ONTARIO IN SHAPING THE PAN-CANADIAN ONCOLOGY DRUG REVIEW

Presented by: Anson Tang, Clinical Lecturer, University of Waterloo

The objective is to examine the background behind the 2009 Avastin (bevacizumab) funding issue in Ontario for treatment of metastatic colorectal cancer, how patients' access complaints were investigated by the Ontario Ombudsman, and its influence on the novel Ontario-based assessment process - the pan-Canadian Oncology Drug Review (pCODR). Kingdon's model of agenda setting was used to carry out an explanatory policy analysis of the key events and influences related to the establishment of the pan-Canadian Oncology Drug Review (pCODR) process in 2010. The role of institutions, interests and ideas and their relative prominence in each of the political, policy and problem streams of Kingdon's agenda setting model was examined through qualitative data analysis. Data sources consulted included relevant scientific literature, news media, Parliament of Canada committee minutes, and government, manufacturer and patient advocacy group websites. In 2007, a House of Commons committee clarified that the Common Drug Review (CDR) targets community-based medications (not intravenous), but does not have expertise to assess cancer drugs. The interim Joint Oncology Drug Review (iJODR) was established in 2007 which enabled manufacturers of cancer drugs (intravenous or oral) to make one submission through Ontario. Decisions resulting from these reviews would be considered nationally (except in Quebec) - but would not be binding. Further to these developments, a challenge to the capped funding of Avastin in Ontario emerged in 2009 as a focusing event, reinforcing the problems with differential access to cancer drugs across the country. An unlikely policy entrepreneur, the Ontario Ombudsman, opened a window for policy change through his scathing investigation, A Vast Injustice. In 2010, pCODR succeeded iJODR. Ontario based, pCODR makes recommendations nationally (except Quebec), guiding cancer drug funding. pCODR follows the Accountability for Reasonableness framework, encompassing principles not always demonstrated by iJODR, e.g. transparency, representation (from patients). However, pCODR's recommendations are not binding. Thus, potential for inequitable national cancer coverage persists.

Co-authors: Julia Abelson, Professor, McMaster University

POPULATION-BASED ASSESSMENT OF PRIMARY CARE PHYSICIAN VISITS AND ACUTE CARE UTILIZATION AMONG WOMEN RECEIVING ADJUVANT CHEMOTHERAPY FOR BREAST CANCER
Presented by: Sarah Bastedo, Student, University of Toronto

1) To compare primary care physician (PCP) visits among early stage breast cancer (ESBC) patients treated with adjuvant chemotherapy with controls. 2) To explore the association between PCP visits and use of emergency departments and hospitalizations (ED and H). A population based retrospective cohort study was used to examine PCP visits among women diagnosed with ESBC between 2007 and 2009 and treated with adjuvant chemotherapy, in Ontario. Utilization patterns were compared with the women themselves two years prior to diagnosis and non-cancer controls. Physician billing claims between the first day of chemotherapy and 30 days after the last day of chemotherapy were used to identify PCP visits. Poisson and extended Cox regression models were used to identify the impact of PCP visits on the likelihood of experiencing an ED or H. Patients with at least one PCP visit was significantly higher in chemotherapy patients compared with both controls (76.6% vs 63.7% and 65.0%). Chemotherapy patients also had a significantly higher intensity of PCP visits compared with non-cancer controls (RR 1.51, 95% CI 1.46 - 1.57, P<.0001) and the women themselves prior to diagnosis (RR 1.48, 95% CI 1.44 - 1.63, P<.0001). Greater than two thirds of the PCP visits among the chemotherapy patient cohort were for reasons related to breast cancer and treatment related side effects. In adjusted multivariate analyses, the likelihood of experiencing an ED or H increased following a PCP visit. Patients continue to see their PCP during chemotherapy treatment and appear to consult them for support and management related to their breast cancer and treatment-related side effects. However, routine use of primary care during chemotherapy treatment did not result in a decrease in the frequency of ED or H.

Co-authors: Eva Grunfeld, University of Toronto; Monika Krzyzanowska, UHN-PMH; Rahim Moineddin, University of Toronto

PRIMARY CARE FOR 'UNATTACHED' PATIENTS: IMPLEMENTATION AND EARLY EVALUATION OF A SURVIVORSHIP NURSE PRACTITIONER ROLE
Presented by: Lisa McCune, Program Facilitator, Provincial Survivorship Program, BC Cancer Agency

In 2013, to support the primary care needs of people who have had a cancer diagnosis but do not have a regular primary care provider, we established a Cancer Survivorship Nurse Practitioner role in a primary care setting. We evaluated the role in 2013 and 2014. We conducted interviews with seven core stakeholders including the Survivorship Nurse Practitioner (NP), the Medical Director of the primary care clinic where the NP practices, a Nurse Clinician with the pediatric long-term follow-up program, a Director of Clinical Operations - Systemic Therapy and three oncologists. In January 2014 we administered, by mail, a client satisfaction questionnaire with all patients age 16 and older who were registered to the NP's primary care practice. We used the Client Satisfaction Tool (CST) developed and validated by Bear and Bowers (1998). Respondents highlighted three strengths of the Survivorship Nurse Practitioner role. 1. Patients access primary care through the NP, enabling oncologists to open spaces for new patients. 2. Access to the cancer treatment Electronic Medical Record enables the NP to view diagnosis/treatment history rather than relying on patient recall. 3. The primary care clinic benefits from having a clinician on staff with knowledge of oncology care and resources. Two areas for development were highlighted. 1. Role clarity: to what extent should the Survivorship NP be considered a cancer specialist, vs. a primary care provider with additional training in cancer surveillance? 2. Communication with referring oncologists: A protocol is required to guide how the NP shares information about primary care provided to the patient. The Survivorship Nurse Practitioner role benefits patients, the primary care clinic in which the NP practices, and the cancer care system in our province. We plan to replicate this role throughout the province to address the needs of unattached cancer survivors.

RETHINKING THE WAY WE PERFORM CLINICAL TRIALS IN CANADA (REACT)
Presented by: Mark Clemons, Medical Oncologist, The Ottawa Hospital Cancer Centre; Sasha Mazzarello, Clinical Researcher, The Ottawa Hospital Cancer Centre

Genuine uncertainty about the optimal care of cancer patients is common. Physicians often choose between different "standard of care" treatments without the physician, patient, or society ever knowing what the "best" option is. Pragmatic head-to-head trials for comparing established treatments are needed. For many reasons comparisons of funded "standards of care" treatments (e.g. surgical, medical or radiation therapy) are rarely performed. With rising clinical trial costs and reduced federal funding for research this situation will only worsen. This presents an exciting opportunity to rethink the way that clinical trials are performed in Canada. We are developing a new research model that is more rapid, responsive, and relevant to the needs of Canadians. The timing of this transformative model is helped by the widespread availability of multiple standard regimens, established research infrastructure and powerful clinical, administrative databases and genuine desire to improve care. The REthinking Clinical Trials (REaCT) program is a collaborative group with significant multi-partner buy in that will undertake large, simple, yet pragmatic trials in high volume conditions. Similar to the NIH Collaboratory, this would include collecting only the necessary data to study the relevant endpoints (e.g. survival, cost, safety) using available administrative databases. This along with waived consent will ensure a research paradigm that is beneficial for patients, physicians and society. Collaboration will ensure that potential issues around health record, data standards and quality, health care systems interactions, regulatory/ethics, biostatistics and stakeholder challenges can be resolved. For this reason our program will involve multiple stakeholders including requirements for close interactions between the Ministry of Health, CCO, OICR and OHRI. REaCT supports pragmatic clinical trials that will enable comparison of standard treatments quickly and at reasonable cost. It could lead to a paradigm shift in patient care delivery. If this model is successful, it can be expanded beyond cancer care to the treatment of all patients.

Co-authors: Angel Arnaout, Surgical Oncologist, The Ottawa Hospital; Jeremy Grimshaw, Senior Scientist, Ottawa Hospital Research Institute; Ian Graham, Senior Scientist, Ottawa Hospital Research Institute; Dean Fergusson, Senior Scientist, Ottawa Hospital Research Institute

SCREENING AND SURVEILLANCE OF CHRONIC GASTROESOPHGEAL REFLUX DISEASE FOR BARRETT'S ESOPHAGUS AND ESOPHAGEAL ADENOCARCINOMA: A SYSTEMATIC REVIEW

Presented by: Wasifa Zarin, Research Assistant, Dalla Lana School of Public Health, University of Toronto

This systematic review aims to evaluate the benefits, safety, service utilization and cost-effectiveness of screening and surveillance for early detection of Barrett's esophagus (BE) and esophageal adenocarcinoma (EAC) in patients with chronic gastroesophageal reflux disease (GERD). Additionally, to identify important areas of uncertainty in current knowledge and priorities for future research. A systematic review was conducted following the PRISMA guidelines. Electronic databases were searched for published human studies that examined the screening practices, benefits, safety and costs of screening and surveillance for BE and EAC among chronic GERD patients. Databases searched included MEDLINE, EMBASE and Econlit using the following search structure: (GERD/BE/EAC or synonyms) AND (screening/surveillance/diagnostic tests or synonyms) AND (safety/efficacy/cost or synonyms) AND (treatment outcomes/disease state or synonyms). All quality assessments and data abstractions were performed by independent reviewers using standardized, pre-tested tools and subsequently compared for consensus. Quality assessment tools included the the Cochrane risk of bias tool and the Newcastle-Ottawa Scale. Our search strategy identified 17 publications for qualitative synthesis: 12 cohort studies, four cross-sectional studies and one randomized controlled trial. No studies reported on the safety or cost-effectiveness of screening and surveillance. All the studies were conducted in tertiary care centres and used conventional endoscopy and biopsy combination for screening methods. The prevalence of BE detection among GERD patients ranged from 0.7-45.6%. Endoscopy was primarily performed on symptomatic patients to determine management strategy, but several studies detected BE on asymptomatic patients ranging from 25%-40% who are less likely to seek medical attention. One study found that while patients with more severe GERD represented a relatively small portion of the GERD cohort, they demonstrated significantly greater health-care costs and overall utilization than uncomplicated GERD, The present review found huge knowledge gaps in terms of safety assessment and cost-effectiveness of current screening practices for BE and EAC in chronic GERD patients. Current clinical practices primarily target symptomatic GERD patients, but BE can silently develop in asymptomatic patients and remain undetected in progression to EAC without appropriate screening strategy.

Co-authors: Heather Rilkoff, Public Health Ontario; Sandy Bae, University of Toronto; Tyler O'Neill, University of Toronto; Hla-Hla Thein, University of Toronto

SMOKING INTENSITY AND INTENT TO CONTINUE SMOKING AMONG MENTHOL AND NON-MENTHOL ADOLESCENT SMOKERS IN CANADA

Presented by: Sunday Azagba, Scientist, Propel Centre for Population Health Impact

Research suggests that menthol cigarette use is associated with nicotine dependence. However, findings on the relationship between menthol smoking status and quantity of cigarettes smoked are less clear. The objective of this paper was to examine whether menthol cigarette smoking is associated with higher smoking intensity and intention to continue smoking among adolescents. A nationally representative sample of 4,736 Canadian students in grades 9 to 12 was drawn from the 2010-2011 Canadian Youth Smoking Survey. Associations between smoking intensity and menthol smoking were examined using multilevel negative binomial regression. A multilevel logistic regression was used to examine whether menthol smoking increased the odds that a student reported intention to continue smoking. 32% of smokers in grades 9 to 12 smoked menthol cigarettes in the last 30 days. Unadjusted average number of cigarettes reported by menthol smokers was 6.86 compared with 4.59 among non-menthol smokers. Multivariate results showed that the average number of cigarettes smoked by menthol smokers was 35% greater than non-menthol smokers (IRR=1.35; 95% CI= 1.27-1.45). Similar results were found using the total number of cigarettes smoked in the past week. Additionally, menthol smokers had greater odds of reporting intent to continue smoking compared to non-menthol smokers (OR= 2.61; 95% CI= 2.07-3.29). These results were robust when separate analyses were conducted for established smokers and experimental smokers. The findings of this study along with existing evidence suggest the need for banning menthol in Canada, in part because of its significant effect on adolescent smoking.

