ARCC Conference 2013
Conference Program

Canada's 2nd Applied Research in Cancer Control Conference
May 27, 2013
Sheraton Wall Centre
Vancouver, British Columbia

ARCC
Canadian Centre
for Applied Research
in Cancer Control

Funding Partner

Canadian Cancer Society / Société canadienne du cancer

Founding Partners

Cancer Care Ontario / Action Cancer Ontario

BC Cancer Agency
CARE & RESEARCH
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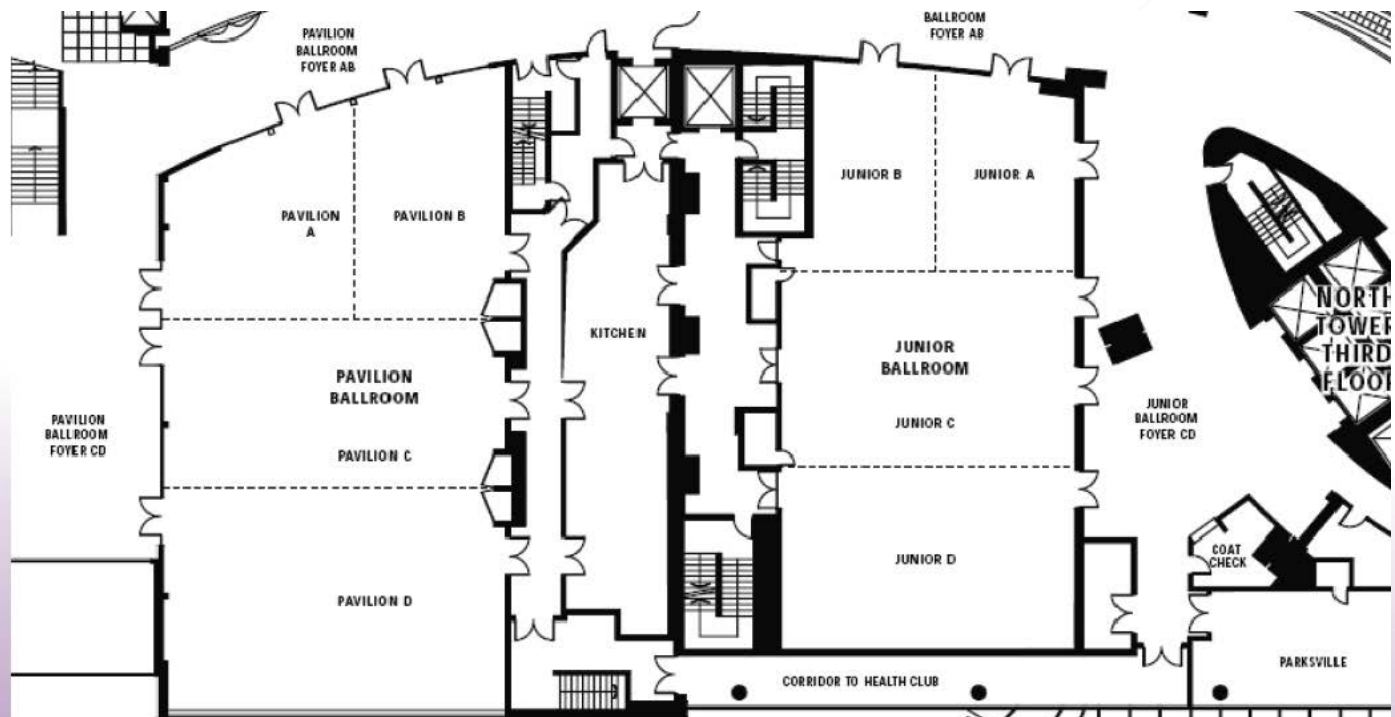l'Association canadienne pour la recherche sur les services et les politiques de la santé

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ARCC Conference 2013
Advancing Health Economics, Services, Policy and Ethics

CONTENTS

Welcome Message
From the Co-Directors
ARCC Conference 2013

Welcome to the 2013 Applied Research in Cancer Control (ARCC) Conference and to beautiful Vancouver!

The ARCC Conference is our signature event and an integral part of the applied cancer research community featuring health economics, services, policy and ethics. Today promises to be an extraordinary event. The purpose of this conference is to provide a venue to foster connections among academics, researchers, clinicians, students and policy makers.

The conference features over 35 presentations including specialized panels on costing, personalized medicine and over 60 scientific posters. We have strong national leadership here today and presentations from across the country providing for excellent networking and knowledge exchange opportunities.

Since its founding in 2009, ARCC has had many achievements and successes. ARCC offers resources for the applied cancer control research community as it develops and expands in Canada. The ARCC Network has grown to over 300 members and we encourage you to get involved. There are many ways for you to engage. Stay informed about our research program area webinars, newsletters, funding and other related opportunities. Fill out the membership form at the back of this package and return it to the conference registration desk to become a member today.

We want to thank the many people who have helped make today an exceptional event. Sarah Benn and Kimberly van der Hoek worked with the Face 2 Face Events Management team to create this event. ARCC program leads Melissa Brouwers, Craig Earle, Jennifer Gibson, Arminee Kazanjian, Murray Krahn, Christopher Longo and Mary McBride served as the review committee for the abstracts. Claire de Oliveira and Dean Regier for organizing the Current State of Cancer Care and Future Challenges, and Personalized Medicine.

A special thank you to the Canadian Cancer Society (CCS), the Canadian Association for Health Services Policy Research (CAHSPR) and our partner organizations who have contributed time and funding to ensure the success of this conference.

Enjoy the conference!

Dr. Jeffrey Hoch
ARCC Co-Director
Cancer Care Ontario

Dr. Stuart Peacock
ARCC Co-Director
BC Cancer Agency

Full Program Agenda
ARCC Conference 2013

Sunday, May 26, 2013

4:00PM – 6:00PM	**ARCC Welcome Reception**	**Jr. Ballroom Foyer**

Monday, May 27, 2013

7:30AM – 8:30AM   **Registration and Breakfast**   **Pavilion CD**

8:30AM – 8:40AM   **Welcome Remarks**   **Pavilion CD**
Dr. Stuart Peacock, Co-Director, Canadian Centre for Applied Research in Cancer Control (ARCC),
Distinguished Scientist, BC Cancer Agency
Barbara Kaminsky, CEO Canadian Cancer Society BC and Yukon

8:40AM – 9:30AM   **Challenges with Equity and Access in Cancer Control**   **Pavilion CD**
Chaired by: **Dr. Jeffrey Hoch**, Co-Director, Canadian Centre for Applied Research in Cancer Control (ARCC)

- **Dr. Nadine Caron**, General and Endocrine Surgeon at the University Hospital of Northern British Columbia, Assistant Professor, Surgery at the University of British Columbia, Northern Medical Program, Associate Faculty Member, Johns Hopkins University Bloomberg School of Public Health's Center for American Indian Health
- **Dr. Scott Berry**, Medical Oncologist at Sunnybrook Odette Cancer Centre, Associate Professor in the Faculty of Medicine at the University of Toronto
- **Dr. Heather Bryant,** Vice President of Cancer Control for the Canadian Partnership Against Cancer (CPAC)

9:30AM – 10:00AM   **Question and Answer Period**   **Pavilion CD**

10:00AM – 10:30AM   **Poster Viewing / Nutritional Break**   **Jr. Ballroom**

10:30AM – 12:00PM   **Morning Concurrent Sessions**

The Current State of Cancer Care in Canada and Future Challenges   **Pavilion CD**
Chaired by: **Claire de Oliveira,** Postdoctoral Research Associate, University Health Network

- Reporting on the Cancer Control System: Lessons Learned and Gaps Identified
- Trends in Cancer Research Funding in Canada
- Comparing the Costs of Cancer Care in British Columbia (BC) and Ontario: A Phase-Based Approach
- Health Policy

Health Technology Assessment   **Finback**
Chaired by: **Dr. Christopher Longo**, Associate Professor, McMaster University

- Improving the Quality of Abstracts for Economic Analyses in Oncology
- Active Surveillance for Low-Risk Prostate Cancer Compared with Immediate Treatment: a Canadian Economic Evaluation
- Non-Medical Costs for Patients Receiving Oral Cancer Surgery: Interim Analysis from the COOLS Trial
- Assigning Causality to Anti-Cancer Agents: Decision Making in Early Phase Oncology Clinical Trials
- Cost Effectiveness of Cervical Cancer Screening Strategies after Availability of HPV Vaccine

Health Services Research 1   **Parksville**

Chaired by: **Dr. Jennifer Gibson**, Associate Professor, University of Toronto: Interim Director, Joint Centre for Bioethics

- Unringing the Bell: Is Cancer Screening a Victim of its Own Success?
- Multi-Level Factors Influence the Implementation and Use of Complex Innovations - Synoptic Reporting Tools - in Cancer Care
- Advancing Quality in Cancer Control and System Performance in a Context of Uncertainty: an Integrated Review of the Literature
- Evaluating Human Papillomavirus (HPV) Vaccination Strategies in Canada Using the Cancer Risk Management HPV Microsimulation Model (CRM-HPVMM)
- Screening, Wait Times and Wait Time-Related Satisfaction

12:00PM – 12:45PM   **Networking Lunch**   **Pavilion CD**

12:45PM – 1:30PM   **Poster Viewing**   **Jr. Ballroom**

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

Personalized Medicine   **Pavilion CD**

Chaired by: **Dr. Melissa Brouwers,** Associate Professor, McMaster University

- Does Predictive Genetic Information Motivate Behaviour Change? A Theoretical and Empirical Evaluation of Personalized Medicine in Cancer Prevention
- Access to Personalized Medicine: The Case of Gene Expression Profiling in Breast Cancer
- Patient Preferences: Understanding Risk-Benefit Trade-Offs of Genomic Testing in Chemotherapy Decisions for Breast Cancer Patients
- The Prognostic Value of Braf Mutation in Colorectal Cancer and Melanoma: A Systematic Review and Meta-Analysis
- Next Generation Genomic Sequencing and the Disclosure of Incidental Findings

Health Services Research 2   **Finback**

Chaired by: **Mary L. McBride**, Distinguished Scientist, BC Cancer Agency

- Does More Homecare Nursing Lower the Risk of ED Visits at End of Life?: A Population-Based Study of Ontario Cancer Decedents
- Who Doesn't Use Homecare at End of Life? Predictive Factors of Not Receiving In-Home Formal Support Among Cancer Decedents
- Reasons for Opioid Underuse for Cancer Pain
- The Use of Lymph Node Surgery for Women with Invasive Breast Cancer in Canada
- A Population-Based Study on the Uptake and Utilization of Stereotactic Radio-Surgery (SRS) for Brain Metastases in Nova Scotia

Patients and Families   **Parksville**

Chaired by: **Dr. Arminée Kazanjian,** Professor, School of Population and Public Health, University of British Columbia

- Prospective Evaluation of Unmet Needs of Rural Cancer Survivors: Comparison Between Four First Nations and Four non-First Nations Communities
- Concerns and Perceptions of Breast Cancer Survivors' Impact of Treatment within Different Healthcare Systems
- Patient-Reported Cancer Services Responsiveness: Insights from a Cross-Sectional Survey in the Province of Quebec
- A Pilot Study Evaluating Canadian Cancer Patients' Treatment - Related Out-of-Pocket Costs
- Methods and Challenges in Evaluating Operational Programs: An Example from a Virtual Breast Patient Navigation Program

| 3:00PM – 3:30PM | **Poster Viewing / Nutritional Break** | **Jr. Ballroom** |

3:30PM – 4:35PM **Complex Evidence and Difficult Policy Choices: The Case for Prostate Cancer Screening**　　**Pavilion CD**
Chaired by: **Dr. Stuart Peacock,** Co-Director, Canadian Centre for Applied Research in Cancer Control (ARCC), Distinguished Scientist, BC Cancer Agency

- **Dr. Ruth Etzioni**, Full Member in Biostatistics, Division of Public Health Sciences, Fred Hutchinson Cancer Research
- **Dr. Tom Pickles,** Radiation Oncologist at the BC Cancer Agency, Vancouver, and Professor, University of British Columbia
- **Dr. Murray Krahn,** Director of the Toronto Health Economics and Technology Assessment Collaborative, the F. Norman Hughes Chair in Pharmacoeconomics at the Faculty of Pharmacy, Professor in the Faculties of Medicine and Pharmacy, University of Toronto, Senior Scientist at the Toronto General Research Institute, and Adjunct Scientist at the Institute for Clinical Evaluative Sciences, Attending Physician in the Division of General Internal Medicine at the University Health Network

4:35PM – 4:50PM **Question and Answer Period / Poster Award Winners**　　**Pavilion CD**

4:50PM – 5:00PM **Closing Remarks**　　**Pavilion CD**
Dr. Max Coppes, President, BC Cancer Agency

Challenges with Equity and Access in Cancer Control

Dr. Nadine Caron, MD, MPH, FRCSC

Dr. Nadine Caron is a general and endocrine surgeon at the University Hospital of Northern British Columbia. She is an Assistant Professor, Surgery at the University of British Columbia, Northern Medical Program and an associate faculty member at the Johns Hopkins University Bloomberg School of Public Health's Center for American Indian Health. As the first female First Nations student to graduate from the University of British Columbia's medical school, she won the Hamber Gold Medal as the top graduating student and was named one of Maclean's "One Hundred Canadians to Watch." During her surgical residency, she completed her Master's degree in Public Health from Harvard University and was awarded UBC's Top Student Award. Passionate about Aboriginal health and Canadian health policy, she serves on numerous committees including the Governing Council for the Canadian Institutes of Health Research, the Board of Directors of the Michael Smith Foundation for Health Research and played a key role in the Royal College of Physicians and Surgeons of Canada/Indigenous Physicians Association of Canada committee that developed culturally competent curricula for - post-graduated medical education (Chair of Surgery Curriculum Development). Through her role modeling, speaking engagements and formal committees, Dr. Caron aims to share her passion and foster ongoing opportunities to eliminate health disparities in Indigenous communities in both Canada and beyond our borders.
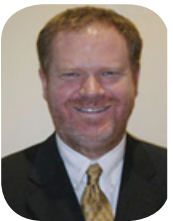
Dr. Scott Berry, MD, MHSc, FRCPC

Dr. Scott Berry is a medical oncologist at Sunnybrook Odette Cancer Centre and an Associate Professor in the Faculty of Medicine at the University of Toronto. He completed his general medical training and medical oncology training at the University of Toronto. Dr. Berry is an active participant in colorectal cancer research. He has also authored several prostate cancer and colorectal cancer guidelines for the Cancer Care Ontario Program in Evidence-Based Care and chaired national consensus guideline meetings for the Colorectal Cancer Association of Canada. Dr. Berry loves teaching and is the Program Director for the Medical Oncology Training Program at the University of Toronto. He also chairs the Royal College of Physicians and Surgeons of Canada Specialty Committee for Medical Oncology and is Co-Medical Director of www.oncologyeducation.com. His other academic interest is the bioethical issues surrounding the care of people with cancer, in particular the ethical issues surrounding funding new and expensive cancer medications. Dr. Berry has a Masters degree in bioethics from the University of Toronto. He has also served on the ASCO Ethics Committee and is the Ethics Advisor to the pan-Canadian Oncology Drug Review and the NCIC Data Safety Monitoring Committee.

Dr. Heather Bryant, MD, PhD, CCFP, FRCPC

Dr. Heather Bryant is Vice President of Cancer Control for the Canadian Partnership Against Cancer (CPAC), an organization funded by the federal government to implement the national cancer control strategy across Canada. Dr. Bryant joined CPAC in January 2008 from the Alberta Cancer Board, where she was Vice President and Chief Information Officer and Director of the Division of Population Health and Information. Dr. Bryant studied medicine at the University of Calgary and took her first residency certification in family medicine. She followed this with a fellowship in community medicine and a PhD in epidemiology. Dr. Bryant has been active on many national committees and chaired the National Committee for the Canadian Breast Cancer Screening Initiative (Health Canada), the Joint Advisory Committee on Cancer Control (National Cancer Institute of Canada), the Population Health Committee (Medical Research Council), and was Inaugural Chair of the Institute Advisory Board for Cancer for the Canadian Institutes for Health Research. She was elected to the Board of the Union for International Cancer Control in 2012. Dr. Bryant is also a Clinical Professor in the Departments of Community Health Sciences and Oncology at the University of Calgary.

Complex Evidence and Difficult Policy Choices: The Case for Prostate Cancer Screening

Dr. Ruth Etzioni, PhD

Dr. Ruth Etzioni is a biostatistician who specializes in modeling cancer progression and outcomes. For the last ten years she has modeled prostate cancer detection and treatment with the goal of identifying the benefits and harms of prostate cancer screening and developing population screening policies. Dr. Etzioni serves or has served on several national prostate cancer policy panels including the American Cancer Society's panel for the early detection of prostate cancer, the National Comprehensive Cancer Network, and the American Urology Association's PSA panel. She has been a faculty member at the Fred Hutchinson Cancer Research Center since 1994 and has a PhD in statistics from Carnegie Mellon University.

Dr. Tom Pickles, MD

Dr. Tom Pickles is a radiation oncologist at the BC Cancer Agency, Vancouver, and Professor, Division of Radiation Oncology, Faculty of Medicine at the University of British Columbia. His clinical interests include prostate cancer (active surveillance and brachytherapy), lymphoid malignancies including radio-immunotherapy, and particle therapy. His research interests include doctor-patient communication, population-based outcomes analysis and PSA kinetics. He was the Chair of the BCCA Genito-Urinary Tumour Group 2000-2006.

Dr. Murray Krahn, MD, MSc, FRCPC

Dr. Murray Krahn is the Director of THETA (Toronto Health Economics and Technology Assessment Collaborative), the F. Norman Hughes Chair in Pharmacoeconomics in the Faculty of Pharmacy, Professor in the Faculties of Medicine and Pharmacy, University of Toronto, Senior Scientist at the Toronto General Research Institute, and Adjunct Scientist at the Institute for Clinical Evaluative Sciences, Toronto. He is also an attending physician in the Division of General Internal Medicine at the University Health Network, Toronto. Dr. Krahn's research program focuses on the use of decision analytic methods to examine health policy and health decision making. His recent research includes the development of clinical policy models, disease-specific utility instruments, and the use of large administrative datasets for developing longitudinal cost models. He was recently elected as the President of the Society for Medical Decision Making.

Concurrent Sessions at a Glance
ARCC Conference 2013

Morning Concurrent Sessions 10:30AM – 12:00PM		
THE CURRENT STATE OF CANCER CARE IN CANADA AND FUTURE CHALLENGES	**HEALTH TECHNOLOGY ASSESSMENT**	**HEALTH SERVICES RESEARCH 1**
Pavilion CD	**Finback**	**Parksville**
Reporting on the Cancer Control System: Lessons Learned and Gaps Identified *Heather Bryant, Vice President Cancer Control, Canadian Partnership Against Cancer*	**Improving the Quality of Abstracts for Economic Analyses in Oncology** *Maria Ho, Medical Oncologist, Cross Cancer Institute*	**Unringing the Bell: Is Cancer Screening a Victim of its Own Success?** *S. Michelle Driedger, PhD, Associate Professor, Department of Community Health Science, University of Manitoba*
Trends in Cancer Research Funding in Canada *Caroyln Gotay, PhD, Professor and Canadian Cancer Society Chair in Cancer Primary Prevention, University of British Columbia*	**Active Surveillance for Low-Risk Prostate Cancer Compared with Immediate Treatment: A Canadian Economic Evaluation** *Alice Dragomir, Assistant Professor, The Research Institute of the McGill University Health Center*	**Multi-level Factors Influence the Implementation and Use of Complex Innovations - Synoptic Reporting Tools - in Cancer Care** *Robin Urquhart, Knowledge Broker, Cancer Outcomes Research Program, Dalhousie University, Capital Health*
Comparing the Costs of Cancer Care in British Columbia (BC) and Ontario: A Phase-Based Approach *Reka Pataky, Data Linkage Coordinator, Canadian Centre for Applied Research in Cancer Control, BC Cancer Agency*	**Non-Medical Costs for Patients Receiving Oral Cancer Surgery: Interim Analysis from the COOLS Trial** *Ian Cromwell, Health Economist, Canadian Centre for Applied Research in Cancer Control, BC Cancer Agency*	**Advancing Quality in Cancer Control and System Performance in a Context of Uncertainty: An Integrated Review of the Literature** *Melissa Brouwers, Associate Professor, Department of Oncology, McMaster University*
Health Policy *Craig Earle, Director, Health Services Research Program, Cancer Care Ontario and the Ontario Institute for Cancer Research*	**Assigning Causality to Anti-Cancer Agents: Decision Making in Early Phase Oncology Clinical Trials** *Jacqueline Torti, PhD Candidate , University of Alberta*	**Evaluating Human Papillomavirus (HPV) Vaccination Strategies in Canada Using the Cancer Risk Management HPV Microsimulation Model (CRM-HPVMM)** *William Flanagan, Chief of Microsimulation, Statistics Canada*
	Cost Effectiveness of Cervical Cancer Screening Strategies after Availability of HPV Vaccine *Bin Xie, Assistant Professor, University of Western Ontario*	**Screening, Wait Times and Wait Time-Related Satisfaction** *Maria Mathews, Professor, Memorial University*