STAGE-BASED UTILIZATION OF CHEMOTHERAPY AGENTS IN A BREAST CANCER POPULATION

Presented by: Nicole Mittmann, Executive Director, Hope Research Centre

To describe the utilization of chemotherapy agents administered to women with a diagnosis of breast cancer (BC), by stage of disease. Intravenous chemotherapy utilization was extracted from two databases with Ontario population-level coverage [New Drug Funding Program (NDFP) and Activity Level Reporting (ALR) data] for women diagnosed with BC between January 1, 2005 and December 31, 2009. Hormonal therapies were not included in this analysis. Individual chemotherapy utilization and utilization by stage of disease were determined. There were 39,656 BC cases (34.4% Stage I; 31.8% Stage II; 12.0% Stage III; 3.9% Stage IV; 17.9% Unstaged) with a mean age of 61.6 ± 14.0 years. Among all cases (staged and unstaged), 17,383 (43.8%) received chemotherapy. The most common drugs administered across the entire cohort were cyclophosphamide (68.4%), docetaxel (52.8%), epirubicin (47.3%), fluorouracil (36.2%), doxorubicin (31.6%) and traztuzumab (24.3%). The drug utilization for Stage I/II was cyclophosphamide (72.9%), docetaxel (52.0%), epirubicin (49.6%), fluorouracil (37.9%), doxorubicin (31.2%), paclitaxel (23.0%) and traztuzumab (22.8%). For Stage III/IV utilization was as follows: cyclosphosphamide (68.3%), docetaxel (62.4%), epirubicin (45.6%), doxorubicin (36.1%), traztuzumab (27.8%) and paclitaxel (26.0%). This frequency distribution of chemotherapeutic agents provides population level data on BC management, by stage. Future work will involve costing of these medications from a population perspective

Co-authors: Soo Jin Seung, Senior Research Associate, Hope Research centre; Joan Porter, Manager, Institute for Clinical Evaluative Sciences; Jagadish Rangrej, Analyst, Institute for Clinical Evaluative Sciences; Ning Liu, Analyst, Institute for Clinical Evaluative Sciences; Maureen Trudeau, Oncologist, Odette Cancer Centre; Carlo DeAngelis, Scientist, Odette Cancer Centre; Jeffrey Hoch, Scientist, St. Michael's Hospital; Natasha Leighl, Oncologist, University Health Network; Craig Earle, Scientist, Institute for Clinical Evaluative Sciences

THE CHOOSING WISELY CANADA® CANCER INITIATIVE
Presented by: Gunita Mitera, Quality Initiatives Specialist, Canadian Partnership Against Cancer

The objective of this initiative is, through a pan-Canadian cancer physician-based consensus process, to identify a list of low value or harmful cancer services/practices that are frequently used in Canada. A Task Force was assembled, facilitated by the Canadian Partnership Against Cancer (CPAC); and it includes two members from each of the Canadian Society of Surgical Oncology (CSSO), Canadian Association of Medical Oncologists (CAMO), and Canadian Association of Radiation Oncology (CARO), along with an expert advisor. The methodology includes four phases: (1) identify and generate a baseline of potentially relevant items; (2) consensus process to develop the long list of items; (3) consensus process to reduce the long list to a short list; (4) finalize and endorse a final list of low value or harmful cancer practices. Characteristics of this work include consideration of existing cancer-related items from the published American Choosing Wisely® initiative, as well as solicitation of additional Canadian and/or discipline specific items. Phases 2 - 4 follow a consensus process where items are included or additional items were suggested based on pre-defined guiding principles of low value or harm, specifically incorporating both evidence and the Canadian context. Electronic surveys and voting processes will be used for Phases 2 - 4. For Phase 1 an initial list of 240 items was reviewed and 60 cancer relevant items were included. While we are currently in Phase 2 of our methodology, we plan to have the final list completed prior to the ARCC conference. The Choosing Wisely Canada® Cancer initiative is a unique collaborative health services approach to identify relevant low value or harmful services within Canada. Through CPAC facilitation, the 3 professional oncology societies (CSSO, CAMO and CARO) are able to mutually inform this initiative. The final list will be completed by May 1, 2014.

Co-authors: Steven Latosinsky, Canadian Society of Surgical Oncology; Christine Desbiens, Canadian Society of Surgical Oncology; Kara Laing, Canadian Association of Medical Oncologists; Marianne Taylor, Canadian Association of Medical Oncologists (CAMO); Andrea Bezjak, Canadian Association of Radiation Oncology (CARO); Guila Delouya, Canadian Association of Radiation Oncology (CARO); Craig Earle, Ontario Institute for Cancer Research (OICR), Cancer Care Ontario (CCO); Mary Argent-Katwala, Canadian Partnership Against Cancer (CPAC); Natasha Camuso, Canadian Partnership Against Cancer (CPAC); Geoff Porter, Canadian Partnership Against Cancer (CPAC)

THE COST-EFFECTIVENESS OF 2ND LINE CRIZOTINIB IN EML4-ALK REARRANGED ADVANCED NSCLC IN ONTARIO
Presented by: Sandjar Djalalov, Health Economist, ARCC, Cancer Care Ontario

Targeted therapy with ALK inhibitor crizotinib offers significant improvement in clinical outcome for treatment of EML4-ALK fusion positive non-small cell lung cancer (NSCLC) patients. We estimated the cost-effectiveness of companion EML4-ALK genetic testing in combination with crizotinib treatment in the second-line setting for advanced NSCLC in Ontario We performed a cost-effectiveness analysis using a Markov model from a Ministry of Health perspective and a lifetime horizon. Transition probabilities and mortality rates were calculated based on the data of a recent second-line randomized trial of crizotinib versus chemotherapy (Shaw et al. New Engl J Med 2013). Costs were obtained from OCCI database, public labs and Princess Margaret Hospital. All parameters were varied separately in one-way and selected two-way sensitivity analyses. Various scenarios to assess the impact of model assumptions about testing and treatment were conducted. The use of pemetrexed and docetaxel in ALK-rearranged NSCLC, based on our preliminary model, could yield as much as 0.539 QALY and 0.429 QALY respectively, assuming no crossover from chemotherapy to crizotinib. Average costs per patient based on the preliminary model are estimated at CAD $19,388 for pemetrexed and $$33,226for docetaxel, with incremental cost-effectiveness ratios of $333,595/QALY and $125,812/QALY gained respectively. The results of the one-way sensitivity analysis indicated that the primary drivers of the ICER were the utilities and cost of crizotinib treatment. The model was least sensitive to IHC and FISH genetic test costs, re-biopsy cost, probability of progression while on pemetrexed treatment and probability of re-biopsy. EML4-ALK genetic testing in combination with crizotinib treatment for all NSCLC patients eligible for chemotherapy is not economically attractive in the current setting. Lower drug costs would be required to make this strategy economically feasible.

Co-authors: Donna Graham, Princess Margaret Hospital; Jaclyn Beca, Cancer Care Ontario; Jeffrey Hoch, Director, Pharmacoeconomics Research Unit, Cancer Care Ontario; Ming-Sound Tsao, Princess Margaret Hospital; Jean-Claude Cutz; Natasha Leighl

THE PATIENT PATIENT: THE IMPORTANCE OF KNOWING YOUR NAVIGATOR
Presented by: Sarah Wheeler, Research Associate, Evaluation, Cancer Care Ontario

1) Determine if patients' subjective ratings of their experience while undergoing diagnostic assessment is affected by a) length of time to receive a diagnosis or rule out of cancer or b) volume of patients being diagnosed, and 2) if these relationships differ for patients who report knowing their nurse navigator. Data reflecting the patient experience during the diagnostic phase were collected via a Patient Experience (PE) survey, which was disseminated through regional lung Diagnostic Assessment Programs (DAPs) across Ontario. An average PE rating for each region was calculated and correlated with the 75th percentile wait time and total volume for each region. Responses from the PE survey were also stratified within each region into two groups depending on whether the patient reported knowing who their nurse navigator was (Group 1) or not (Group 2) and the relationship of PE rating to wait times and volume were assessed for each group. There was no significant correlation between average PE rating and wait times ($r=-0.268$, $p>0.05$) or total patient volumes ($r=0.390$, $p>0.05$) across the regional DAPs. When the patient group was subdivided, there were no differences between Groups 1 and 2 in terms of age or education. However, Group 1 rated their PE as significantly better than Group 2 ($t(11)=8.520$, $p<0.001$). In addition, there were different relationships between PE and wait times for each group. For Group 1, there was no significant correlation between PE rating and wait time ($r=-0.430$, $p>0.05$). However for Group 2, longer wait time was associated with worse PE ratings ($r=-0.560$, $p<0.05$). With respect to total volumes, there were no significant relationships for PE ratings in either Group 1 or 2. The role of nurse navigator appears to mitigate the negative impact of longer wait times on PE. Patients who knew their navigator reported consistently good PE regardless of wait whereas patients who did not know their navigator reported worse PE with longer wait times. Total volumes did not affect PE.

Co-authors: Julie Gilbert, Staff Scientist and Manager, Research and Evaluation and Lecturer, Management and Evaluation, Cancer Care Ontario and Institute for Health Policy, University of Toronto; Melissa Kaan, Manager, Diagnostic Assessment Program, Cancer Care Ontario; Eric Klonikowski, Co-op Program Coordinator, Cancer Care Ontario; Claire Holloway, Provincial Clinical Lead and Associate Professor, Cancer Care Ontario and Department of Surgery, University of Toronto

TRANSITION OF COLORECTAL CANCER (CRC) SURVIVORS TO PRIMARY CARE: RESULTS OF A CANCER CARE ONTARIO (CCO) PILOT PROJECT
Presented by: Jonathan Sussman, Chair, Survivorship Advisory Committee, Cancer Care Ontario

This pilot project was conducted to inform the feasibility of implementing a province wide initiative to develop models to support the transition of follow-up care of colorectal cancer survivors from oncology to primary care. Cohort study in two health regions and one FHT in Ontario, Canada. Each region received funding to develop and implement a sustainable new model of survivorship care for CRC survivors. Funding could be used to develop any aspect of the model including personnel support, development of communication materials as well as outcome measurement. Data collected included demographics of CRC survivors transitioned as well as patient and provider experience feedback once transition occurred via satisfaction surveys and interviews. Each of the three pilot sites developed a survivorship care plan along with patient and provider educational materials. The models developed included direct transition to primary care, two NP led transition clinics and a GPO led transition clinic. 346 Stage 1-3 CRC survivors were transitioned. Of 16/32 respondents, 100% of oncologists were: 1) satisfied with their role; 2) would recommend it to colleagues; 3) felt there was greater clarity concerning who was responsible for follow-up care/tests; and 4) 70% felt they had more time to see new, urgent or complex patients. 100% of nurses felt adequately prepared to facilitate the clinic. Patient responses indicated that they were largely satisfied with their coordination of care. Process outcomes such as re-referral back to the cancer center and adherence to follow-up guidelines are currently underway. This work suggests that transition of appropriate CRC patients is feasible and appears to be acceptable to patients and oncologists. The results of this pilot have informed the development of a province wide initiative to identify and transition appropriate CRC survivors to a primary care setting. An evaluation framework has been implemented that includes descriptive demographics, processes of care (use of care plans, educational materials and ongoing support mechanisms from oncology) as well as patient and provider (oncology and primary care) experience outcomes.

Co-authors: Jonathan Sussman, Cancer Care Ontario; Maria Grant, Cancer Care Ontario; Amanda Calzolaio, Cancer Care Ontario

TRANSPARENCY IN CANADIAN PUBLIC DRUG ADVISORY COMMITTEES
Presented by; Zahava R. S. Rosenberg-Yunger, Assistant Professor, Ryerson University

Although transparency in healthcare resource allocation decisions is a criterion of a fair process, little is known about the transparency of drug advisory committee recommendations in Canada. We used qualitative methods to explore transparency across 11 Canadian drug advisory committees. We interviewed a purposeful sample of key informants who were conversant in English and a current or past member of either a committee or a stakeholder group. We analyzed data using a thematic approach. Interviewing continued until saturation. We interviewed participants from 11 committees: 5 expert members, 6 non-expert members, 6 patient group representatives, 4 industry representatives, and 6 government employees. We developed seven criteria (appeals mechanism, multi-directional communication, membership names public, membership selection criteria public, "no" decisions public, posting of rationales and posting of conflict of interest disclosures) and two sub-criteria (for when rationales were posted - direct website link and readability).The median number of criteria addressed by committees was 2 (range 0 to 6). Major interview themes included addressing: 1) accessibility issues, including stakeholders' degree of access to the decision making process and appeal mechanisms; 2) communication issues, including improving internal and external communication and public access to information; and 3) confidentiality issues, including the use of proprietary evidence. Most committees have some mechanisms to address transparency but none had a fully transparent process. The most important ways to improve transparency are to create formal appeal mechanisms, improve communication, and establish consistent rules about the use of, and public access, to proprietary evidence.

Co-authors: Ahmed M. Bayoumi, MD, MSc, FRPCPC

VARIATION IN THE UPTAKE OF LUNG CANCER PRACTICE GUIDELINES FOR NSCLC IN ONTARIO
Presented by: Aryn Gatto, Project Coordinator, Disease Pathway, Cancer Care Ontario; Ashley Tyrrell, Project Coordinator, Disease Pathway Management, Cancer Care Ontario

In 2008, the Cancer Quality Council of Ontario began measuring and reporting concordance with Non-Small Cell Lung Cancer (NSCLC) practice guidelines. To date, guideline concordance has been shown to vary by region and patients' age. To further understand patterns of variation, this project examined guideline concordance by measures of equity. This project examined two cohorts of patients. Patients with surgically resected stage II and IIIA NSCLC in 2011 formed cohort 1 (n=298). Guideline concordance for cohort 1 was defined as treatment with cisplatin-based chemotherapy (AC) within 120 days of surgical resection (PEBC guideline #7-1-2). Patients with surgically unresectable stage III NSCLC in 2011 formed cohort 2 (n=1259). For cohort 2, guideline concordance was defined as treatment with cisplatin-based concurrent chemo-radiotherapy (CCRT) within 180 days of diagnosis (PEBC guideline #7-3). Guideline concordance was examined for each cohort by measures of equity: sex, income, urban/rural residence and immigrant population. In cohort 1, more female patients received guideline recommended AC than males (females: 52.7%, CI 44.6-60.8; males: 38.2%, CI 30.4-45.9). Guideline concordance was lower in neighbourhoods with higher immigrant populations (T1: 14.3%, CI 2.7-25.9; T2: 46.0%, CI 33.7-58.3; T3 51.0%, CI 44.0-58.0). Similar to cohort 1, guideline concordant CCRT was significantly less in neighbourhoods with higher percentages of immigrants for cohort 2 (T2: 18.6%, CI 14.1-23.2; T3: 19.0%, CI 12.7-25.2) compared to neighbourhoods with the lowest percentage of immigrants (T1: 28.4%, CI 25.3-31.5). Also for cohort 2, patients in the lowest income quintile and those residing in urban areas were significantly less likely to be treated with guideline recommended CCRT. There was no variation in CCRT based on sex. Concordance with two practice guidelines for NSCLC varies based on a number of equity measures. Further research is needed to understand the rationale for guideline non-concordance and patterns of variation and to identify strategies that may reduce this variation.