Afternoon Concurrent Sessions 1:30PM – 3:00PM		
PERSONALIZED MEDICINE PANEL	**HEALTH SERVICES RESEARCH 2**	**PATIENTS AND FAMILIES**
Pavilion CD	**Finback**	**Parksville**
Does Predictive Genetic Information Motive Behaviour Change? A Theoretical and Empirical Evaluation of Personalized Medicine in Cancer Prevention *Joanne Kim, PhD Candidate, Institute of Health Policy, Management and Evaluation, University of Toronto, Canadian Centre for Applied Research in Cancer Control*	**Does More Homecare Nursing Lower the Risk of ED Visits at End of Life?: A Population-Based Study of Ontario Cancer Decedents** *Hsien Seow, Cancer Care Ontario Research Chair in Health, McMaster University*	**Prospective Evaluation of Unmet Needs of Rural Cancer Survivors: Comparison Between four First Nations and four non-First Nations Communities** *Rob Olson, Radiation Oncologist, BC Cancer Agency*
Access to Personalized Medicine: the Case of Gene Expression Profiling in Breast Cancer *Yvonne Bombard, Postdoctoral Fellow, Yale University & Memorial Sloan-Kettering Cancer Center*	**Who Doesn't Use Homecare at End of Life? Predictive Factors of not Receiving In-Home Formal Support Among Cancer Decedents** *Hsien Seow, Assistant Professor, Department of Oncology, McMaster University*	**Concerns and Perceptions of Breast Cancer Survivors' Impact of Treatment within Different Healthcare Systems** *Savitri Singh-Carlson, Research Associate, BC Cancer Agency*
Patient Preferences: Understanding Risk-Benefit Trade-Offs of Genomic Testing in Chemotherapy Decisions for Breast Cancer Patients *Deborah Marshall, Associate Professor, University of Calgary*	**Reasons for Opioid Underuse for Cancer Pain** *Craig Earle, Director, Health Services Research, Ontario Institute for Cancer Research*	**Patient-Reported Cancer Services Responsiveness: Insights from a Cross-Sectional Survey in the Province of Quebec** *Dominique Tremblay, Assistant Professor, Université de Sherbrooke*
The Prognostic Value of BRAF Mutation in Colorectal Cancer And Melanoma: A Systematic Review and Meta-Analysis *Gholamreza Safaee Ardekani, University of British Columbia*	**The Use of Lymph Node Surgery for Women with Invasive Breast Cancer in Canada** *Jin Huang, Senior Analyst, Canadian Institute for Health Information*	**A Pilot Study Evaluating Canadian Cancer Patients' Treatment-Related Out-of-Pocket Costs** *Christopher Longo, Associate Professor, McMaster University*
Next Generation Genomic Sequencing and the Disclosure of Incidental Findings *Dean Regier, Senior Health Economist, Canadian Centre for Applied Research in Cancer Control, BC Cancer Agency*	**A Population-Based Study on the Uptake and Utilization of Stereotactic Radio-Surgery (SRS) for Brain Metastases in Nova Scotia** *Gaurav Bahl, Radiation Oncologist, BC Cancer Agency*	**Methods and Challenges in Evaluating Operational Programs: An Example from a Virtual Breast Patient Navigation Program** *Marcy Winget, Director, Innovation and Decision Support, Alberta Health Services*

A Case Study of Human Papillomavirus Vaccination in Males: Mixed Messages From Negative Cost-Effectiveness Ratios Wanrudee Isaranuwatchai, Health Economist, Cancer Care Ontario, Canadian Centre for Applied Research in Cancer Control	**Ethics at the Crossroads: The Ethical, Statistical and Policy Implications of Cross-over in Oncology Trials** Shawn Bugden, Associate Professor, Faculty of Pharmacy, University of Manitoba
A Pan-Canadian Framework Proposal for Quality Initiative Priorities in Cancer Control Gunita Mitera, Quality Initiatives Specialist, Canadian Partnership Against Cancer	**Exploring the General Public's Perceptions of Rationing Scenarios: A Mixed-Methods Study** Helen McTaggart-Cowan, Health Economist, Canadian Centre for Applied Research in Cancer Control, BC Cancer Agency
Building a Learning Organization in Psychosocial Oncology: Lessons Learned Lynne Robinson, Co-Chair, CPOPonline	**Exploring the Uptake Of a New Tool in Pathology Practice for Ovarian Cancer: A Pilot Study** Robin Urquhart, Knowledge Broker, Cancer Outcomes Research Program, Dalhousie University/Capital Health
Cancer Patients' Functional Status and Initiation of Chemotherapy: Does Less Mean Less? Joan Porter, Lead RC - Cancer Program, Institute for Clinical Evaluative Sciences	**Family Physicians' (FP) Perspectives on Survivorship Care Plans (SCPS) to Support Follow-Up of Breast Cancer Patients** Mary Ann O'Brien, Assistant Professor, Department of Family and Community Medicine, University of Toronto
Chemotherapy-Induced Peripheral Neuropathies: An Integrative Review of Rehabilitation Practices Stephanie Dion, Occupational Therapist, BC Children`s Hospital	**Family Physicians' Perspectives on Computer-Based Health Risk Assessment Tools for Chronic Diseases** Mary Ann O'Brien, Assistant Professor, Department of Family and Community Medicine, University of Toronto
Comparative Evaluation of Strategies in Colorectal Cancer Screening and Treatment Using the Cancer Risk Management Model (CRMM) William Flanagan, Chief of Microsimulation, Statistics Canada; Natalie Fitzgerald, Canadian Partnership Against Cancer	**Identifying Inclusive Knowledge Translation** Eleni Wener, University of Manitoba
Concerns and Perceptions of Breast Cancer Survivors Impact of Treatment within Different Healthcare Systems Savitri Singh-Carlson, Research Associate, BC Cancer Agency	**Improving Chronic Kidney Disease Care in Ontario Through Patient-Based Funding** Ophelia Michaelides, Policy Research Analyst, Ontario Renal Network, Cancer Care Ontario
Cost-Effectiveness of EML4-ALK Fusion Testing in Combination with Crizotinib Treatment for Patients with Advanced Non-Small Cell Lung Cancer Jaclyn Beca, Research Manager, Keenan Research Centre, Li Ka Shing Knowledge Institute, St. Michael's Hospital, Canadian Centre for Applied Research in Cancer Control	**Improving Understanding and Utilization of Screening Mammography in a Northern British Columbia Aboriginal Community** Chelsea Anchikoski, University of British Columbia Family Medicine Residency Program
Developing a Framework for Integrating Primary Care and the Cancer System Jacqueline Liberty, Research Associate, Cancer Care Ontario	**Income Inequalities and Cancer Transitions Amongst Adults 50 Years of Age And Older** Margaret Penning, PhD, Department of Sociology, University of Victoria
Developing a New Paradigm of Cancer Control for Adolescents and Young Adults (AYA): A Framework for Action from the Canadian Task Force on AYA Cancer Paul Rogers, Clinical Professor, BC Children's Hospital and University of British Columbia	**Incorporating Multi-Criteria Decision Analysis into Patients' Decision Aids** Nick Bansback, Assistant Professor, School of Population and Public Health, University of British Columbia
Development of a Knowledge Translation Plan for Childhood, Adolescent, and Young Adult Cancer Survivor Care and Support in British Columbia Shannon Vogels, Methodologist, BC Cancer Agency	**Inequalities in Cancer Mortality Among Women: Socio-Demographic Comparisons in Chile** Silvia Bermedo-Carrasco, PhD Candidate, University of Saskatchewan
Diagnostic Assessment Units' Impact on Diagnostic Delay in Breast Cancer: A Population-Based Study in Ontario, Canada Li Jiang, MSc Student, Queen's University	**Intensity of Cancer Care in the Final Month of Life: A Retrospective Review of Cancer Decedents in the Calgary Health Service Region from 2003 to 2010** Petra Grendarova, MD, Tom Baker Cancer Centre, University of Calgary
Disease, Patient and Healthcare System Level Predictors of Accumulated Inpatient Days and Home Care use for Metastatic Gastric Cancer Patients Alyson Mahar, PhD Candidate, Queen's University	**Lay Navigation for People Newly Diagnosed with Lung Cancer: A Pilot Study** Helena Daudt, Clinical Research Manager, BC Cancer Agency
Does Predictive Genetic Information Motivate Behaviour Change? A Systematic Literature Review to Evaluate Personalized Medicine in Cancer Prevention Joanne Kim, PhD Candidate, Institute of Health Policy, Management and Evaluation, University of Toronto, Canadian Centre for Applied Research in Cancer Control	**Making the Link From Diagnosis to Work-Relatedness: Assessing Patients' Occupational Asbestos Exposure** Kris Moore, Research Associate, Occupational Cancer Research Centre
Economic Consequences Arising from Early Screening and Treatment of Distress in Cancer Patients Konrad Fassbender, Assistant Professor, University of Alberta and Covenant Health	**Mapping of Breast Cancer Care Paths in British Columbia for a Breast Cancer Microsimulation Model** Chelsea Vandenberg, Research Student, BC Cancer Agency