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WHAT COUNTS AS A POTENTIAL HARM OF LUNG CANCER SCREENING? FINDINGS FROM FOCUS GROUPS WITH CURRENT AND RECENT FORMER HEAVY SMOKERS IN ONTARIO

Presented by: Diego Llovet, Lead Researcher - Qualitative, Sunnybrook Research Institute

Screening with low-dose CT scan significantly reduces lung cancer mortality among persons at high risk for the disease (asymptomatic current and recent former heavy smokers aged 55-75). However, screening can also be harmful. This study explores how high-risk persons understand the potential harms of screening. Three two-hour focus groups were conducted between November and December 2013 with 21 current (at least 1 pack/day, current or quit within last 12 months) and recent former (at least 1 pack/day, quit 1-15 years ago) heavy smokers with no prior history of lung cancer in Niagara Falls, Toronto and Sudbury. Participants were 55-73, 40% female, 60% high school graduates or lower. Participants were recruited through random-digit dialling. An experienced moderator presented potential harms of screening and asked participants to offer their views. Recordings were transcribed verbatim. Three qualitative researchers independently coded data using NVivo and inductively identified themes. Participants disagreed that receiving false positive CT scan results is necessarily harmful because: advance knowledge of possible false positives helps keep anxiety down; tests normally give false positives; follow-up will show if there is a real problem; high rate of false positives shows CT scan is a sensitive test. Several were concerned about the risk of radiation-induced lung cancer because: 'the cure' might be worse than the disease; prior radiation exposure is a reason not to have more of it; radiation can negatively affect important aspects of a person's life. Others were not worried because medical radiation is common and less dangerous than smoking. Participants said providers should offer information on potential harms of screening. Views of risks were often shaped by past personal experiences. High-risk persons may not share experts' definitions of potential harms of lung cancer screening. Their assessments of harm information are heterogeneous and subjective. Qualitative research is key to helping providers focus their communication efforts on the concerns and information needs of people considering screening.

Co-authors: Jorge Ginieniewicz, Research Associate, Sunnybrook Research Institute; Samanthika Ekanayake, Research Associate, Sunnybrook Research Institute; Lawrence Paszat, Senior Scientist, Institute for Clinical Evaluative Sciences

WHAT MATTERS MOST IN QUALITY END-OF-LIFE CARE: PERSPECTIVES FROM PALLIATIVE CARE PROVIDERS

Presented by: Hsien Seow, Cancer Care Ontario Research Chair in Health, McMaster University

Research has documented what matters most in end-of-life (EOL) care from the perspective of seriously ill patients and their families. However few studies have described this from the perspective of palliative care providers, who have daily encounters with death and dying. This study's objective is to address this knowledge gap. We used in-person, semi-structured interviews with front-line, managerial, and administrative staff involved in EOL care across 15 regions in Ontario. Qualitative data were interpreted using thematic coding analysis and grounded theory. Data from 107 respondents were analyzed, from which 40 unique themes emerged, further grouped into 9 parent themes. 44% of our respondents were nurses, 19% physicians, and 37% other. The three most frequently cited themes were 1. Fulfilling Patient Wishes (e.g. aligning care plan to respect and honor patient preferences; enabling patient control), 2. Pain and Symptom Management (e.g. addressing pain), and 3. Supporting Family Needs (e.g. providing education and respite to the family). The two most frequent parent themes were 1. Addressing More than the Physical Needs (e.g. communication; facilitating dignity, peace, and closure) and 2. the Nature and Quality of Palliative Care Delivery (e.g. knowledgeable, caring, responsive team). Further analyses by provider type and qualitative quotes will be provided. Quality EOL care extends beyond managing the physical pain, but includes a holistic perspective of care, patient control, and a dedicated healthcare team. Tailoring the provision of care to consider these elements can improve the EOL experience. Findings from this study help denote areas for focusing future quality improvement initiatives.

MONDAY Poster Sessions
12:45PM to 1:30PM

A METHODOLOGY CHALLENGE WHEN CONDUCTING RESEARCH WITH DISADVANTAGED POPULATIONS
Presented by: Frances Wong, Radiation Oncologist, BC Cancer Agency-Fraser Valley Centre

Recruiting participants who will follow-up on study surveys seems to be a challenge when working with populations who maybe from the lower socio-economic group with language as a barrier. This presentation will explore strategies that can help researchers increase the number of potential participants from disadvantaged population groups. It is important to conduct research with all ethnic groups in order to translate findings to clinical practice so the best care can be provided with considerations of social, cultural/individual differences. While conducting studies with South Asian (SA) population in British Columbia, we found that recruitment for potential participants was a challenge in the clinical setting due to language, social/cultural barriers. Another challenge was getting the recruited participants to mail back surveys. Adjustments to the research process were made so to enhance participation. Evaluative surveys to measure post-implementation experiences of SA breast cancer survivors (BCS) after implementation of the survivorship care plan were given to our research participants to mail back. They were not returned despite a second mail reminder and phone reminder. We changed our strategy and asked participants to complete surveys immediately after the appointment, but before they left the centre. However, when surveys for post-one year implementation were not returned, we changed the strategy to requesting for a phone or face to face discussion. This strategy required the researcher who was of SA origin to phone and to assist in completing the surveys. Various language and social barriers encountered by the participants will be outlined. This challenge in conducting research with SA population had several barriers which would need to be attended to prior to designing any study that required surveys to be mailed from home. Although having participants complete study surveys have their own challenges with any population, understanding cultural and social barriers is important.

Co-authors: Savitri Singh-Carlson, California State University Long Beech

ANALYSIS OF DIFFERENCES IN ICER ESTIMATES FROM MANUFACTURERS AND PCODR ECONOMIC GUIDANCE PANEL
Presented by: Lori Yin, Reimbursement Strategy and Health Economics Co-op Student, Roche Canada

The pCODR Economic Guidance Panel (EGP) reviews manufacturer-submitted economic analyses and assesses the cost-effectiveness of the drug under review. The main objectives of this study were to estimate the differences between manufacturer-submitted ICERs and EGP-calculated ICERs, and to analyze the reasons for the noted differences. The pCODR database was searched to identify drugs with pCODRExpert Review Committee (pERC) final recommendations (data cut-off: Feb. 28, 2014). Publicly available economic guidance reports (EGRs) were qualitatively analyzed to capture the differences in manufacturer and EGP-estimated ICERs, and to determine the contributing factors for noted differences. Out of 32 published pERC final recommendations, 27 were considered for analysis. The EGP's ICER estimates were typically higher (up to 718%) than those estimated by manufacturers; only three EGRs presented similar EGP-calculated and manufacturer-submitted ICERs. The key contributors to higher EGP ICERs were discrepancies in survival assumptions, use of indirect treatment comparisons, and the reduction in time horizon. Other factors included quality of data, utility values, model structure, and sensitivity analyses regarding dosage, drug wastage, and statistical assumptions. This analysis demonstrates that significant differences exist between manufacturer- and EGP-estimated ICERs. These differences are predominantly caused by differing assumptions related to economic modelling preferences and uncertainty around parameter estimates. Further analysis will provide insight into developing improved cost-effectiveness analyses that align with the expectations of this Canadian reimbursement body.

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ANTIEMETIC RECOMMENDATIONS FOR BREAST CANCER PATIENTS RECEIVING HIGHLY EMETOGENIC CHEMOTHERAPY: SYSTEMATIC REVIEW INCORPORATING NETWORK META-ANALYSES
Presented by: Terry Ng, Resident, Division of Medical Oncology, University of Ottawa

Highly emetogenic anthracycline and cyclophosphamide-based chemotherapies (A&C-CT) are the most commonly used breast cancer CT regimens globally. Despite antiemetic guidelines, control of chemotherapy-induced nausea and vomiting (CINV) is suboptimal. Network meta-analysis (NMA) of randomised trials (RCTs) was used to compare the effectiveness of antiemetic regimens. A systematic literature search of 3 electronic databases for RCTs comparing anti-emetic regimens in breast cancer patients receiving A&C-CT was performed. Two reviewers independently screened all abstracts and full texts. The primary outcome was overall total control of CINV (no nausea, no vomiting, and no rescue anti-emetics for 5 days post-CT). From 1062 citations identified, 152 were retained after abstract screening, and 30 were retained after full-text screening. Most comparisons in the network of treatments were supported by only one RCT. Limitations to performing a network meta-analysis included significant heterogeneity in the number of antiemetic regimens (n=15), chemotherapy regimens used, and mixed populations of tumour types across trials. We found over 15 different published study endpoints that were variations of our primary outcome. Of the 30 trials that met our inclusion criteria, 6 reported overall total control and 15 reported overall complete response (no vomiting and no rescue medications for 5 days post-CT). Results from NMA failed to identify important differences between competing regimens. We identified marked heterogeneity between trials including variability in study design, sample size, antiemetic regimens, chemotherapy regimens, and reporting of patient characteristics and outcome measures. Given these limitations, despite the firm recommendations of treatment guidelines, NMA was unable to identify an optimal antiemetic regimen based on all the available evidence.

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BFNEFITS AND BARRIERS TO PARTICIPATION IN COLORECTAL CANCER SCREENING: A SYSTEMATIC REVIEW AND SYNTHESIS OF QUALITATIVE STUDIES

Presenter by: Monika Kastner, Li Ka Shing Knowledge Institute, St. Michael's Hospital and Institute of Health Policy, Management, and Evaluation, University of Toronto

Colorectal cancer (CRC) poses a serious health problem worldwide. While screening is effective in reducing CRC mortality, participation in screening tests is generally suboptimal and social inequities in participation are frequently reported. The goal of this review is to synthesize factors that influence an individual's decision to participate in CRC screening, and to explore how those factors vary by sex, ethnicity and socioeconomic status (SES). Two reviewers searched MEDLINE, EMBASE, CINAHL, PsycINFO, and the grey literature from inception to July 2013 identifying qualitative studies of people's perceived benefits and barriers to participation in CRC screening. Two reviewers independently screened titles and abstracts in duplicate; a similar procedure was used for full-text screening. Data was abstracted by one reviewer and audited by a second. Abstracted data were thematic-coded. Each thematic code was tabulated as either barrier or benefit, and categorized by influencing factor: knowledge, perception, or contextual, and by socio-demographic factor. Emerging themes were synthesized using a Meta-study synthesis approach. Of 9,196 records identified by our search, 7,840 potentially relevant abstracts were identified, 505 articles were assessed in full text and 86 articles contributed to the analysis. Individuals, mainly ethnic and low SES, perceived CRC as a fatal cancer and screening tests as not lifesavers. Some women thought CRC was a man's disease. Many thought that CRC is not as visible as other cancers and struggled to understand medical terms used for CRC screening. They often mixed between colon and prostate screening tests. Although other competing concerns prevented them from being screened, most indicated their willingness to be screened if their physician recommended the test. They wanted better information about CRC, screening tests, and better instructions on how to complete them. Contextual and socio-demographic factors play a major role in patient's decision to participate in screening. Decision makers should appreciate the vast impact of those factors and need to address them through targeted education addressing beliefs, knowledge and attitudes towards CRC screening.

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CANCER MORTALITY AMONG RECIPIENTS OF SOLID ORGAN TRANSPLANT IN ONTARIO

Presented by: Sergio Acuna, Graduate Student, St Michaels Hospital

While there is a known increased risk of cancer after solid organ transplantation, these patients are at high risk of mortality from non-cancer causes. Thus the impact of transplantation on cancer morality is unclear. The aim of this study was to describe cancer mortality in a population-based cohort of solid organ transplant recipients (SOTR). We conducted a population-based retrospective cohort study using transplant and cancer registries linked to administrative data. All Ontario residents undergoing solid organ transplant between 1991 and 2010 were identified in the Canadian Organ Replacement Register and linked to the Ontario Cancer Registry to identify new cancers after transplant. We compared cancer mortality in SOTRs to the general population using standardized mortality rates (SMR) by cancer type, transplanted organ, recipient age and sex for all cancer mortality and for mortality related to cancers developing after transplantation. We identified 11,061 SOTR in our cohort including 6,516 kidney, 2,631liver, 935 heart, and 707 lung transplants. Of them 1,262 (11.4%) developed a post-transplant cancersand 603 (19.7%) died of cancer. Cancer mortality risk in all SOTR was significantly elevated compared to the Ontario population (SMR=3.13, 95% confidence interval [CI]: 2.85, 3.43). The increased risk was observed regardless of transplanted organ, recipient age or sex. Excess risk was observed after excluding patients who had pre-transplant cancers (SMR=1.71; 95% CI: 1.49, 1.94). Non-Hodgkin lymphoma was the most common cause of cancer death (n=63, 22.1%) and the highest relative risk for post-transplantation malignancy related death (SMR=8.23, 95% CI: 5.98, 10.83). Risk of cancer death was higher in the pediatric population (SMR=72.11, 95% CI: 37.22, 118.28), and lower in those >60 years (SMR=2.08, 95% CI: 1.72, 2.47). Overall risk of cancer death in SOTR was increased compared to the general population, reflecting significant burden of cancer mortality in this population. Close clinical surveillance, early diagnosis, and a better understanding of cancer treatment in SOTR are needed to improve transplant long term survival in transplant recipients.