Modelling the Economic Impacts of New Genomic Tests for Treatment Stratification in Acute Myeloid Leukemia Sonya Cressman, Health Economist, The Canadian Centre for Applied Research in Cancer Control	**The Economic Benefits of Risk Factor Reduction in British Columbia: Tobacco Smoking, Physical Inactivity and Excess Weight** Hans Krueger, President, H. Krueger & Associates Inc.
Never Too Early: Symptom Screening Among Patients Being Assessed for Cancer Julie Gilbert, Manager, Research and Evaluation, Cancer Care Ontario	**The Effects of Regionalization of Thoracic Surgery in Ontario** Anna Bendzsak, Graduate Student, Thoracic Surgery Resident, University of Toronto
Oncology Recommendations in Canada: What can we Learn? Jim Favaro, Senior Manager, Corporate Accounts and Government Affairs, Amgen Canada Inc	**The Evaluation and Use of Economic Evidence to Inform Cancer Drug Reimbursement Decisions in Canada** Jaclyn Beca, Research Manager, Keenan Research Centre, Li Ka Shing Knowledge Institute, St. Michael's Hospital, Canadian Centre for Applied Research in Cancer Control
Overcoming Obstacles in Accessing Unfunded Oral Chemotherapy: Physician Experience and Challenges Dolly Han, MSc Student, University of Toronto	**The Influence of Socio-Economic Factors and Healthcare Experiences on Breast Cancer Screening Practices Among Arab Women in Qatar** Sofia Chaudhry, Research Project Manager, University of Calgary - Qatar
Patient-Based Funding Models for Cancer Screenings: A Scoping Review Geetha Sanmugalingham, Reimbursement Associate, Cancer Care Ontario	**The Resources Costs of PSA-Based Screening for Prostate Cancer in the Quebec Health Care System : Preliminary Results** Jean Rousseau, Chef d'unité, Institut national de santé publique du Québéc
Patients' Perceptions of Wait Times Causes and Their Strategies to Overcome Them Maria Mathews, Professor, Memorial University	**The Respective Influences of Personal Factors, Healthcare System Organization and Cancer Site in Explaining Time Elapsed Prior to Cancer Diagnosis** Astrid Brousselle, Associate Professor, Université de Sherbrooke
Private Well Water Arsenic Exposure and Risk Perceptions in Nova Scotia Laura Nauta, GIS Analyst, MSc Student, Dalhousie University	**The RNA Disruption Assay has the Potential to be a Cost-Effective Healthcare Technology in Detecting Non-Responders to Breast Cancer Chemotherapy** Gino Ariano, Rna Diagnostics Inc.
Public Drug Funding of Cancer Medications- How Does the Committee to Evaluate Drugs (CED) Make Decisions in Ontario? Alyson Mahar, PhD Candidate, Queen's University	**The Wait Time Creep: Changes in the Surgical Wait Time for Women with Uterine Cancer in Ontario, Canada 2000-2009** Hsien Seow, Cancer Care Ontario, Research Chair in Health, McMaster University
Public Involvement in Priority-Setting Decisions in Cancer Control: Results from a pan-Canadian Survey of Decision Makers Colene Bentley, Health Services Researcher, Canadian Centre for Applied Research in Cancer Control, BC Cancer Agency	**Treatment of Elderly Small Cell Lung Cancer Patients: Chemotherapy Tolerance and Survival** Stacey Fisher, MSc Student, School of Public Health, University of Alberta
Rate of Over-Diagnosis of Breast Cancer After Universal Screening in Ontario, Canada Bin Xie, Assistant Professor, University of Western Ontario	**Trends in Mortality due to the Top Five Causes of Cancer Among Women in Chile** Silvia Bermedo-Carrasco, University of Saskatchewan
Relative Survival and Care of Colorectal Cancer Patients Diagnosed in Quebec Between 1998 and 2003 Jean Rousseau, Chef d'unite, Institut national de santé publique du Québec	**Use of Single Fraction Palliative Radiotherapy for Bone Metastases: Population - Based Practice Patterns over a Five-Year Period** Robert Olson, Radiation Oncologist, BC Cancer Agency
Research in Supportive Cancer Care for Culturally Diverse Populations: Issues in Conceptualization and Measurement Joyce Lee, PhD Candidate, University of British Columbia	**Variation in Lung Cancer Practice Guidelines Adherence: Appropriate Quality of Care or Cause for Concern?** Melissa Brouwers, Associate Professor, Department of Oncology, McMaster University
Supporting Advance Care Planning for Patients through Oncology Professional Education Angela Bedard, Provincial Survivorship Program Facilitator, BC Cancer Agency	**Variation in Treatment and Survival Patterns of Breast Cancer Patients in Alberta, Canada, 2002-2010: Opportunities for Quality Improvement** Marcy Winget, Director, Innovation and Decision Support, Alberta Health Services
Surgeon Caseload and its Association With Rate of Breast Conserving Surgery in Breast Cancer Patients in Alberta, Canada Stacey Fisher, MSc Student, School of Public Health, University of Alberta	**Variation in Utilization of Adjuvant Chemotherapy in Early - Stage Breast Cancer: Data from the Cancer Care Ontario New Drug Funding Program (NDFP)** Andrea Eisen, Medical Oncologist, Odette Cancer Centre, Sunnybrook Health Sciences Centre
Systematic Collection of Ethnicity Data Across Multiple Disease Sites at Princess Margaret Cancer Centre (PMCC) Oleksandr Halytskyy, Research Assistant, Princess Margaret Cancer Centre	**What Factors Influence Cancer Patients' Ratings of Information Transfer Between Specialty Care and Primary Care?** Danièle Roberge, Professor, Université de Sherbrooke

Morning Concurrent Sessions
10:30AM – 12:00PM

The Current State of Cancer Care in Canada and Future Challenges

This session will examine the current state of cancer care in Canada and future challenges from different lenses – cancer control, research, costs and health policy. In particular, we will discuss the cancer control system in Canada, funding for Canadian cancer research, costs with cancer care in British Columbia and Ontario and cancer care funding in Canada.

REPORTING ON THE CANCER CONTROL SYSTEM: LESSONS LEARNED AND GAPS IDENTIFIED
Presented by: Dr. Heather Bryant, Vice President Cancer Control, Canadian Partnership Against Cancer

This presentation will discuss the System Performance Initiative, which involves the collaboration of provincial cancer agencies and relevant federal agencies working with the Canadian Partnership Against Cancer to provide a window into the workings of the cancer control system in Canada. The presentation will discuss the conceptualization of the report, and give examples of lessons learned in its development and in the knowledge transfer of the results.

TRENDS IN CANCER RESEARCH FUNDING IN CANADA
Presented by: Dr. Caroyln Gotay, PhD, Professor and Canadian Cancer Society Chair in Cancer Primary Prevention, University of British Columbia

This talk will draw upon recent data compiled by the Canadian Cancer Research Alliance on funding for Canadian cancer research, showing funding by kind of research, source of funding, cancer site, and geography. Recent high impact Canadian research contributions to cancer control will be cited. Gaps and opportunities will be identified.

COMPARING THE COSTS OF CANCER CARE IN BRITISH COLUMBIA (BC) AND ONTARIO: A PHASE-BASED APPROACH
Presented by: Reka Pataky, BSc, MSc Data Linkage Coordinator, Canadian Centre for Applied Research in Cancer Control, BC Cancer Agency

With the costs of cancer care rising, understanding resource use patterns across different health services and over the course of the disease is crucial. The objective of this study is to calculate the costs of cancer care in BC and Ontario, using data from across the continuum of health services.From the BC and Ontario Cancer Registries, we identified a population-based cohort of adult cancer cases in each province for the 21 most common cancer sites. In BC, data from the BC Cancer Agency, BC Ministry of Health, and BC Vital Statistics Agency were accessed through Population Data BC. In Ontario, data from Cancer Care Ontario and the Ontario Ministry of Health and Long-Term Care were analyzed at the Institute for Clinical Evaluative Studies. For each individual case, costs were allocated to one of 4 phases: pre-diagnosis, initial care, continuing care, and terminal care. Costs were highest in the initial and terminal phases, with the majority of those costs arising from hospitalization. Chemotherapy and radiotherapy costs varied widely by cancer site across all phases of care.Initial treatment costs were highest for brain, esophageal, gastric and pancreatic cancer in both BC and Ontario. Similar cost patterns were observed in both provinces; however, initial and continuing care costs were higher in BC, while terminal phase costs were higher in Ontario. As much as possible, comparable data were used in both provinces, but differences in costing methods due to structural differences in service delivery and data collection in the provinces may account for some of the difference in cost.With this study, we are advancing the understanding of cancer cost patterns by using population-based longitudinal data and robust costing methodology, to evaluate costs across health services and over time. Comparing cost estimates across provinces presents some challenges, but is required to better understand variation in cost.

Co-Authors: Claire de Oliveira, Postdoctoral Research Associate, University Health Network; Karen Bremner, Research Associate, University Health Network; Dr. Stuart Peacock, PhD, Co-Director, Canadian Centre for Applied Research in Cancer Control (ARCC), Distinguished Scientist, Cancer Control Research, British Columbia Cancer Agency, Associate Professor, School of Population and Public Health, University of British Columbia; Murray Krahn, Director, Toronto Health Economics and Technology Assessment Collaborative, University of Toronto

HEALTH POLICY
Presented by: Dr. Craig Earle, Director, Health Services Research Program, Cancer Care Ontario and the Ontario Institute for Cancer Research

Dr. Earle will review why cancer care is less expensive in Canada than in the U.S., but more expensive than in the rest of the world, and discuss some of the policy tradeoffs that would be necessary to address these differences.

Health Technology Assessment

IMPROVING THE QUALITY OF ABSTRACTS FOR ECONOMIC ANALYSES IN ONCOLOGY
Presented by: Dr. Maria Ho, MD, Medical Oncologist, Cross Cancer Institute

Our objectives were to identify items considered to be essential in abstracts of economic analyses, to evaluate the quality of abstracts submitted to the American Society of Clinical Oncology (ASCO), the American Society of Hematology (ASH), and the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) meetings, and to propose guidelines for future abstract reporting at conferences. Health economic experts were surveyed and asked to rate each of 24 possible abstract elements on a 5-point Likert scale. A scoring system for abstract quality was devised based on elements with an average expert rating of 3.5 or greater. Abstracts for economic analyses from ASCO, ASH, and ISPOR meetings were reviewed and assigned a quality score. Of 99 experts, 50 (51%) responded to the survey (average age: 53 years; 78% men; 54% from the United States, 28% from Europe, 18% from Canada). In total, 216 abstracts were reviewed: ASCO, 53%; ASH, 14%; and ISPOR, 33%. The median quality score was 75, but notable deficiencies were observed. Cost perspective was reported in only 61% of abstracts, and a time horizon was described in only 47%. Abstracts from recent years demonstrated better quality scores. We also observed disparities in quality scores for various cancer sites (p = 0.005).The quality of conference abstracts for economic analyses in oncology has room for improvement. Abstracts may be enhanced using the guidelines derived from our survey of experts.