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CHANGING USE OF SELECTED ORAL CHEMOTHERAPY AGENTS IN CANADA: PUBLIC AND PRIVATE PAYERS

Presented by: Heather Logan, Executive Director, Canadian Association of Provincial Cancer Agencies

To determine whether the use of oral chemotherapy has changed in Canada; the use of oral chemotherapy is similar or different between public and private payers; for which drugs utilization has changed most significantly. The number of claimants/claims was obtained from the National Prescription Drug Utilization Information System (NPDUIS) and from a prominent pharmacy benefit manager for the years 2006-2012 and 2010-2013, respectively, for the following 43 selected oral cancer drugs: Abiraterone, Anastrozole, Axitinib, Bicalutamide, Busulfan, Capecitabine, Chlorambucil, Crizotinib, Cyclophosphamide, Dasatinib, Erlotinib, Estramustine, Etoposide, Everolimus, Exemestane, Fludarabine, Flutamide, Gefitinib, Hydroxyurea, Imatinib, Lapatinib, Lenalidomide, Letrozole, Lomustine, Megestrol, Melphalan, Mercaptopurine, Methotrexate, Mitotane, Nilotinib, Nilutamide, Pazopanib, Procarbazine, Sorafenib, Sunitinib, Tamoxifen, Temozolomide, Thalidomide, Thioguanine, Tretinoin, Vandetanib, Vemurafenib, and Vorinostat. Due to limited historical data, some drugs were excluded in our analysis. NPDUIS (analysis of 39/43 drugs): From 2006-2012, claims increased for 23/39 (59%) drugs by >10%, 10/23 (that is 25.6% of 39) by > 150%, and 4/10 (10.3% of 39) by >500%; 9/39 (23%) drugs decreased by > 10%; 7/39 no major change. Pharmacy Benefit Manager (analysis of 39/43 drugs): From 2010-2013, claims increased for 18/39 (46%) drugs by > 10%, 5/18 (13% of 39) by >150%, and 4/5 (10% of 39) by >500%; 13/39 drugs decreased by > 10%, 8/39 no major change. Both datasets (analysis of 36/43 drugs): From 2010-2012, claims increased for 15/36 (41.7%), decreased for 9/36 (25%). Trends were different between datasets for 13/36 (36.1%). Oral chemotherapy use increased for the majority of oral cancer drugs. However for some drugs, the trend in usage between public and private payer appeared opposite. Better access to and more refined analysis of these data, combined with an understanding of drug policy decisions, would inform system policy and research.

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CHARACTERIZING HEALTH UTILITY VALUES OF CANADIAN CANCER PATIENTS
Presented by: Hiten Naik, Medical Student, University of Toronto

Health utility values (HUV) play an important role in health economic analyses, but comprehensive reference values do not currently exist for Canadian cancer patients. We generated HUVs on cancer patients across multiple disease sites using the recently introduced Canadian EQ5D valuations. 983 non-CNS cancer outpatients completed the EQ5D-3L and visual analogue scale (VAS). Responses from the EQ%D-3L were used to generate health utility values (Canadian weights); VAS responses were recorded from 0-100. Subgroup scores were then calculated for each level of European Cooperative Oncology Group (ECOG) performance status, disease site and treatment intent. The mean (SD)[range] HUV and VAS scores were 0.82(0.15)[0.34-1.00] and 74(18)[0-100], respectively. Patients with ECOG scores of 0, 1, 2, and 3 had HUVs of 0.90(0.11)[0.46-1.00], 0.76(0.12)[0.19-1.00], 0.65(0.14)[0.12-1.00], and 0.56(0.21)[0.09-0.77], respectively, and VAS scores of 82(14)[0-100], 70(15)[20-100], 57(18)[5-100], and 45(27)[0-80]. Patients treated with a curative intent had HUVs of 0.83(0.15)[0.09-1.00], while palliative patients scored 0.77(0.13)[0.18-1.00]. Across disease groups, genitourinary cancer patients scored the highest HUVs of 0.87(0.15)[0.09-1.00], followed by head/neck, 0.83(0.14)[0.19-1.00]; gastrointestinal, 0.83(0.14)[0.12-1.00]; skin/sarcoma, 0.81(0.16)[0.41-1.00], gynecologic, 0.80(0.12)[0.59-1.00]; hematologic, 0.80(0.17)[0.34-1.00]; breast, 0.80(0.18)[0.12-1.00]; and lung cancer, 0.78(0.14)[0.18-1.00]. This sequence generally corresponded to relative frequencies of ECOG scores within each disease site. Patients with better performance status and those treated for cure had higher corresponding HUV and VAS scores. Future research will focus on collecting longitudinal data and characterizing utilities for specific disease sites based on stage and tumour subtype.

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CLINICAL GUIDELINE-DRIVEN PERSONALIZED SELF-MANAGEMENT DIARY FOR PAEDIATRIC CANCER SURVIVORS
Presented by: Samuel Alan Stewart, PhD, Dalhousie University

To provide patients leaving the cancer treatment system within the IWK with a personalized guide for the management of their conditions moving forward. The YouCan system will provide them with information directly related to their treatment, along with issues that will need to be addressed in the future. Pediatric cancer survivors face a lifetime of follow-up and a myriad of complications caused by their treatments. The Cure Group's cancer care follow-up guideline provides the information necessary for management of follow-up, but this document can be difficult to parse for both clinicians and patients. The YouCan system processed this guideline and extracted over 600 rules, defining what follow-up is needed based on personal attributes and medical history. These rules govern the production of a Personal Patient Diary, and 5-20 page document given to patients outlining what their next steps should be to ensure proper treatment. The rules have been developed and refined, and a preliminary patient diary has been produced. The diary is currently being evaluated by the research team, and is in the beta-testing stages with clinicians from the IWK. Once the structure and content of the report is finalized, field tests will be done with a small sample of patients from the IWK. The report will hopefully be deployed within the IWK in 2014, after which it will be integrated into the Cancer in Young People in Canada (CYP-C) portal, a national, multi-center portal designed to provide clinicians across the country with a unified site for managing pediatric cancer patients. The patient diary successful distills the contents of the Long Term Follow-Up Guidelines for Survivors of Childhood, Adolescent, and Youth Adult Cancers guideline, providing patients with information pertinent to them and helping them manage their treatment moving forward.

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CONTROL, APPROPRIATENESS AND PERFORMANCE: A QUALITATIVE STUDY OF ONTARIO HEALTH SYSTEM LEADERS' VIEWS ON THE PROMISES OF ACCOUNTABILITY
Presented by: Jessica Bytautas, Graduate Student, University of Toronto

Accountability is a key dimension of contemporary health system governance, yet how it works remains little understood. Cancer Care Ontario (CCO), the provincial cancer agency, operates under a model of accountable governance that has been hailed as exemplary. In this context, we explored cancer system leaders' views on accountability. Qualitative, semi-structured interviews were conducted with 19 participants from the Ontario Ministry of Health and Long-Term Care (n=5), CCO's executive team and board of directors (n=7) and administrative and clinical advisory councils (n=4), and the Cancer Quality Council of Ontario (CQCO) (n=3). Dubnick's 'Promises of Accountability' framework, which posits six goals of accountability that arise at the intersection of time (inputs, processes, or outcomes) and value (instrumental vs. intrinsic), guides this work. Interview data were analyzed using a qualitative descriptive approach. At the input stage, cancer-specific regulations were somewhat weak, but agency-wide directives were a necessary if not burdensome force. Finances functioned at a contractual level, but were also leveraged to incentivize participation from clinicians and regional cancer programs. Processes were encoded into agency-wide and CCO-internal directives around appropriate behaviour, and in clinical guidelines and standards developed. Processes operated indirectly, as well, through fostering trust-based partnerships and clinician engagement, which were seen to add legitimacy and credibility. At the outcome stage, information was critical to CCO's performance management process. In addition to ensuring targets agreed upon at the input stage were met, public reporting of performance data was seen to create a sense of transparency and appeal to collective and individual desire to improve. We present a modified 'Promises of Accountability' framework that emphasizes the goals of control, appropriate behaviour, and performance. This research helps fill a gap in the literature and may help facilitate efforts on the part of health system leaders and decision-makers across sectors to promote successful and sustained accountability.

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COST-EFFECTIVENESS OF DIRECTLY MAILED FOBT KITS IN A HARD-TO-REACH POPULATION IN COLORECTAL CANCER SCREENING
Presented by: Nicole Mittmann, Executive Director, Hope Research Centre

To conduct a cost-effectiveness analysis comparing only mail invitations to Ontario family physicians in order to screen for colorectal cancer (CRC) with invitations plus the addition of the guaiac fecal occult blood test (FOBT) kit. A series of univariate sensitivity analyses were also conducted to identify cost drivers. The perspective of the analysis was that of the provincial cancer agency. 1,700 patients were assigned to the invitation only group and 2,350 patients were assigned to the invitation plus kit group. Health system and program resources and costs associated with each intervention group were identified and quantified. Resources were stratified into fixed costs (initial set-up costs including document development, programming for ongoing maintenance, etc.), variable or recurrent costs (costs of the kit, administrative costs, physician visits etc.) and staff costs (call centre support personnel and business analyst). Costs are presented in 2013 Canadian dollars. The total cost of the invitation only group was $95,781 and invitation plus kit group was $146,747. The cost per patient was $56.34 and $62.45, respectively. Physician visits accounted for the majority of the cost (49.8%and 59.6%). 39% of all kits were unused or returned, and included as wastage. A number of univariate sensitivity analyses were performed. Reducing the cost of the kit from $7.00 to $3.00 resulted in a decrease in the cost per patient ($57.11 and $50.90) and overall costs ($134,211 and $86,536). Assuming kit wastage was 0% showed a slight decrease in total costs ($141,259 to $91,484). Assuming kit wastage was 50% showed a slight increase in total costs ($148,294 and $96,993). The cost of physician visits and kits were shown to be the main cost drivers. Although total and cost per patient was higher in the invitation plus kit group, higher rates of kit completion and early detection of potential CRC cases would offset the overall cost.

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COST-EFFICACY OF THE RGDOX REGIMEN (RITUXIMAB, DEXAMETHASONE, GEMCITABINE AND OXALIPLATIN) IN RELAPSED/REFRACTORY B-CELL NON-HODGKIN LYMPHOMA
Presented by: Marco Lefebvre, Resident, University of Sherbrooke

Recently, non-randomized reports underlined the efficacy and tolerability of Oxaliplatin-based regimens in relapsed/refractory aggressive B-Cell Non-Hodgkin Lymphoma (NHL). These regimens are gaining more popularity as compared to conventional cisplatinum-based chemotherapy. We prospectively evaluated the cost of an outpatient bi-weekly regimen associating Rituximab, Gemcitabine, Dexamethasone and Oxaliplatin (RGDOx) in patients with relapsed or refractory lymphoma. In this prospective multi-centric study, patients (pts) with CD20+ NHL, without limitation of age, general condition or prior treatments, were eligible for up to 8 biweekly cycles of rituximab 375 mg/m^2, gemcitabine 1000 mg/m^2, oxaliplatin 100 mg/m^2 on day 1 and dexamethasone 40mg/day orally on day 1- 3. The 48 patients received a total of 250 cycles of RGDOx between 2009 and 2013. Every week in the course of treatment, information on the cost of therapy was collected via a self-questionnaire completed by oncology research nurses, hospital pharmacists that included a hospitalization summary. Costs were based on per diem canadian interprovincial rates and hospital pharmacy medication costs based as of October 2011. At the end of treatment (mean 6 cycles; 2-8), response rate was 57% with 40% complete response. Mean cost for 6 cycles of RGDOX regimen is $54,991. This includes medical visits, transport costs, medication, laboratory analysis, medical consultations for iatrogenic reaction and hospitalization days per-treatment, including palliative care for patients with progressive disease. A standard 6-cycle treatment course was associated with 4.8 days of hospitalization, 0.7 medical visits for iatrogenic side effects, and 7.3 visits for additional laboratory tests. Median intent-to-treat overall survival was 18.4 months, for a cost per life year (LY) of 35 863 $ CAN. RGDOx is a cost-effective salvage chemotherapy for refractory/relapsing NHL patients.

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DEVELOPING A NEW PROVINCIAL SARCOMA SERVICES PLAN THROUGH REGIONAL INVOLVEMENT
Presented by: Cassandra Howse, Policy Research Analyst, Cancer Care Ontario

Sarcomas are rare and complex malignancies. In 2009, Cancer Care Ontario's (CCO) Sarcoma Expert Panel made recommendations for the organization and delivery of adult sarcoma care in Ontario to ensure coordinated access to multidisciplinary, high quality care for all sarcoma patients. In 2013, Ontario's 14 Regional Cancer Programs (RCPs) collaborated with CCO to develop a provincial sarcoma program in keeping with these recommendations. In December 2012, a request for submissions was issued by CCO to the RCPs calling upon cancer centres and hospitals to collaboratively develop a province-wide Sarcoma Services Plan. The regional submissions were to identify 'Host Sites' offering a full scope of sarcoma expertise and care; 'Partner Sites', providing a subset of sarcoma services; and referring 'Partner Regions', providing limited services. A Provincial Steering Committee with regional clinical, administrative and patient representation was formed. The Committee was tasked with the review of the regional submissions and developing an overall provincial sarcoma plan. Three regional programs, with designated Host Sites and a network of Partner Sites and Partner Regions, form the Provincial Sarcoma Services Plan. The Plan lays out clear service delivery expectations and referrals across the province. This model includes inter- and intra-regional collaboration, and leverages the existing expertise and capacity within the system. Clear responsibilities for Host Sites, Partner Sites and Partner Regions, and formal linkages have been articulated and agreed upon. The Steering Committee will lead the implementation of the Plan to support the transition to an organized, integrated and multidisciplinary model. The active engagement of regional stakeholders led to the transparent development of a Provincial Sarcoma Services Plan that permits a coordinated, multidisciplinary, specialized approach to the provision of adult sarcoma services in Ontario. Ongoing engagement at the clinical, administrative and patient level can support implementation of the Plan across Ontario.

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EARLY DYSPHAGIA INTERVENTION FOR PATIENTS UNDERGOING CHEMORADIOTHERAPY FOR HEAD AND NECK CANCER: PRELIMINARY FINDINGS

Presented by: Rosemary Martino, Canada Research Chair, Associate Professor, University Of Toronto and Princess Margaret Cancer Centre

Patients with squamous cell head and neck cancer (HNC) benefit by receiving early speech-language pathology (SLP) intervention. Benefit may include cost-savings via earlier resumption of oral nutrition and/or earlier return to work. This study assesses the feasibility for a future randomized controlled trial to assess benefits related to these outcomes. Twenty new patients with HNC planned for organ preserving curative chemoradiotherapy (cRT) receive SLP assessment of the swallow at 5 time points: prior to, in week 2 of, in week 5 of, and at 1 and 3 months following curative treatment. Following each assessment, the SLP provides patient-specific swallowing strategies and telephone follow-up to encourage adherence with recommendations. Outcomes, captured repeatedly longitudinally up to 3 months post treatment, target mode of oral intake, quality of life and health care costs. Outcomes will be compared with a matched historical cohort from an existing database of patients who received routine care. Eight of the targeted 20 patients (males, n=7) have been enrolled to date. Demographic characteristics include: married or common law (n=4), living with another person (n=6), living within city limits (n=3), completed university or college (n=3), and a total family income over $60,000 (n=3). Tumor site included: nasopharyngeal (n=3), tonsil (n=1), tongue base (n=1), supraglottic (n=1), and unknown primary (n=1). Tumor staging included: T1 (n=4), T2 (n=1), and T3 (n=2). All patients were on an oral diet at baseline. Of all patients approached, only 1 declined to participate. Of all patients enrolled, only 1 withdrew from the study. Two patients did not complete study protocol at one time point due to limited research personnel support (and not poor patient compliance). Preliminary data suggest the study approach is feasible and acceptable to patients. Consistent research personnel support is needed to insure all intervention and follow-up assessments are completed according to timeline. A more comprehensive clinical and economic analysis is planned for Spring 2014.

Co-authors: Jolie Ringash, Professor, Radiation Oncologist, Princess Margaret Cancer Centre; Lisa Durkin, Practice Leader, Speech Language Pathologist, Princess Margaret Cancer Centre; Chris Longo, Professor, McMaster University

EMBEDDING THE CLERK INTO THE PRIMARY TEAM MODEL OF CARE

Presented by: Caroline Hamm, MD, Windsor Regional Cancer Program

A new design of outpatient cancer care delivery was envisioned by one of our clerks. She suggested embedding the clerk into the primary care team. The clerk would manage the organization of the patient's care and the doctor and nurse would manage the medical issues of the patients. Utilizing lean process mapping a current and future state approach to the outpatient clinic flow were articulated. A change in the model of care was identified as a key outcome necessary to improve clinic flow and the patient experience. The clerk joined the primary team, helping to manage/organize the care for patients assigned to the oncologist. At a high level, the clerk was to arrange all of the scheduling of imaging, chemotherapy treatments, physician and bloodwork appointments for the patient. In addition, each expanded team consists of two nurses, two clerks and two oncologists. The goal of the team was to help each other - teams were brought together based on similar, but not identical disease sites. The clerks support the team, the nurses support the team and the physicians support the team. The outcomes of this team approach far succeeded the expected benefits. The dedicated clerk was able to review the upcoming schedule and delay patients whose pending results were not yet available. Other clinic efficiencies are evident in the personalized scheduling of the patients. Patients that are known to require a longer physician visit are scheduled later in the day. If the last patient is late, the rest of the support staff can leave, decreasing overtime of nursing and clerk staff, and improving their quality of life. Involvement of the clerk in the functioning of the clinic has led to significant efficiencies: efficient reminders of routine labs / imaging required since the clerk is aware of routine practice of that physician (eg. Reliable testing for hepatitis in patients receiving monoclonal antibodies). Patients are confident that they are still being cared for, since they are still in the examination room, and are only discharged by the primary care clerk, providing next appointment and investigations. Expected outcomes include shorter wait times for consults, fewer emergency room visits because of fewer wasted clinic visits, increased patient satisfaction scores, improved patient safety, shorter wait time for consults, decreased patient anxiety scores, and decreased costs to the system with fewer overtimes hours. To date the measured indicators reveal that the median overtime hours for nurses has decreased from 58 hours per week to 11 hours per week after the institution of the new model. Other metrics indicated above require repeat reviews for evaluation, but ad hoc reviews indicate that staff and patients prefer the new model of care. The new model of care that embeds the clerk into the primary care team has decreased nursing overtime. Informal assessment implies that there is an improvement in the patient experience, the health care provider work/life balance, and patient safety.

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ETHICAL CONSIDERATIONS FOR EMERGING GENOMIC-BASED CANCER THERAPEUTICS

Presented by: Alan Warner, Mount Sinai Hospital

This presentation seeks to highlight: (1) the 'lived experience' of cancer drug cost in Ontario for patients with ovarian, colorectal and brain cancer; (2) attitudes of patients towards emerging genomic based cancer therapeutics; (3) the understanding between patients, clinicians, researchers and policy makers about contemporary realities of cancer drug access. Synthetic antibodies are a relatively new class of genomic based therapeutics to treat cancer and other diseases. As such technologies emerge, distributive justice should be integral. Distributive justice evaluates the distribution of resources through fairness and consistency. This research is the GE3LS component of a Genome Canada study, where qualitative inquiry was used to broadly explore the 'lived experience' of cancer drug costs for patients with ovarian, brain and colorectal cancer in Ontario. Open-ended interview questions with focus groups, individual patients and key informants were used to distill narratives which are important to the public 'rollout' of emerging synthetic antibodies. The three dominant patient-based themes that emerged are: that of transparency (what cancer coverage system exists?), access (how do you engage the system?) and navigation (how do you work the system once you are in it?). While cancer drug costs for patients were certainly a considerable problem, the results mostly highlighted the significant initial challenges of engaging, access and navigating the drug coverage system in Ontario. In addition, provincial variation in terms of private drug insurance coverage to manage the significant cost of high cost cancer drugs raises concerns for justice. Key informants provided potential ideas to manage costs including: extending patents, improved government coverage and potential utilization of the Health Impact Fund. Transparency, access and navigation of the drug coverage system are complex. A distributive justice model that is based on 'The Health Impact Fund' and a health model that integrates the three dominant findings of: transparency, access and navigating the drug coverage system may well improve the 'lived experience' of patients.

Co-authors: Kerry Bowman, University of Toronto

EVALUATION OF LOCAL FEASIBILITY OF PERFORMING WINDOW-OF-OPPORTUNITY STUDIES IN BREAST CANCER PATIENTS: THE ULTIMATE TRIAL FOR PERSONALISED MEDICINE

Presented by: Angel Arnaout, Breast Surgical Oncologist, Ottawa Hospital and Ottawa Hospital Research Institute

Window-of-opportunity trials are a powerful method that can be used to rapidly identify, direct, and prioritize the development of promising cancer therapeutic agents. Rapid shortterm exposure of a cancer to an agent prior to surgery allows prediction of future therapeutic response, limiting unnecessary and costly exposure to harmful chemotherapies. We undertook a pilot study in breast cancer patients to assess the feasibility of performing such trials at our local institution. Newly diagnosed untreated, breast cancer patients awaiting primary surgical intervention received 1mg Anastrozole (a therapuetic agent for breast cancer) for 2-8 weeks leading up to the date of surgery. The outcomes of the study were histologic evaluation of response to the agent and patient acceptance of taking a therapeutic agent short term prior to surgery. Surgery (the standard primary therapy) could not be delayed as a result of participation in the study. From September 2012 to September 2013, 32 patients were identified as potentially eligible for the study. The mean age of participants was 66.3 years. The mean wait time from surgical decision to actual surgery date was 32.4 days and the mean duration of drug intake was 24.7 days. All patients underwent surgery uneventfully and surgery was not delayed as a result of participation in the trial. Short term administration of Anastrozole induced a statistically significant drop (46%, $P<0.0001$) in the Ki67 level in the tumors, a marker of the growth rate of a cancer. Window of opportunity trials without delay in definitive cancer surgery are feasible and can form the basis for rapidly evaluating the biologic efficacy of potential therapeutic agents in the treatment of cancer. Therapies that are going to ineffective to patients will be avoided upfront and unnecessary harm/healthcare costs be reduced.

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HOW TO ENGAGE PATIENTS AND FAMILIES: CANCER CARE ONTARIO'S 5-STEP APPROACH

Presented by: Hannah Shamji, Policy Research Analyst, Cancer Care Ontario

The identification of Person-Centred Care as a strategic objective in 2012 at Cancer Care Ontario follows an evidence-based culture shift recognizing the necessity to include the patient voice in health systems delivery of care. Before disseminating initiatives to the regional cancer centres, Cancer Care Ontario piloted its person-centric vision and approach internally. The Patient Engagement Toolkit is a step-by-step interactive guide with tools on why and how to engage patients/family members in different organizational contexts. To test its effectiveness and lasting impact, we piloted the toolkit across the organization with the aim of rolling out its foreseeable success to regional cancer centres in future months. We conducted multiple interactive sessions over two months to introduce the toolkit to individual business units and highlight the value of actively engaging patients. We are taking a comprehensive and mixed methods evaluation approach which includes online surveys and key informant interviews to identify uptake and barriers. Preliminary findings suggest a considerable increase in the interest and implementation of direct (e.g., patients and/or family members joining committees or working groups) and indirect patient engagement activities (e.g., patients and/or family members speaking at events, in focus groups, etc.) across programs and departments at CCO. A performance scorecard with key engagement metrics is also in development and will be used to measure the level, growth and sustainability of patient engagement across the organization. In preparation for provincial roll out the Patient Engagement Toolkit will use results of an environmental scan to tailor its components to the individual regions. Region-specific circumstances will be built into the toolkit to expand its reach and sustainability.

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IMPLEMENTING A FRAMEWORK FOR ACTION FROM THE CANADIAN TASK FORCE FOR ADOLESCENTS AND YOUNG ADULTS (AYA): A NEW PARADIGM FOR AYA CANCER CONTROL

Presented by: Sonja De Pauw, Coordinator, Canadian Task Force on Adolescent and Young Adult Cancer

The goal of the National Task Force (NTF) is to enhance the care of AYA with cancer. This will require the establishment of multidisciplinary clinical programs staffed by appropriately trained healthcare professionals, a systems improvement approach, continuous engagement of all stakeholders, and a process of ongoing evaluation. The NTF was established in 2008 with the support of the Canadian Partnership Against Cancer and C17 (the consortium of all Canadian pediatric oncology programs). It developed specific recommendations for improving the care of AYA with cancer (JAYAO 2011, 1(1):53-59) and a Framework for Action to implement them (JAYAO 2013, 2(2):72-76). With renewed funding in 2013 new working groups were established to address issues in active and follow-up care, clinical trial accrual, screening for distress, and secondary prevention and screening. Regional Action Partnerships, with representation from an array of stakeholders, are working to implement change at the provincial level. New working groups are developing guidance to improve active care, adapting international survivor care guidelines for Canada and developing guidance for primary care practitioners, validating an AYA-specific distress screening tool in Canada as part of an international effort, and identifying sources of data on clinical trial accrual rates for AYA in order to assess barriers, and develop and implement strategies to improve recruitment. Regional Action Partnerships are addressing provincial priorities such as provision of fertility services, and interdisciplinary AYA care teams. The NTF is planning a workshop for October 2014 to further AYA cancer research initiatives and build ties to the survivor community. An AYA cancer diploma program administered by the Royal College of Physicians and Surgeons will launch in 2015. The NTF works with many stakeholders to implement its recommendations and Framework for Action. It is intended that this process and an inclusive approach will influence and improve the cancer control paradigm for AYA with cancer and AYA survivors of cancer in childhood, adolescence and young adult life in Canada.