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ACTIVE SURVEILLANCE FOR LOW-RISK PROSTATE CANCER COMPARED WITH IMMEDIATE TREATMENT: A CANADIAN ECONOMIC EVALUATION
Presented by: Dr. Alice Dragomir, Assistant Professor, McGill University, The Research Institute of the McGill University Health Center

Active surveillance is an accepted management strategy for patients with low-risk prostate cancer (PCa). The costs associated with active surveillance (AS) strategy compared with immediate treatment (IT) were recently evaluated in the US. The corresponding estimates in the Canadian context are unknown. The main objective of this study was to evaluate the costs associated with AS and treatment in the Canadian context over a 6- and 11-year period following the diagnosis of PCa. The secondary objective was to compare the US and Canadian cost estimates. A Markov model with Monte-Carlo microsimulations was developed to estimate the Canadian cost of PCa under the IT and AS strategies. The patients on AS were assumed to receive delayed treatment at a rate of 7% per year for the first 5-year period of follow-up, and of 4.5% for the following 5-year period. All costs were assigned in the Canadian dollars ($) and reflect Quebec's health system (RAMQ). The costs of drugs, costs of medical procedures related to treatments and medical visit costs were based on RAMQ's lists. Other Canadian published sources were used to complete cost calculation.With AS, the average cost of PCa management over the 6-year period was estimated at $6,394 (95% Confidence Interval: $6,323 to $6,474) per patient. The average cost corresponding to the IT strategy was estimated at $11,765 per patient. In addition, 30% of patients on AS will have received a delayed treatment and have incurred higher costs estimated at $12,210 per patient.Our study demonstrates that AS could offer important economic benefits to the Canadian health system. We estimated that each annual cohort of incident prostate cancer managed with AS strategy allows a cost savings of $69 million over a 6-year period. Eighty-four percent of these benefits could be maintained after 11 years. The relative reduction of PCa cost under AS was approximately 36% in the US compared to 46% in Canada.

Co-Authors: Fabio Cury, McGill University Health Center; Armen Aprikian, McGill University

NON-MEDICAL COSTS FOR PATIENTS RECEIVING ORAL CANCER SURGERY: INTERIM ANALYSIS FROM THE COOLS TRIAL
Presented by: Ian Cromwell, MSc, Health Economist, Canadian Centre for Applied Research in Cancer Control, BC Cancer Agency

To prospectively estimate the non-medical (out-of-pocket and time away from work) costs borne by people undergoing treatment for oral cancer. Participants in the pan-Canadian Optically-Guided Oral Lesions Trial (COOLS) were asked about any 'indirect costs' they experienced as a part of their treatment using a survey or instrument designed for the trial. Measures were repeated at baseline (before surgery), then three and twelve months after surgery. Interim results for selected measures of these observation periods were analyzed.The results of 209 observations (150 baseline, 145 three-month, 66 twelve-month) were available for analysis. Participants were generally able to return to work following surgery, albeit with a slight reduction in self-reported ability to work. Very few patients needed to take time off work or changed their working status (i.e., going on medical leave, retiring) following their surgery (n = 4; 10 weeks; range = 5 - 146 days). A majority of trial participants reported out-of-pocket spending at baseline (n = 128; $64.55; 95% CI $40 - $88), three months (n = 108; $82.44; 95% CI $56 - $109), and twelve months after surgery (n = 51; $65.01; 95% CI $13 - $117). Most out-of-pocket expenses were for non-reimbursed travel costs. Oral cancer, when treated at an early stage, was not generally a barrier to returning to work in our participant sample. Moderate out-of-pocket expenditure was observed in a large number of patients, mostly related to traveling. Programs to defray the cost of travel may be helpful in many cases.

Co-Authors: Sonya Cressman, Health Economist, Canadian Centre for Applied Research in Cancer Control, BC Cancer Agency; Catherine Poh, Clinician Scientist, BC Cancer Agency; Scott Durham, Otolaryngologist, Head and Neck Surgeon, BC Cancer Agency; Dr. Stuart Peacock, PhD, Co-Director, Canadian Centre for Applied Research in Cancer Control (ARCC), Distinguished Scientist, Cancer Control Research, British Columbia Cancer Agency, Associate Professor, School of Population and Public Health, University of British Columbia

ASSIGNING CAUSALITY TO ANTI-CANCER AGENTS: DECISION MAKING IN EARLY PHASE ONCOLOGY CLINICAL TRIALS
Presented by: Jacqueline Torti, PhD Candidate, School of Public Health, University of Alberta

Causality assessment takes place in early phase oncology clinical trials, whereby a physician determines whether an adverse event is attributable to the agent under development or due to an external cause. The goal of this research was to come to a deep understanding of this decision-making process in order to inform policy around decision making in oncology clinical trials. This is the first qualitative study to explore causality assessment in early phase oncology clinical trials. Thirty-two interviews were conducted and analyzed. Participants included experienced medical oncologists, hematologists and clinical trials coordinators from academic cancer centres across Canada. A phenomenological research design was utilized. The process of assigning causality is extremely subjective and complex. This complexity is exacerbated by a lack of formal training on how to assign causality, communication issues between physicians and trial sponsors as well as between physicians and patients, along with high stakes for misattribution, including risks to patient safety and impeding the drug development process, all while feeling pressured by patients to attribute causality in a certain way. There are many problem areas for physicians when attributing causality. Although clinicians used a variety of methods to cope with these problem areas there is room for improving this decision-making process. Participants felt that developing a standardized causality assessment tool along with formal training would help improve causality attribution.

Co-Authors: Jarold Cosby, Department of Kinesiology, Brock University; Andrew Arnold Department of Oncology, McMaster University, Juravinski Cancer Centre

COST EFFECTIVENESS OF CERVICAL CANCER SCREENING STRATEGIES AFTER AVAILABILITY OF HPV VACCINE
Presented by: Dr. Bin Xie, PhD, Assistant Professor, Department of Epidemiology and Biostatistics, University of Western Ontario

Cost effectiveness of cervical cancer screening strategies and HPV vaccination have been evaluated separately in various contexts. However, no published study had evaluated the cost effectiveness of strategies that integrate both population-level screening and HPV vaccination. This paper aims to provide such an analysis using data from Ontario. Markov models were developed to evaluate various strategies that integrate cervical cancer screening and HPV vaccination. Data from the cervical cancer screening and HPV vaccination programs in Ontario, supplemented by data from the literature, were used to populate the models. Cost data were obtained from a large hospital in Ontario. Compared to the alternative strategy of a pap-test every five years for women between 25 and 70 years combined with HPV vaccine for girls at grade 8, current practices in Ontario (Pap-test every three years for women between 21 and 70 years and HPV vaccination for girls in grade 8) was significantly more costly with slightly better effectiveness (ICER: $1,256,000 per QALY gained). All other strategies were either dominated by, or had unacceptably high, ICERs compared to the alternative strategy. With a universal HPV vaccination program, cervical cancer screening can start at a later age with less frequency with significant cost savings and little negative impact on outcomes.

Health Services Research 1

UNRINGING THE BELL: IS CANCER SCREENING A VICTIM OF ITS OWN SUCCESS?
Presented by: Dr. S. Michelle Driedger, PhD, Associate Professor, Department of Community Health Sciences, University of Manitoba

The belief that early detection is the best protection against cancer underlies population-based screening programs. Emerging research now suggests the harms associated with early detection may sometimes outweigh the benefits. This study explored how Canadian women and men make decisions about, respectively, breast and prostate cancer testing/screening. A total of 93 people (46 women, 47 men) attended focus groups about breast cancer screening (n = 5) and prostate cancer screening (n = 5) in Toronto and Winnipeg in May and June of 2012. To assess age differences, eight focus groups were restricted to 'younger' or 'older' sub-groups of each cohort. The discussions included questions about breast/prostate cancer, tests for breast/prostate cancer, population-based screening, how participants made decisions about their health, and cancer screening policy. Audio-recordings were transcribed and imported into NVivo qualitative data analysis software. Researchers coded the transcripts and performed analytical queries to identify key themes.The participants expressed many uncertainties about breast/prostate cancer (e.g., causes, risks, disease course, treatment options, survival rates) and tests for those cancers (e.g., accuracy, screening intervals, risks/harms). Most participants did not have a good understanding of population-based screening. After being presented with research findings about the potential harms of screening in women under 50, most women in the 'older' groups (45-59) felt mammogram screening should begin at age 40, while most 'younger' participants (35-49 years) felt screening should begin at 50, primarily because of concerns about false-positives, unnecessary biopsies, etc. When presented with similar information about the potential harms of the PSA test for prostate cancer, many men had more cautious opinions about the test itself and the value of using it for population-based screening. Health policymakers have to deal with various sources of uncertainty when making decisions about screening programs, drugs and other treatments, technologies, prevention initiatives, etc. This research is a component of a broad mixed-methods study examining uncertainty in decision making about cancer control and other health policy in Canada.