IMPROVING THE PATIENT EXPERIENCE THROUGH BETTER CANCER SYMPTOM MANAGEMENT - A SYSTEM-WIDE IMPROVEMENT COLLABORATIVE
Presented by: Wenonah Mahase, Project Lead, Cancer Care Ontario

The collaborative was established to improve the quality and consistency of physical and emotional symptom management across the cancer journey. Objectives are: 1.Promote the adoption of electronic symptom assessment using a standardized tool 2.Increase the clinical use of evidence based guidelines to effectively manage patient identified symptoms Based on the IHI's Breakthrough Series Collaborative Model, the Ontario Cancer Symptom Management Collaborative's (OCSMC) aimed to achieve small, rapid and locally relevant improvements across a range of clinical and care delivery process issues. The OCSMC implemented the following to support improvements in symptom management: 1.Patient reported measurement tools to improve the measurement and management of symptoms with a focus on improving the patient experience 2.Symptom Management Guidelines to assist providers with the assessment and management of a patient's cancer symptoms 3.An Interactive Symptom Assessment and Collection (ISAAC) tool to support electronic symptom assessment and management To date, fourteen Cancer Centres and 29 partner treatment hospitals have implemented electronic symptom assessment. As of November 2013, 59% of cancer patients across the province were screened with the Edmonton Symptom Assessment System (ESAS) each month representing over 27,000 cancer patients. Seven of the cancer regions are above the provincial target of 70%; some close to a 90% screening rate. A survey of 3657 cancer patients in January 2014, indicated that 93% felt that completing the ESAS was important to help health care providers know how they are feeling. 86% agreed that their providers took ESAS symptom ratings into consideration when developing a care plan. These results indicate that patients value the initiative and its approach to cancer symptom management in Ontario. Key levers in the success of the collaborative include: Leadership at all levels of the system; Clinical tools at the point of care; Engagement of patients in the design of care; and Communications support to spread information to all stakeholders.

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INFORMATION REFERRAL PROGRAM FOR CANCER PATIENTS AT AN OUTPATIENT CANCER CENTRE
Presented by: Helena Daudt, Clinical Research Manager, BC Cancer Agency-Vancouver Island Centre

Providing patients with current and reliable information can empower patients to participate in health care decisions. The objective of the Information Referral Program is to increase awareness of the medical library and ensure patients and their support persons receive accurate and tailored information. A feasibility pilot was conducted in 2012. Health Care Providers (HCPs) provided patients with a filled information referral form based on the patient's needs. Patients were asked to bring the form to the library where they would be in contact with the librarian. Information packages provided to patients were based on their information needs, preferred platform, and comprehension level. A satisfaction survey posed questions about where they previously went for information and if they would come back to the library. A qualitative interview was conducted with a medical oncologist to understand the impact for physicians. Patients reported that the information referral was useful and informative. The qualitative interview indicated that the program is important for both the care of the patient and improving interactions with patients. However, in the months following the pilot, there was little uptake by HCPs. There are barriers to the expansion of the program that have not been identified during the feasibility phase. Using the knowledge exchange-decision support model we are conducting a series of meetings with staff to collect feedback and address barriers. The program will be revised based on the assessment conducted.

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KNOWLEDGE TRANSLATION RESEARCH NETWORK (KT-NET)'S REQUEST FOR PROPOSALS PROCESS: BUILDING CAPACITY IN CANCER KNOWLEDGE TRANSLATION
Presented by: Mary Ann O'Brien, Assistant Professor, Department of Family and Community Medicine, University of Toronto

To describe the Request for Proposals (RFP) process of KT-Net. KT-Net is a key component of Ontario Institute for Cancer Research, Health Services Research Program (HSRP). The HSRP goal is to provide knowledge to optimize the delivery of cancer services and to ensure appropriate dissemination of health service innovations and technologies With funding provided by Cancer Care Ontario (CCO) and OICR, KT-Net has held four grant competitions related to cancer knowledge translation (KT). An Advisory Committee ensured that each call responded to at least one of OICR or CCO strategic priorities. Each application was peer reviewed by an expert panel using CIHR's grant review criteria. The funding available for each competition has been approximately $150,000 (CAD). Since 2009, KT-Net has funded nine teams to conduct cancer KT research. The total funded is over $1,000,000 (CAD). Evidence has begun to emerge on the impact of the RFP process in terms of advancing the science of KT, building capacity in cancer KT research, and leveraging funding. To date, the knowledge products include peer-reviewed journal articles (3 published, 2 submitted), published abstracts (4), reports (4), peer-reviewed presentations (14), and outreach activities (12). A clinical pathway to improve the surgical care of patients with pancreatic cancer has been developed and its implementation has been piloted. KT-Net funded studies have leveraged an additional $173,625 (CAD) in funding. The KT-Net RFP process has been successful as judged by the number of funded studies, knowledge products, and leveraged funding. Yet the success of the RFP process should extend beyond academic metrics to things that are more difficult to quantify, such as the creation of strategic partnerships with knowledge users.

Co-authors: Eva Grunfeld, Professor, University of Toronto

LATENT INEQUITIES IN CERVICAL CANCER SCREENING AMONG COLOMBIAN WOMEN: A MULTILEVEL ANALYSIS OF A NATIONWIDE SURVEY
Presented by: Silvia Bermedo-Carrasco, PhD Candidate, School of Public Health, University of Saskatchewan

Inequities in accessing Pap test have been identified in Colombia. The study objectives were to: identify factors predicting that women have ever had Pap test, test interaction effects between area of residence (AoR) and predictors, and evaluate contextual effects of education on the probability of having ever had Pap test. The 2010 National Demographic and Health Survey (NDHS) was a nationwide survey conducted in Colombia to assess women's socio-demographic characteristics and health behaviours. Of the 53,521 study participants, 40,410 women were eligible to answer the cervical cancer prevention questions. A three-level mixed logistic regression model was developed. The random intercepts for the model included cluster of households (CoH) and municipalities. The dependent variable was whether women reported having ever had Pap test '1=3Dyes/0=3Dno'. The model evaluated whether AoR modified the effect of important predictors and if the prevalence of no education in the CoH acted as a contextual effect. Most women (87.3%) had at least one Pap test. The multilevel model identified that women from lower socioeconomic quintiles (p=3D0.002), who were unemployed (p<0.001), and whose final health decisions depended on others (p<0.001) were less likely to have had a Pap test. Women with children were more likely to have had a Pap test (p<0.001). The effects of education (p=3D0.03), type of health insurance (p=3D0.01), age (p<0.001), and region (p<0.001) varied with AoR. Women living in rural areas were less likely to have had a Pap test, specifically younger women, with no health insurance, living in the Atlantic and Amazon-Orinoquía regions, and with no education. Additionally, having had a Pap test was less likely in CoHs (communities) with higher prevalence of no education (p=3D0.005). In Colombia, the probability of having ever had a Pap test was associated with personal attributes, area of residence, and community prevalence of no education. Efforts to improve access to cervical cancer screening should focus on disadvantage populations, especially in rural/isolated areas. Our approach could be replicated in other settings.

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PATIENT SATISFACTION WITH WAIT-TIMES FOR BREAST CANCER SURGERY IN NEWFOUNDLAND AND LABRADOR
Presented by: Maria Mathews, Professor, Memorial University

What influences breast cancer patients' satisfaction with wait-times for surgery? We describe and compare the demographic, clinical and wait related characteristics associated with short and long waits and high and low levels of wait related satisfaction. We considered the interval from first visit with a surgeon to surgery. We surveyed and audited the charts of 112 breast cancer patients who presented at cancer clinics to gather information about dates in the care seeking process; satisfaction with wait times; and treatment, clinical and socio-demographic characteristics. Surgery was their primary treatment. We calculated long (> median) and short (< median) wait times from first visit to surgeon to surgery. Satisfaction with this interval was asked using a 5 point Likert scale and recoded as unsatisfied (1-2) and satisfied (3-5). We used chi-square tests and logistic regression to examine the relationship between predictors, wait time and satisfaction. The median wait-time was 22.0 days and 87% were satisfied with their wait time. There were no significant differences in the characteristics or of women with long and short waits. There was no significant difference in the level of satisfaction of women with long and short waits. Compared to unsatisfied patients, a larger proportion of satisfied patients had early stage cancer (38.5% vs.84.1%, p=0.001), partial mastectomy (8.3% vs. 51.9%, p=0.023), short diagnosis wait times (23.1% vs. 56.6%, p=0.035) and were satisfied with their diagnosis wait times (38.5% vs. 76.8%, p=0.008). Satisfaction with wait time for surgery is influenced by earlier experiences in breast cancer care pathway, and severity of diagnosis and treatment than the actual wait time for surgery itself. Our findings highlight the importance of early and timely diagnosis in patients' perceptions of breast cancer care wait-times.

POPULATION-BASED TRENDS IN RADIATION THERAPY FOR A CANADIAN BREAST CANCER COHORT
Presented by: Nicole Mittmann, Executive Director, Hope Research Centre

To examine the trends in radiation therapy (RT) utilization by a population based breast cancer cohort in Ontario, Canada. The provincial cancer registry maintains cancer specific databases and provided a breast cancer cohort based on diagnosis dates from April 1, 2005 to March 31, 2010. Staging information was also available. The cohort was then linked, by their encrypted health card number, to linkable administrative datasets that are maintained by the Institute for Clinical Evaluative Sciences (ICES) such as RT utilization. An all female breast cancer cohort (N=3D39,656) was identified and the average age was 61.6 ±14.0 years. Approximately, two thirds (N=3D25,225) of patients received RT and staging information was available for 22,988 patients (stage I =3D 9,541; stage II =3D 8,516; stage III =3D 4,050; and stage IV =3D 881). Patients had an average of 1.4 ± 0.7 (stage I) number of RT courses, 1.8 ± 1.1 (stage II), 2.5 ± 1.3 (stage III), and 2.8 ± 2.4 (stage IV). The percent ratio of conventional RT to intensity modulated RT (IMRT) was 70.9%:16.6% (stage I), 71.6%:11.3% (stage II), 74.6%:4.6% (stage III), and 72.7%:12.6% (stage IV). For the non-IMRT cohort with a primary cancer (N=3D30,887), the average number of fractions per course was 18.1 ± 9.2. For this cohort, almost two thirds received RT and the average number of courses increased with stage. A similar trend was observed with the type of RT (coventional RT utilization increased with stage) but peaked at stage III and decreased at stage IV, likely due to palliation.

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PREDICTORS OF HAVING HEARD ABOUT HUMAN PAPILLOMAVIRUS (HPV) VACCINATION AMONG COLOMBIAN WOMEN: CRITICAL FACTORS FOR EDUCATION OF CERVICAL CANCER PREVENTION

Presented by: Silvia Bermedo-Carrasco, PhD Candidate, School of Public Health, University of Saskatchewan

Low awareness about HPV vaccination could be associated with lower intention of vaccination. The study objectives were to determine: whether the prevalence of having heard about HPV vaccination differs by socio-demographic factors, and whether educational level and area of residence interact with predictors of having heard about HPV vaccination. Health related data of 53,521 women aged 13 to 49 years and residing in Colombia were drawn from the 2010 Colombian National Demographic and Health Survey. Women were interviewed about aspects of their health and socio-demographic characteristics. Women who reported having heard about HPV and also having heard about vaccination to prevent cervical cancer were classified as '1=3Dhad heard about HPV vaccination'; otherwise, '0=3Dhad not heard about HPV or HPV vaccination'. Logistic regression was used to evaluate the association between having heard about HPV vaccination and women's socio-demographic characteristics, testing educational level and area of residence as modifier effects. Only 26.8% of women had heard about HPV vaccination. Women using contraceptive methods, being in the highest wealth quintile, and having contributory insurance were more likely to have heard about HPV vaccination. Furthermore, statistically significant interactions were found between education and age (p=3D0.001), education and region (p<0.001), area of residence and having children (p=3D0.04), and area of residence and region (p<0.001). Non-educated women living in all regions, except those in the Central one, were less likely to have heard about HPV vaccination than higher-educated women. Women in rural Amazon-Orinoquía, Eastern, and Pacific regions were less likely to have heard about HPV vaccination than those in urban areas. Similarly, women with children and living in rural areas were less likely to have heard about HPV vaccination. Health education programs designed to raise the awareness of HPV vaccination in Colombia should be targeted on high risk populations, especially among individuals living in isolated areas of the country. Further studies incorporating in-depth assessment of the level of knowledge about HPV vaccination in the population are recommended.

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PROSPER: PROBING THE SCIENTIFIC REVIEW OF THE PATENTED MEDICINES PRICES REVIEW BOARD

Presented by: Lori Yin, Reimbursement Strategy and Health Economics Co-op Student, Roche Canada

The objective of this study was to determine the key factors that impact the level of therapeutic improvement established for oncology products by the PMPRB Scientific Review process. Oncology products included in this analysis were selected based on the main therapeutic use reported on the PMPRB website. The key trial was selected from a published list of references used by the PMPRB, where available. In cases where no references were published, the key clinical trial was selected through a PubMed search based on the year of review by the PMPRB. For each product, the trial design and the results of the primary and secondary endpoints for the key clinical trials were identified.Relative risk values were generated. From 1998 to January 24, 2013, thirty-nine new oncology drug products were reviewed by the PMPRB and were included in the analysis. The likelihood of receiving a recommendation of Moderate or Substantial Improvement increased with statistically significant overall survival (OS) data by3.05 times (95% CI 1.17,7.98), statistically significant progression-free survival (PFS) data by 1.26 times (95% CI 0.46,3.46), and the presence of either OS or PFS data by 1.66 times (95% CI 0.58,4.78). Moreover, drugs with Phase III data were less likely than drugs with Phase II data to receive a recommendation of Moderate or Substantial Improvement, relative risks of 0.71 (95% CI 0.26,2) and 1.21 (95% CI 0.4, 3.62), respectively. Oncology drugs with statistically significant OS data are three times more likely to receive recommendation of Moderate or Substantial Improvement by the PMPRB. Drugs with Phase III data have not been shown to be more likely than those with Phase II data to receive recommendation of Moderate or Substantial Improvement.

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PUBLIC ENGAGEMENT IN PRIORITY-SETTING: RESULTS FROM A PAN-CANADIAN SURVEY OF DECISION MAKERS IN CANCER CONTROL

Presented by: Dean Regier, Senior Health Economist, ARCC, BC Cancer Agency

The survey is a component of a CIHR-PHSI grant to understand how evidence-especially evidence from the public-is incorporated into cancer control priority-setting decisions. The objective of this study was to examine evidence utilization and the factors that increase the use of public engagement in priority setting. The sample frame targeted decision makers at cancer agencies and societies across Canada. 5-point Likert response scales were used to characterize the frequency of use and attitudes towards use of evidentiary inputs. Binary question formats were employed to inquire about the barriers to incorporating public input into priority setting. Kendall's rank correlation coefficient (Tau-a) was used to examine the concordance between the frequency of evidence utilization and attitudes toward what should be used in priority setting. Ordered logit regression analyses were employed to understand the influence that individual, institutional, and committee contexts have on the frequency of utilization of public input. 67 respondents from 117 invited individuals responded to the questionnaire (response rate: 57%).We found that public engagement input is infrequently utilized compared to clinical effectiveness and cost-effectiveness evidence. Using Kendall's Tau-a statistic, statistically significant concordance between attitudes and real-world utilization was observed for evidence on a program's effectiveness (P-val <0.001), patient input (P-val <0.001), and program cost (P-val <0.001). The Tau-a analyses failed to observe a statistically significant concordance between attitudes towards utilization and real-world use of input from the general or lay public and cost-effectiveness analysis. The regression analyses determined that public engagement was unevenly utilized between jurisdictions, and that the use of public input can be increased through diversified committee membership and by removing barriers to utilization. We found that decision-making committees in cancer control should establish strong links between committee members' normative attitudes toward using public engagement and its current utilization. We suggest that deliberative engagement methods be employed to address barriers to public engagement, particularly decision-makers' distrust of the public's ability to contribute to decision-making.

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REDEFINING KNOWLEDGE TRANSLATION: INCLUSIVE KNOWLEDGE TRANSLATION
Presented by: Eleni Wener, PhD Candidate, University of British Columbia

Identifying and analyzing assumptions embedded in Knowledge Translation(KT); creating elements of inclusive knowledge translation(IKT); examining current KT strategies in end-of-life and palliative care such as Vulnerable Persons-New Emerging Team(VP-Net) and evaluate if it was inclusive; recommendations Canadian people with disabilities, policy-makers and healthcare providers have towards the indicators of IKT. This qualitative study created the Elements of Inclusive Knowledge Translation(IKT) and examines whether the Vulnerable Persons and End-of-Life New Emerging Team(VP-Net) was successful at achieving IKT using the elements as indicators of success. This research project was guided by the research question: 'Using the indicators of inclusive knowledge translation, to what extent does VP-Net succeed in conducting inclusive knowledge translation?' Three phases of data collection were undertaken:1.Narrative data gathering documenting KT activities of VP-Net; 2.Semi-structured interviews with research participants (individuals with disabilities, policy-makers &healthcare providers)and 3.A focus group/critical reflection with VP-Net team members. Inclusive knowledge translation has never been studied. Thematic analysis was used to identify emerging themes. The three overarching themes that were found to best reflect the data are: 1. Achieving Inclusive Knowledge Translation events; 2. The creation of space for culture shifts towards change and 3. Keeping the conversation flowing. Key findings indicate that before a researcher can work to include people with disabilities in their research, they need to ensure inclusion in their own lives. Only then can a researcher move onto the Elements of Inclusive Knowledge Translation and incorporate them in their work. Flexibility is key, the Elements of Inclusive Knowledge Translation are forever evolving to continuously meet the needs of humanity. This study provides insight into the real-life experiences of people with disabilities and the 'research-world'. Inclusive Knowledge Translation is a new and innovative concept. Although there is literature regarding KT, there is a lack of evaluation conducted regarding the effectiveness of knowledge put into action. Embedded assumptions regarding characteristics and qualities of researchers and research users leave people with disabilities out of the research process.

Co-authors: Deborah Stienstra, University of Manitoba

REPRESENTING AML TREATMENT DECISIONS USING VISUAL MODELING SOFTWARE
Presented by: Emily McPherson, Health Economist, ARCC, BC Cancer Agency

Modeling the cost-effectiveness of new health treatments provides high-quality evidence that policymakers can use to support funding decisions. This paper demonstrates how to program the divergent treatment pathways for Acute Myeloid Leukemia that involves different modeling techniques. Following a conceptual map of the modeling requirements for AML treatment, we programmed a model that contains both a decision tree and Markov models at the right of the decision tree "branches." The model was programmed using Treeage software. The Markov transition probabilities were calculated using Stata-based survival analysis on the outcomes data. Weibull parametric estimator functions enabled the calculation of model cycle-specific probabilities of a hypothetical patient transitioning to a new health state. Canadian patient-level outcomes and cost data were available for use as inputs to the model; the impact of parameter instability was evaluated using probabilistic sensitivity analysis. Using tables of cycle-specific patient-level hospital data on costs and outcomes, we programmed a comprehensive decision model for AML. Cost variables were attached to each health state that subjects experience in the model. Rewards picked up in the Markov models were discounted into the future. Placeholders to accommodate robust health utility data were built into the model so that health benefits may be adjusted according to a patient's preference-based quality of life. The model was validated and tested probabilistically and was used to develop scenarios relevant to AML diagnosis and treatment. The model successfully calculates a hypothetical patient's life expectancy and the amount of money needed to fulfill that expectation. Careful thinking and research related to subtleties such as Markov cycle length and discount rates identified areas of the model that were most likely to change the cost-effectiveness results.

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SETTING TARGETS FOR MEASURING PERFORMANCE OF BREAST, CERVICAL AND COLORECTAL CANCER SCREENING PROGRAMS
Presented by: Leanne Lindsay, Student, Cancer Care Ontario and University of Toronto

It is important to measure performance and set targets and minimum acceptable standards for cancer screening programs. There is a paucity of literature on methods for setting performance targets. This study summarizes the literature on the methods and policies of setting targets for cancer screening performance measures (PM.) All studies published in English from 1990-2013 indexed in PUBMED were included. Combinations of the following search terms were used: 'mass screening,' 'program evaluation,' 'benchmarking,' 'target setting,' 'health policy,' forecasting,' and 'healthy people programs.' Of the 923 articles identified, ten were selected as they specifically described target setting methods for preventative health. These articles describe qualitative and quantitative methods used to set targets for PM, such as the pared-mean method and the SMART method. The pared-mean method sets the current 'top performance,' or best outcome accomplished for 10% of the population, as a future target. The SMART method guides selection of targets to be Specific, Measurable, Attainable, Realistic, and Timely. The strengths and limitations of each method, including factoring in accessibility to screening programs, patient socioeconomic status and risk factors were examined. Both qualitative and quantitative approaches should be considered when setting targets for PM. Next steps include evaluating these target setting methods for local organized screening programs, or if a combination of these methods can be used to set the most realistic and achievable targets.

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SMOKELESS TOBACCO AND NON-TOBACCO PRODUCTS AND RISK OF ORAL CANCER IN SOUTH ASIA: A META-ANALYSIS
Presented by: Kiran Sapkota, The University of Iowa

The objective of this meta-analysis was to summarize the evidence related to the association between smokeless tobacco and non-tobacco products and risk of oral cavity and oropharangyeal cancer in observational epidemiological studies. We conducted a systematic electronic search from the MEDLINE and Google Scholar databases and identified twelve studies relevant to our research question. Only cohort and case control studies that reported smokeless tobacco as exposure and oral cancer as outcomes in Asian populations were included in the analysis. Randomized clinical trials, review articles, editorials, comments, duplicate publication, letter to editors and abstracts were excluded.Two reviewers independently pooled data from the selected studies and the third reviewer checked the accuracy of the data. Disagreements were resolved by consensus. Twelve studies published between 1977 and 2012 were included in the meta-analysis. Based on four studies of any chewing habits in men and women, the pooled random effects odds ratio [OR] for smokeless tobacco and oral cancer was 1.98 (95% confidence interval [CI] 1.14 and 3.44). The OR of oral cancer for female subjects with chewing with tobacco was 16.24 (95% CI = 3.52, 75.05) and for male subjects was 6.23 (95% CI = 4.20, 9.24). Effects were attenuated when restricting analysis to chewing without tobacco products in males(OR = 2.16, 95% CI = 1.30, 3.59). STPs use carries an increased risk of oral cancer in Asian populations. The risk however, increases substantially when the STPs are chewed with tobacco for both males and females. More studies are needed to elucidate the role of specific ingredients in STPs in the causation of oral cancer in Asian populations.

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SOCIAL SUPPORT AS A DETERMINANT OF HEALTH-RELATED QUALITY OF LIFE IN BREAST CANCER SURVIVORS
Presented by: Faiza Rab, Researcher, University of Western Ontario

To evaluate the relationship between perceived social support and Health Related Quality of Life (HRQOL) (physical and emotional) in low SES breast cancer survivors. A cross-sectional study design was used to measure perceived social support at 18 months and HRQOL at 3 years after breast cancer diagnosis using MOS SS and MOS SF-36, respectively. Multiple regression analyses were used to evaluate the relationship. Menopause at the time of diagnosis, adjunct chemotherapy, adjunct radiation therapy, co-morbidities, treatment side effects and depression were negatively associated with PCS scores ($p < 0.01$). Treatment side effects, anxiety and depression were negatively associated with MCS scores ($p < 0.01$). Perceived social support was not associated with HRQOL in low SES breast cancer survivors in our study. Menopause, co- morbidities, treatment side effect, adjunct chemotherapy and radiation therapy adversely affect physical HRQOL. Feelings of anxiety, depression and treatment side effects have a negative impact on emotional HRQOL.

THE ASSOCIATION BETWEEN TOBACCO RETAILER DENSITY AND ALTERNATIVE TOBACCO PRODUCT USE AMONG CANADIAN SECONDARY SCHOOL STUDENTS
Presented by: Adam Cole, Graduate Student, School of Public Health and Health Systems, University of Waterloo

This study examined if tobacco retailer density surrounding a school was associated with the use of five different alternative tobacco products(ATPs: little cigars or cigarillos, cigars, roll-your-own cigarettes, smokeless tobacco, and a hookah) in a nationally representative sample of Canadian secondary schools and students. Linked data from the 2010/2011 Youth Smoking Survey and the 2010 Enhanced Points of Interest geographic information system (GIS) dataset were used in this study. Weighted descriptive analyses of the sample characteristics were examined for the five ATPs For each ATP, we then performed two multilevel regression models to examine whether the use of the product significantly varied across schools, and then to examine whether tobacco retailer density surrounding the school was associated with the current use of the product among students controlling for important student-level behavioural and demographic characteristics. School-level differences accounted for between 11.0% and 30.0% of the variability in the current use of the five ATPs examined. The majority of schools (68.6%) had at least one tobacco retailer within 1 km of the school. Each unit increase in tobacco retailer density surrounding a school was associated with an increased likelihood of currently using RYO cigarettes (OR 1.03, 95%CI 0.99 to 1.07) or hookah (OR 1.02, 95%CI 0.98 to 1.07), and a decreased likelihood of currently using little cigars or cigarillos (OR 0.95, 95%CI 0.93 to 0.98). Tobacco retailer density was not associated with current use of cigars or smokeless tobacco. These data suggest that the school environment plays an important role in ATP use among secondary school students. Additional research is required to understand how tobacco retailer density influences the onset or use of ATPs and to explore whether changes in tobacco retailer density impacts ATP use among youth.