Co-Authors: Melissa Brouwers, Associate Professor, McMaster University; Gary Annable, Study Coordinator, University of Manitoba; Christine Mazur, University of Manitoba; Ryan Maier, University of Manitoba

MULTI-LEVEL FACTORS INFLUENCE THE IMPLEMENTATION AND USE OF COMPLEX INNOVATIONS - SYNOPTIC REPORTING TOOLS - IN CANCER CARE

Presented by: Robin Urquhart, PhD Candidate, Knowledge Broker, Cancer Outcomes Research Program, Dalhousie University, Capital Health

The implementation of innovations (i.e., new tools and practices) in healthcare organizations remains a significant challenge. The objective of this study was to examine the key interpersonal-, organizational-, and system-level factors that influenced the implementation and use of complex innovations - synoptic reporting tools - in three specific cases of cancer care. Using case study methodology, this study examined three cases in Nova Scotia, Canada, wherein synoptic reporting tools were implemented within clinical departments/programs. Three theoretical perspectives guided the design, analysis, and interpretation of the study. Data were collected through semi-structured interviews with key informants across four units of analysis (individual user, implementation team, organization, and larger healthcare system), document analysis, nonparticipant observation, and examination/use of the synoptic reporting tools. Analysis involved production of case histories, an in-depth analysis of each case, and a cross-case analysis.Numerous factors, which existed at multiple levels of the system, were important to the implementation and use of synoptic reporting tools. The analysis revealed five common factors that were particularly influential to implementation and use across the three cases: stakeholder involvement, managing the change process, administrative and managerial support, the presence of clinical champions, and attributes of the innovations themselves (e.g., complexity, compatibility with interests and values). Key factors distinct to one or two of the cases were: implementation approach, project management, resources, culture, leadership, monitoring and feedback mechanisms, and healthcare system components (e.g., care delivery structures, infrastructure, and socio-historical context). The analyses showed that several contextual factors, including the timing of implementation and technical requirements of the tools, contributed to the differences across cases.The findings contribute to our understanding of the multi-level factors that influence the implementation and use of innovations in healthcare organizations. This includes several important issues under-reported in the literature: interpersonal aspects of implementation, including stakeholder involvement; managerial support, specifically the role of middle managers; and healthcare system components.

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

ADVANCING QUALITY IN A CANCER CONTROL AND SYSTEM PERFORMANCE IN A CONTEXT OF UNCERTAINTY: AN INTEGRATED REVIEW OF THE LITERATURE

Presented by: Dr. Melissa Brouwers, PhD, Associate Professor, Department of Oncology, McMaster University

Policy decision-making in cancer control is often faced with complex uncertainty. To understand the role of uncertainty in the health policy context, an integrated review of the literature was undertaken to identify i) sources of uncertainty, ii) impact of those sources, and iii) strategies to measure, navigate or mitigate uncertainty. Scopus and Ovid Medline databases (1995 - 2011) were searched for articles relating to health policy and uncertainty. A complementary search of grey literature, scanning of reference lists, and targeted book review were also undertaken. To meet inclusion, articles were to be in English, address the concept of uncertainty in a health policy context (institution or system), and address one of the three objectives. Both empirical and non-empirical research was eligible and although cancer was the primary clinical focus, any clinical scenario was eligible. Data for each objective was first analyzed and then integrated to form a working framework of uncertainty. A total of 292 articles met inclusion. Of those, 260 were identified through the database search and 32 through the complementary searches. Three main sources of uncertainty were identified regarding (i) the scientific method (evidence, outcomes, methods, models, parameters, generalizability); (ii) existing structure (integration into existing health care structures and/or technologies); and (iii) variability (inherent variability in systems, as well as subjective variability, such as political objectives and differing stakeholder values). Impacts of uncertainty included delayed action, avoidance, suboptimal decisions and non-recommendation. More than 30 formal strategies to measure, navigate or mitigate uncertainty were identified. These ranged from a variety of statistical methodologies to formal methods used by various jurisdictions in policy contexts, to broader principles such as the Precautionary Principle. A synthesized framework of uncertainty was developed through a comprehensive search of relevant literature and integration of existing frameworks. A number of formal strategies to address uncertainty in the policy process were identified. These findings will be taken forward to develop a tool to assist health policy-makers to navigate uncertainty.

Co-Authors: S. Michelle Driedger, University of Manitoba; Julie Makarski, McMaster University; Gary Annable, University of Manitoba; Samantha Craigie, McMaster University

EVALUATING HUMAN PAPILLOMAVIRUS (HPV) VACCINATION STRATEGIES IN CANADA USING THE CANCER RISK MANAGEMENT HPV MICROSIMULATION MODEL (CRM-HPVMM)

Presented by: William Flanagan, Chief of Microsimulation, Statistics Canada

To introduce the methodology and functionality of CRM-HPVMM, a Canadian web-based decision-support modeling platform that projects the population-based impact of HPV vaccination strategies on HPV infections. The presentation provides an overview of the modeling approach and a few sample vaccination scenarios that project and compare HPV prevalence over time. CRM-HPVMM is a continuous-time, interacting-agent, Monte-Carlo microsimulation model that simulates sexual behaviour and HPV transmission. Six HPV serotypes (6, 11, 16, 18, other non-carcinogenic, other carcinogenic) and two vaccination types (bivalent, quadrivalent) were modeled. Model structure is largely based on Van de Velde et al (2010). Input parameters include demography, sexual behaviour (sexual debut, partnership formation/separation) and biology (virus transmission, clearance, natural immunity). The simulation was run with 250,000 individuals with 100-year burn-in to obtain equilibrium and then projected for 50 years. Results were scaled to reflect the Canadian population aged 10+ in 2011. Multiple parameter sets were estimated through Latin Hypercube Sampling to incorporate parameter uncertainty in model results. Parameter sets were selected by comparing to behavioural and biological data from Canadian epidemiological literature and population health surveys. Parameter priors and targets were mainly informed by Van de Velde et al, except for HPV prevalence targets, which come principally from the FOCAL trial. Various vaccination scenario comparisons will be presented by altering three parameters: vaccine program design (target age, sex, program years, participation rate, vaccine type), vaccine duration of protection (e.g., lifetime versus declining protection), and vaccine efficacy (i.e., per-act transmission protection probability). These parameters enable users to explore the impact of vaccination scenarios on HPV prevalence such as targeting various age groups, including boys, booster and catch-up programs. CRM-HPVMM is a powerful, accessible and user-friendly tool. A wide variety of vaccination scenario projections can be compared by altering only a few parameters. The platform allows researchers and policy makers to run a complex model in a simple and flexible manner via the internet.

Co-Authors: Anthony Miller, Professor Emeritus, University of Toronto; Keiko Asakawa, Researcher, Statistics Canada; Steve Gribble, Researcher, Statistics Canada; Andy Coldman, Vice President, BC Cancer Agency; Meg McLachlin, Medical Director, London Health Sciences Centre; Laurie Elit, Gynecologic Oncologist, Juravinski Cancer Centre; William Evans, President, Juravinski Hospital and Cancer Centre; Fei Fei Liu, Program Manager, Canadian Partnership Against Cancer; Claude Nadeau, Senior Researcher, Statistics Canada; Michael Wolfson, Canada Research Chair in Population Health Modelling/Populomics, University of Ottawa

SCREENING, WAIT TIMES AND WAIT TIME-RELATED SATISFACTION

Presented by: Dr. Maria Mathews, PhD, Professor, Health Policy and Health Care Delivery, Memorial University

Routine cancer screening is believed to find cancer at earlier stages but does it decrease wait times and improve wait time-related satisfaction? We examined differences in wait times and interval specific satisfaction among screening program participants and non-participants. We considered the interval from first visit with a healthcare provider for cancer symptoms to diagnosis. We surveyed patients with breast, colorectal and prostate cancer who presented at clinics across Newfoundland and Labrador to gather information about dates in the care-seeking process, satisfaction with wait times, clinical and screening history, and socio-demographic characteristics. For each cancer type, we calculated the median wait time for first visit with a healthcare provider to diagnosis. Satisfaction was measured on a 5-point scale and recoded as dissatisfied (1-2) and satisfied (3-5). We compared the wait time and satisfaction of patients who participated in any routine cancer screening programs (Y/N) and whose symptoms had been screening-detected versus self-detected. The median wait times and satisfaction were: breast: 47.5 days, 67.5% satisfied; colorectal: 53.0 days, 63.7% satisfied; prostate: 104.5 days 68.5% satisfied. Participation in routine cancer screening made no difference in the wait times. For colorectal and prostate cancer patients, compared to those with long wait times (3.1%, 61.0%) a larger proportion of patients with short wait times had screening detected symptoms (29.4%, 82.9%). In terms of satisfaction with wait time compared to unsatisfied patients (97.4%), a smaller proportion of satisfied breast patients participated in regular screening (84.0%). For colorectal cancer patients, compared to satisfied patients (22.7%), a smaller proportion of unsatisfied patients (4.0%) had been screening-detected symptoms. The relationship between screening participation, mode of detection and wait time and wait time- related satisfaction varies by cancer type. These findings may be due to the nature of symptoms as well as patients' expectations of screening programs. More research is needed to test these findings with larger samples.

Co-Authors: Dana Ryan, Memorial University; Kathy Fowler, Eastern Health

Concurrent Session Abstracts
ARCC Conference 2013

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

Personalized Medicine Panel

Personalized medicine – the use of individuals' biologic or genetic characteristics to better manage disease or predisposition toward disease – has received much attention in cancer control. While personalized medicine represents a significant opportunity, the inappropriate implementation of genetic information in care will increase cost with no improvement in health status. This session will explore several themes related to the personal and clinical utility of personalized medicine in cancer control.

DOES PREDICTIVE GENETIC INFORMATION MOTIVATE BEHAVIOUR CHANGE? A THEORETICAL AND EMPIRICAL EVALUATION OF PERSONALIZED MEDICINE IN CANCER PREVENTION

Presented by: Joanne Kim, PhD Candidate, Institute of Health Policy, Management and Evaluation, University of Toronto, Canadian Centre for Applied Research in Cancer Control

Personalized medicine promises to revolutionize healthcare. Using individual molecular profiles to identify at-risk populations for disease prevention is expected to improve population health while saving healthcare costs. This study assessed the impact of predictive genetic testing for colorectal cancer, which has already been implemented in many Canadian primary healthcare settings, on various risk-reducing health behaviours as a way of evaluating the assumed promise of personalized medicine. An observational, retrospective cohort study was conducted using an economic theory of health investments to generate testable hypotheses and specify analytical models. Data were obtained from Australian and Canadian Colon Cancer Registries that conducted genetic testing for colorectal cancer-causing mutations and collected health behaviour information on colorectal cancer cases and their kin. From these Registries, users and non-users of predictive genetic testing for colorectal cancer were identified as those who obtained their genetic testing results and who did not, respectively, with no personal history of colorectal cancer. Risk-reducing health behaviours examined included colonoscopy screening, supplement intake, and smoking habits. The effects of genetic testing results on the various health behaviours of users were compared to those of non-users using regression. Users of predictive genetic testing who tested positive for mutations and were an elevated risk for colorectal cancer were likely to increase colonoscopy screening. Users who tested negative for mutations and were at population-level risk for colorectal cancer were unlikely to substantively decrease colonoscopy screening. The effects of predictive genetic information on supplement intake or smoking habits were minimal. Predictive genetic information and various demographic/socioeconomic factors affected health behaviours as hypothesized by the economic theory. Predictive genetic information appears to motivate change in select health behaviours, possibly reflecting public reliance and provider emphasis on healthcare services rather than lifestyles for disease prevention. This personalized intervention, as is, might improve population health but not save healthcare costs. The immediate implication of the study findings is in identifying potential areas of improvement in clinical counseling and education to minimize unnecessary screening and encourage uptake of other health behaviours. More broadly, this study offers a framework for and an example of evaluating the promise of personalized medicine.