Co-authors: Scott Leatherdale, Thesis supervisor, University of Waterloo

THE DIAGNOSTIC INTERVAL OF COLORECTAL CANCER PATIENTS IN ONTARIO BY DEGREE OF RURALITY
Presented by: Leah Hamilton, Student, Queen's University

1)To compare the Ontario colorectal cancer stage distribution across regions grouped by Rurality Index for Ontario (RIO) categories. 2)To determine whether patients living in census subdivisions with a higher degree of rurality have a longer diagnostic interval. 3)To map the relationships between the diagnostic interval and rurality. This study will use a retrospective population-based cohort design. We will use administrative databases housed at the Institute for Clinical Evaluative Sciences (ICES) at Queen's. Incident colorectal cancer cases will be identified using the Ontario Cancer Registry (OCR). Patient factors such as age, sex, comorbidities, socioeconomic status, cancer sub-site, stage at diagnosis and geographic residence are accessible and linkable to the OCR. Rurality will be defined using the Rurality Index for Ontario. We define diagnostic interval as the time between the patient's first diagnostic-related encounter with the health care system to the definitive diagnosis of colorectal cancer. Descriptive statistics will be used to examine the difference in stage distribution across RIO categories and tested using chi-square test for trend. Median diagnostic interval will be plotted against Rurality Index for Ontario (RIO) scores stratified by stage. A multivariate quantile regression model will be performed at the 50th and 90th percentiles to analyze differences. Basic geographic information system mapping will be used to overlay the combination of median diagnostic interval and RIO scores. Results from this study could be used to create programs or guidelines to improve the diagnostic process of those living in rural Ontario. Better identification of the system-related barriers that contribute to a late diagnosis may ultimately lead to an increase in the number of people who survive their colorectal cancer. If the diagnostic interval is higher in rural areas, it may be associated with, and therefore ameliorated by, changes in health services that are related to the diagnostic process. Results may enlighten researchers on the multidimensionality of access to health care in rural populations and address a health care inequity.

Co-authors: Patti Groome, Queen's University, Cancer Research Institute Queen's University, Cancer Research Institute, Queen's University, Cancer Research Institute; Colleen Webber, Queen's University, Cancer Research Institute

TREATMENT PATTERNS AND PROGRESSION FREE SURVIVAL (PFS) IN FIRST-LINE METASTATIC COLORECTAL (MCRC) PATIENTS (PTS) ON AN OXALIPLATIN-BASED CHEMOTHERAPY

Presented by: Aline Mamo, Clinical Research Associate, Jewish General Hospital

Pts with mCRC receiving a first-line (1L) OX-t exhibit a PFS that extends beyond their treatment duration. However, the perception is that neurotoxicity limits OX-t treatment duration and hence the benefit that could ensue. To quantify treatment duration and PFS, a chart review was conducted to investigate real-world PFS observed in these pts. In this retrospective cohort study, we collected first- and second-line (2L) therapy data from 89 unselected mCRC pts who received an OX-t between January 2010 and May 2013. Treatment patterns were captured. As a proxy for clinical PFS, PFS was defined as time from 1L to 2L start, death, lost to follow-up or date of last visit. The time between 1L OX start to 2L FOLFIRI initiation was also recorded, understanding progression would occur prior to 2L FOLFIRI initiation. 54 pts received mFOLFOX6 (mean: 10 cycles, mean duration: 26 weeks). 35 pts received XELOX (mean: 7 cycles, mean duration 25 weeks). Among mFOLFOX6 pts, 33% went on 2L FOLFIRI, 11% to another 2L therapy. As of January 2014, 35% were still alive not on 2L, 9% died before 2L and 11% were lost to follow-up. Among XELOX pts, the numbers were 23%, 11%, 46%, 17% and 3% respectively. Among pts still alive who received mFOLFOX6 and XELOX, 15/19 and 14/16 had a resection of their primary and/or metastatic tumor. Median PFS were 16.0 and 24.0 months in mFOLFOX6 and XELOX patients. For 2L FOLFIRI pts, median interval from 1L to 2L start was 7.3 and 11.3 months in the mFOLFOX6 and XELOX group. These results help quantify the treatment benefits that can be expected from an OX-t beyond the specific treatment duration and are aligned with an 8 months median PFS reported by Tournigand 2004.

Co-authors: Soo Young Rho, Segal Cancer Center, Jewish General Hospital; Gerald Batist, Segal Cancer Center, Jewish General Hospital

TRENDS AND JURISDICTIONAL VARIATIONS IN RADICAL PROSTATECTOMY FOR PROSTATE CANCER IN CANADA, 2006-07 TO 2012-13

Presented by: Adam Sherk, Senior Analyst, Canadian Institute for Health Information

Prostate cancer is the most common cancer diagnosed in Canadian men, yet an understanding of how prostate cancer is treated across Canada is lacking. This presentation describes trends and variations in surgical practice patterns for prostate cancer in Canada from 2006-07 to 2012-13 with a focus on radical prostatectomy (RP). A retrospective cohort study of men receiving RP for prostate cancer from 2006-07 to 2012-13 was undertaken using inpatient and day surgery hospital data from the Canadian Institute for Health Information. Rates of laparoscopic RP and use of robotic assistance among laparoscopic RP (from 2009-10 on) were calculated for all of Canada based on where the surgery occurred. Laparoscopic surgery is associated with better outcomes and fewer complications. Across Canada the use of laparoscopic RP doubled over the study period, yet as of 2012 accounted for less than a third of all RP. Laparoscopic RP occurred primarily in six provinces. All six showed an increase in the use of laparoscopic surgery over the study period; however they varied considerably in the extent. Whether robotic assistance adds value in terms of clinical outcomes relative to cost remains controversial. Four of the six provinces performing laparoscopic RP used robotic assistance. Three of the provinces showed an increase in the rate of robotic assistance, while the other showed a decrease. Interestingly, the province with the highest rate of laparoscopic RP did not use robotic assistance. Recent surgical trends in the treatment of prostate cancer are of particular interest as advances in surgical approaches have occurred in recent years. This study depicts trends and variations in the adoption of these approaches across Canada, topics which have not been well described to this point.

Co-authors: Anne McFarlane, Vice President, Canadian Institute for Health Information; Brandon Wagar, Methodologist, Canadian Institute for Health Information; Jacqueline Gregory, Senior Analyst, Canadian Institute for Health Information; Maria Hewitt, Special Projects Lead, Canadian Institute for Health Information

URBAN AND RURAL DIFFERENCES AMONG PRIMARY CARE PHYSICIANS (PCPS) IN THE DIAGNOSTIC WORK-UP (DWU) OF PATIENTS WITH SUSPECTED CANCER

Presented by: Andriana Barisic, Research Associate, Cancer Care Ontario

To examine urban/rural differences among FPs in the DWU of patients with suspected cancer. This study was an online cross-sectional survey of FPs; part of the International Cancer Benchmarking Partnership, a larger study comprised of 5 modules examining reasons for differences in cancer survival among participating countries. In Ontario, FPs registered with the College of Physicians and Surgeons of Ontario were invited to participate. 578/2964 (19.5%) eligible FPs responded between December 2012 and March 2013 (urban: n=326/2094 (15.6%); rural: n=252/870 (29.0%)). The survey included 23 questions examining FP beliefs, administrative practices, appointment organization and access to diagnostic investigations, followed by two randomly presented vignettes (of five; 2 lung, 2 colorectal and 1 ovarian) where FPs were asked to describe their DWU for a patient with suspected cancer. Urban/rural status was determined using the 2011 Canadian Census. Urban/rural differences in DWU were examined using chi-square testing, while differences in willingness to refer patients to secondary care, or to order an appropriate diagnostic investigation (i.e. chest X-ray/CT/MRI for lung cancer; abdominal CT / colonoscopy for colorectal cancer; and ultrasound /abdominal CT for ovarian cancer) at the first and by the second primary-care visit were examined using logistic regression. Urban/rural differences in FP DWU were largely non-significant ($p<0.05$). In regards to FP willingness to refer/investigate, 71.6% of FPs presented with the ovarian vignette referred/investigated at the first visit, compared to approximately half (51.8-59.1%) and one-quarter (23.8-25.5%) for the lung and colorectal vignettes respectively. The majority of FPs referred/investigated by the second visit for all five vignettes (73.4-99.3%). After adjustment for FP sex and year medical degree was obtained, urban/rural differences in FP willingness to refer/investigate at the first visit, and by the second visit were non-statistically significant for all vignettes. There appear to be no clinically important urban/rural differences among FPs in the DWU of patients with suspected cancer; however differences among FPs in the DWU of patients were observed between cancer types.

Co-authors: Eva Grunfeld, Knowledge Translation Research Network Health Services Research Program, Ontario Institute for Cancer Research and the Department of Family and Community Medicine, University of Toronto

USING ONLINE CHEMOTHERAPY AND BIOTHERAPY EDUCATION TO SUPPORT STANDARDIZED CLINICAL CARE: A KNOWLEDGE TRANSLATION OUTCOME EVALUATION

Presented by: Jiahui Wong, Manager, Curriculum and Program Evaluation, de Souza Institute

This Provincial Standardized Chemotherapy and Biotherapy course was offered by de Souza Institute since 2009. The original curriculum incorporated provincial and national best practice guideline for chemotherapy administration and care. In 2013, an online format was launched integrating multimedia design and interactive features to maximize knowledge application and retention. The program consists of 35 learning hours via internet with a 7.5 hour in-person skill's lab, and is designed to support registered nurses in cancer clinics and to standardize chemotherapy delivery across Ontario. A systematic evaluation was carried out, with surveys, quizzes, exit exams built into the online course package. This online Provincial Standardized Chemotherapy and Biotherapy course was built on the original videoconference based curriculum offered by de Souza Institute since 2009. The curriculum incorporated provincial and national best practice guideline for chemotherapy administration and care. In 2013, the online course was launched integrating multimedia design and interactive features to maximize knowledge application and retention. The program consists of 35 learning hours with a 7.5 hour in-person skill's lab, and is designed to support oncology nurses and standardize chemotherapy delivery across Ontario. A systematic evaluation was carried out, with surveys, quizzes, exit exams built into the online course package. Of the 145 nurses participated in the online course in 2013, 139 (96%) successfully completed all course requirements and passed the exit exam. Significant improvements were shown on knowledge and perceived confidence levels for all course content areas. The top user satisfaction includes case studies that provided practical application, the convenience of learning at own pace and schedule, and the comprehensive and easy to follow presentation of information. Outcome will be further analysed and stratified by user demographics, years of experience, and practice locations, to shed insight in terms of factors that contribute to knowledge improvement. Evaluation results will also be discussed with insights gained on the integration of information technology in the delivery of high quality educational programs to address health care performance issues. Online learning helps to bridge the gap between fast growing scientific knowledge, and practicing clinicians who need such knowledge yet have limited time and access to them. Online learning also supports dissemination and standardization of clinical procedures to meet quality and safety guidelines in a timely and cost effective way.

Co-authors: Laura Rashleigh, de Souza Educator, de Souza Institute, UHN; Donalda MacDonald, de Souza Educator, de Souza Institute, UHN; Komal Patel, de Souza Educator, de Souza Institute, UHN; Mary Jane Esplen, Director, de Souza Institute, UHN

YOUR EXPERIENCE MATTERS - A PILOT TO EVALUATE PATIENT EDUCATION AT A PROVINCIAL LEVEL

Presented by: Tory Andrien, Policy Research Analyst, Cancer Care Ontario; Susana Wong, Regional Education Lead, Simcoe Muskoka Regional Cancer Program

Quality, actionable, evidence-based health information empowers cancer patients and their families (P&F) to manage their care in all phases of the cancer journey. The Cancer Care Ontario Patient Education Committee developed and piloted a survey evaluating the provision of P&F health information to inform provincial quality improvement efforts. A nine question paper and electronic survey was developed with two main objectives: 1) to assess the type of education and information patients and families received and through what means, and 2) how helpful the education and information was in understanding and managing their cancer journey. This included satisfaction questions related to the amount of information they received on diagnosis, test results, treatment options, and side effects. Questions evaluating face validity of the survey were included. Participants were recruited passively (through postcards) and actively (being approached in waiting areas) from Princess Margaret, North East, and Simcoe Muskoka Regional Cancer Centres. A total of 199 responses were received across the three pilot sites. 87% of respondents were patients and 10% were family members. The majority of respondents indicated they received all or most of the information they wanted about their cancer diagnosis (80%); test results (78%); and treatment (81%). Respondents felt that received all or most of the information they wanted to help manage their cancer-related side effects (74%) and help them through their cancer journey (78%). 163 respondents also responded to the post-survey questions, which asked about the clarity and their understanding of the questions. Respondents felt they understood what the questions were asking (88%) and that the survey was easy to read (89%). Pilot results indicate that most patients were satisfied with amount and quality of information provided. Patients also felt that questions were easy to read and understandable. Additional measurement on access to education resources would provide further insight on the patient experience. Findings will help inform provincial roll-out of the survey.

Co-authors: Susan Boyko, Patient and Staff Experience Coordinator, Northeast Cancer Centre; Susanna Wong, Regional Education Lead, Simcoe Muskoka Regional Cancer Program; Nazek Abdelmutti, Manager, Patient and Survivorship Education, Princess Margaret Cancer Centre; Zahra Ismail, Program Manager, Psychosocial Oncology, Nursing and Patient Education, Cancer Care Ontario; Reena Tabing, Interim Program Manager, Psychosocial Oncology, Nursing and Patient Education, Cancer Care Ontario; Audrey Jusko Friedman, Provincial Head Patient Education, Cancer Care Ontario

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The ARCC Network is a virtual community of researchers, clinicians, students, policy-and decision-makers with expertise in applied cancer control research. The mission of ARCC is to

- Facilitate collaborative research
- Support knowledge exchange and capacity-building initiatives

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