ACCESS TO PERSONALIZED MEDICINE: THE CASE OF GENE EXPRESSION PROFILING IN BREAST CANCER

Presented by: Dr. Yvonne Bombard, PhD, Postdoctoral Fellow, Yale University and Memorial Sloan-Kettering Cancer Center

Genomic information is increasingly used to personalize healthcare. Gene-expression profiling tests (GEP) that estimate recurrence risk in breast cancer were recently funded through the public health system in Ontario. We describe patients' and oncologists' experiences of accessing GEP tests to inform health service delivery for GEP in Canada. We used a qualitative design, comprising individual interviews with medical oncologists (n=10) plus focus groups and individual interviews with early-stage breast cancer patients from Ontario, Canada. Patients surgically treated for breast cancer, who underwent GEP testing of their tumours, were recruited through oncology clinics from two academic hospitals in the Greater Toronto Area. Medical oncologists were recruited through participating oncology clinics, professional advertisements and referrals from the research team. Qualitative data were analyzed using interpretative qualitative methods, including content analysis, qualitative description and constant comparison techniques. Structures governing access to GEP have given rise to a number of challenges for patients and oncologists. Oncologists are positioned as gatekeepers of GEP, providing access in medically appropriate cases. However, oncologists' perceptions of medical appropriateness can vary widely, leading some patients to perceive inequities in access, impacting negatively on the doctor- patient relationship. Media-driven awareness of GEP challenged gatekeeping as oncologists felt obliged to discuss the test with patients, further complicating ordering decisions and perceived access especially for patients ineligible due to funding criteria. Obtaining government consent for GEP, separate documentation for reimbursement and waiting weeks for results was challenging for patients, leading to increased anxiety and delayed treatment. The collective impact of these factors heightened the GEP's perceived value in patients' treatment decisions. This study provides insights into the factors facilitating and restricting access to GEP, and highlights the roles of the media and organization of services in GEP's perceived value and utilization. Results identify a need for administrative changes and practice guidelines to support streamlined and standardized utilization of the test.

Co-Authors: Linda Rozmovits, Independent Qualitative Researcher; Maureen Trudeau, Sunnybrook Health Sciences Centre and University of Toronto; Natasha Leighl, Princess Margaret Cancer Centre and University of Toronto; Ken Deal, McMaster University

PATIENT PREFERENCES: UNDERSTANDING RISK-BENEFIT TRADE-OFFS OF GENOMIC TESTING IN CHEMOTHERAPY DECISIONS FOR BREAST CANCER PATIENTS

Presented by: Dr. Deborah Marshall, PhD, Associate Professor, University of Calgary

Gene expression profiling (GEP) of tumours informs baseline risk prediction, potentially affecting decisions about adjuvant chemotherapy for women with early breast cancer (BrCa), of whom only 15% will experience a recurrence. We aimed to measure the value of GEP testing information in chemotherapy treatment decisions based on risk-benefit tradeoffs. Limited evidence exists on the clinical utility of GEP in chemotherapy treatment decisions. Based on findings from our qualitative research (focus groups, interviews with patients and medical oncologists), we developed a discrete choice experiment survey (DCE) and administered it via an internet survey to three groups for our pilot: patients with a history of BrCa (n=27); women from the general public (n=55); and medical oncologists across Canada (n=3). The DCE included 12 choice tasks with 5 attributes and 3 scenario profiles considering orthogonality, D-efficiency and level balance. Preferences were analyzed using conditional logit and hierarchical Bayes and evaluated for goodness-of-fit. Most (>80%) respondents know someone who had chemotherapy for cancer. However, few respondents (<10%) know someone who had GEP testing. Across the three groups, the most important attributes in chemotherapy treatment decisions were (in order): GEP test score indicating likely benefit from chemotherapy, doctor's estimate of risk of cancer returning (based on clinical algorithms), likelihood of permanent side effects, trust in cancer treatment doctor, and likelihood of temporary side effects. In a scenario of intermediate risk of cancer returning based on clinical algorithms alone (no GEP score), 12% of respondents chose chemotherapy compared to 89% of respondents with a GEP score of 44 (high likelihood of benefit from chemotherapy). GEP testing is highly valued and strongly influences chemotherapy treatment decisions in all three groups. These findings provide preliminary evidence supporting the clinical utility of GEP in BrCa treatment decisions.

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THE PROGNOSTIC VALUE OF BRAF MUTATION IN COLORECTAL CANCER AND MELANOMA: A SYSTEMATIC REVIEW AND META-ANALYSIS

Presented by: Dr. Gholamreza Safaee Ardekani, MD, PhD Candidate, Department of Dermatology and Skin Sciences and Experimental Medicine, University of British Columbia

Mutation of BRAF is a predominant event in cancers with poor prognosis, such as melanoma and colorectal cancer. BRAF mutation leads to a constitutive activation of mitogen activated protein kinase pathway, which is essential for cell proliferation and tumor progression. Despite tremendous efforts made to target BRAF for cancer treatment, the correlation between BRAF mutation and patient survival is still a matter of controversy. Clinical studies on the correlation between BRAF mutation and patient survival were retrieved from MEDLINE and EMBASE databases between June 2002 and December 2011. One hundred twenty relevant full-text studies were categorized based on study design and cancer type. Publication bias was evaluated for each category and pooled hazard ratio (HR) with 95% confidence interval (CI) was calculated using random or fixed effect meta-analysis based on the percentage of heterogeneity. Twenty six studies on colorectal cancer (11,773 patients) and four studies on melanoma (674 patients) were included in our final meta-analysis. The average prevalence of BRAF mutation was 9.6% in colorectal cancer and 47.8% in melanoma reports. We found that BRAF mutation increases the risk of mortality in colorectal cancer patients by more than two times; HR=2.25 (95% CI, 1.82-2.83). In addition, we revealed that BRAF mutation also increases the risk of mortality in melanoma patients by 1.7 times (95% CI, 1.37-2.12).We revealed that BRAF mutation is an absolute risk factor for patient survival in colorectal cancer and melanoma.

Co-Authors: Seyed Mehdi Jafarnejad, University of British Columbia; Larry Tan, University of British Columbia; Ardavan Saeedi, University of British Columbia; Gang Li, University of British Columbia

NEXT GENERATION GENOMIC SEQUENCING AND THE DISCLOSURE OF INCIDENTAL FINDINGS

Presented by: Dr. Dean Regier, PhD, Senior Health Economist, Canadian Centre for Applied Research in Cancer Control, BC Cancer Agency

Whole exome sequencing (WXS) will soon be available in routine clinical care. However, much is unknown about the appropriate implementation of WXS. This is particularly true for the extensive incidental information WXS generates. We used a discrete choice experiment (DCE) to evaluate societal preferences surrounding the disclosure of incidental findings. Attributes informing the DCE scenarios were developed through focus groups. A pan-Canadian pilot is being conducted to ensure ease of completion; the main study (April 2013) will include a representative sample of 1200 respondents from each Canadian province and territory. The DCE includes two alternatives (and opt-out) differing on 5 attributes: lifetime risk of developing the incidentally-identified disease; disease treatability; disease severity; carrier status of disease affecting family member; and cost. Mixed logit regression modeling will be used to estimate utility and to investigate preference heterogeneity. Respondents' willingness to pay for scenarios of benefits and risk will be estimated. The focus groups and cognitive interviews suggested that participants could complete the DCE choice tasks after alterations in attribute wording. The qualitative research further revealed respondents will be heterogeneous in their preferences for the return of incidental findings from WXS. The DCE regression modeling will focus on examining individual-level preferences and the degree of heterogeneity that exists in the Canadian population. Although we expect society will, on average, have a higher willingness to pay to receive information on diseases for which they have a lifetime risk of getting (versus receiving no information), we expect individual utility and willingness to pay will be significantly influenced by the severity and treatability of disease. Preferences for incidental findings from WXS are influenced by a complex set of attributes. Given the complexity of the information obtained, preference elicitation using the DCE method may be used to facilitate communication between individuals and genetic counselors by quantifying patients' personal utility for receiving information about incidental findings.

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Health Services Research 2

DOES MORE HOMECARE NURSING LOWER THE RISK OF ED VISITS AT END-OF-LIFE?: A POPULATION-BASED STUDY OF ONTARIO CANCER DECEDENTS

Presented by: Dr. Hsien Seow, PhD, Cancer Care Ontario Research Chair in Health Services Research, Department of Oncology,McMaster University

To investigate whether homecare nursing hours/person-week is associated with having an ED visit in the subsequent week, across each of the last 26 weeks (6 months) of life in a cancer decedent cohort, extending previous research examining only identified end-of-life homecare patients in the last 2 weeks of life.A retrospective cohort study of all Ontario cancer decedents from 2005-2009, linking multiple administrative databases. Decedents were excluded if they never used homecare nursing in the last 6 months. Weeks with 0 nursing hours were excluded from analysis. Using Generalized Estimating Equation for our longitudinal data, we examined whether the more nursing hours/week was associated with lower odds of going to the ED, for each of the last 26 weeks of life. Nursing hours was dichotomous: >0-2 (reference) versus >2 (a.k.a 'more hours'). Our model stratified 'regular' versus 'end-of-life' patients and included an interaction for the last month of life. 56,591 patients were identified in our cohort. 80% were >60 years old and 51% were male. For any person-week, 97% had 1 nursing hour/week, whereas 1% of patients had >7 hours/week. Receiving more nursing hours did not have a significant effect on ED visits from months 6 to 5 before death; but receiving more hours in the last month of life had a 0.74 RR (95% CI: 0.70-0.79) of going to ED. The rate of ED visits doubles (RR 1.97) in the last month. 'End-of-life' patients have a 0.68 RR (95% CI: 0.66-0.72) of going to ED compared to 'regular' patients. The lower RR of ED when receiving more nursing hours/week in the last month persists when examining 'end of life' and 'regular' patients separately. More homecare nursing reduces the risk of going to the ED, but only in the last month of life, consistent in both 'regular' and 'end of life' patients. These results support the importance of homecare nursing at the end of life to reduce ED visits, regardless of end-of-life intent.

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WHO DOESN'T USE HOMECARE AT END-OF-LIFE? PREDICTIVE FACTORS OF NOT RECEIVING IN-HOME FORMAL SUPPORT AMONG CANCER DECEDENTS

Presented by: Dr. Hsien Seow, PhD, Cancer Care Ontario Research Chair in Health Services Research, Department of Oncology, McMaster University

Publicly funded home nursing has been shown to reduce reliance on acute care and improve quality of life for those nearing end-of-life (EOL). Despite the known benefits, many EOL cancer patients never receive homecare. Our objective was to determine predictive factors both to not receiving homecare and to later referral. Administrative data were used to determine the demographic and service use characteristics of all decedents in Ontario, Canada with a cancer confirmed cause of death in 2006. Those eligible to receive homecare (living in home) in the last six months of life were included in the analysis. We used binary and multinomial logistic regression to examine which covariates predict receipt of homecare and time to referral. 22,262 decedents met the eligibly criteria, 25% of whom never received homecare in the last six months of life. Disease site, metastatic disease (OR:0.88, 95% CI:0.81-0.94), prior emergency department use (OR:0.82, 95% CI:0.79-0.85), and prior hospitalization rate (OR:0.78, 95% CI:0.74-0.81) were significant predictors of not receiving homecare (p>0.001). These covariates also predicted later referral to homecare services (p<0.001). Controlling for severity of illness and other factors, individuals with lung (OR:1.14, 95% CI:1.06-1.22) and hematological cancer (OR :1.45, 95% CI: 1.30-1.61), as well as those with fewer prior contacts with acute care, were less likely to use any homecare in their final months. Identifying the characteristics of cancer patients who do not receive any in-home formal support in the last months of life can help to identify strategies for improving access to beneficial EOL homecare services. Possible explanations and implications of our findings are discussed.

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REASONS FOR OPIOID UNDERUSE FOR CANCER PAIN

Presented by: Dr. Craig Earle, MD, MSc, Director, Health Services Research, Ontario Institute for Cancer Research

To evaluate the use and associations with lack of use of opioids for older cancer out-patients reporting pain. The cohort included all cancer patients in Ontario who completed a pain assessment as part of a provincial initiative of systematic symptom screening between January 2007 and March 2009, restricted to age > 65 to allow linkage with the Ontario Drug Benefit database. We looked for an opioid prescription (OP) within 7 days after or 30 days prior to pain scores greater than 4 out of a possible 10 on the Edmonton Symptom Assessment Scale. To explore associations with lack of opioid use, charts of patients reporting pain scores > 4 at 11 cancer centres in 2011 were audited. We found that 45% of the 9826 patients with pain severity scores > 4 did not receive opioid analgesics. In multivariable analysis, factors associated with OP were younger age, male sex, comorbid illness, cancer type and pain assessment at home. A total of 299 charts were audited. Of these, 8% clearly documented that the pain was non-cancer related. An additional 5% indicated that the pain was chronic and 2% indicated that the pain was being managed in the community. It is uncertain if these 7% had cancer-related pain or not. The estimate would then be that 8-15% of the audited cohort with pain scores 4-10 had non-cancer related pain. Only 2 patients had documentation that they declined opioids. Applying the observations above, 786-1474 patients had pain unrelated to cancer. If none of these cases received opioids and they are removed from the denominator, then the proportion of untreated cancer-related pain improves to 35-40%, suggesting pain is still under-treated in a significant proportion of cancer patients.

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THE USE OF LYMPH NODE SURGERY FOR WOMEN WITH INVASIVE BREAST CANCER IN CANADA

Presented by: Jin Huang, Senior Analyst, Canadian Institute for Health Information

Sentinel lymph node biopsy (SLNB) is the recommended lymph node procedure for diagnosing nodal metastases in breast cancer. Axillary lymph node dissection (ALND) is generally used for treatment when nodal metastases are present. This study quantifies the Canadian use and variation of lymph node surgery for invasive breast cancer. Three data sources were used to identify women living in any Canadian province who underwent their first surgery for invasive breast cancer between 2007/08 to 2009/10: Hospital Morbidity Database and National Ambulatory Care Reporting System, Canadian Institute for Health Information; and Alberta Ambulatory Care Reporting System, Alberta Health and Wellness. To estimate the use of ALND in relation to Canadian guidelines, all records over a 1-year period were examined for a diagnosis of nodal metastases (a mandatory coding variable) among women undergoing ALND. We specifically examined the percent of women who underwent ALND in the absence of nodal metastases. Over the study period, 56,777 women underwent surgery for unilateral invasive breast cancer. Most women (86%) with invasive breast cancer underwent either SLNB, ALND, or both during the three-year study period. This rate varied significantly (83-90%) across Canadian provinces [2(9) = 124.28, p<0.0001.]. Overall, 68% of women who underwent lymph node surgery underwent ALND, with or without SLNB. This rate varied significantly by province, ranging from 48% to 87% [2(9) = 1297.49, p<0.0001.]. Among women undergoing ALND, 61% did not have a diagnosis of nodal metastases. This rate varied significantly between provinces (range 49%-73%) [2(9) = 314.23, p<0.0001.]. Most Canadian women with invasive breast cancer undergo lymph node surgery. However, this study suggests a significant number of women in 2007-2009 underwent an ALND in the absence of nodal metastases (i.e. as a diagnostic procedure), which is not consistent with the current standard of care.

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A POPULATION-BASED STUDY ON THE UPTAKE AND UTILIZATION OF STEREOTACTIC RADIO-SURGERY (SRS) FOR BRAIN METASTASES IN NOVA SCOTIA

Presented by: Dr. Gaurav Bahl, MD, Assistant Professor, Radiation Oncologist, BC Cancer Agency

Randomized trials, and a number of recent guidelines, have recommended the use of adjuvant Stereotactic Radio-Surgery (SRS) in addition to whole brain radiotherapy (WBRT) for the treatment of brain metastases (BM) in selected patients. This study investigates the rate of utilization and the benefits of SRS in Nova Scotia (NS).The provincial cancer registry was used to identify all patients with primary cancers of the lung, breast, colon/rectum, kidney, melanoma, or 'unknown-primary', who had received WBRT from June 2006 through July 2010. Chart review was done for all 710 identified patients, at both the cancer centres in the province. In accordance with our institutional policy, the three criteria used to evaluate a patient's suitability for adjuvant SRS included: Karnofsky performance status (KPS) >=70, 1-3 brain metastatic lesions, and extra-cranial disease controlled or actively being treated at the time of WBRT. A total of 283 consecutive patients with these 'good-prognostic' features were identified and included in the analysis. Median age was 61 years; there were 111 men and 172 women. At diagnosis, 142 (50.2%) had a KPS of >€, 176 (62.2%) had a single BM, 66 (23.3%) had 2, and 41 (14.5%) had 3 lesions. WBRT was prescribed to a dose of 20Gy/5 (52%), 30Gy/10 (41%), 25Gy/10 (2.3%), or 37 .5Gy/15 (1.9%). The majority of patients were treated with WBRT alone (n=166), 44 had WBRT and neurosurgery, and 73 had WBRT and SRS. Median survival was 7.9 months (95%CI: 4.5-9.3). On multivariate analysis, predictors for overall survival (OS) were: age <65 (p<0.05), KPS at diagnosis (p<0.001), controlled primary tumor (p=0.016) and the use of adjuvant SRS (p<0.001). Patients with single-metastasis survived longer than those with 2-3 metastasis (p=0.01). Those who received WBRT and SRS (n=73) survived longer than those treated with WBRT alone (median survival: 17.6 months vs. 4.8 months, p<0.001, 95%CI: 1.99-3.83). OS for those treated with WBRT and SRS was not significantly different from that of WBRT and surgery (median survival: 13.7 months). Factors associated with an increased utilization rate of SRS include: female gender (p=0.022), age <65 (p=0.018), travel distance to the SRS facility of <300 km (p<0.001), and primary diagnosis of breast cancer (p=0.001). This study provides population-based outcome data for patients with brain metastasis in Nova Scotia, and supports the use and effectiveness of stereotactic radio-surgery following WBRT for selected patients. SRS is currently underutilized in the province, and there is a need to improve access to this technology. In the near future, we anticipate more referrals and increased use of SRS, and thus recommend an expansion of our SRS program.

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Patients and Families

PROSPECTIVE EVALUATION OF UNMET NEEDS OF RURAL CANCER SURVIVORS: COMPARISON BETWEEN FOUR FIRST NATIONS AND FOUR NON-FIRST NATIONS COMMUNITIES

Presented by: Dr. Rob Olson, Radiation Oncologist, BC Cancer Agency

Objective: Unmet needs of cancer survivors in rural, remote, and Aboriginal communities are largely unexplored. We sought to explore potential differences between First Nation (FN) and non-FN communities to determine if rural survivorship care planning approaches should be jointly developed, or if unique approaches should be developed for these two populations. Materials & Methods: We approached four FN and four non-FN communities to participate in a survivorship care plan project. Participants completed the Hospital Anxiety & Depression Scale (HADS), the Survivors Unmet Needs Scale (SUNS), and provided demographic information. Each question on the SUNS can be scored from 0-4, with 0 representing 'no unmet need' and 4 representing 'very high unmet need'. Results: We accrued 21 FN and 49 non-FN survivors for this study; 60% and 86% were female respectively, the mean age was 55 and 59 respectively. The most common diagnosis was breast cancer. Using the HADS, fewer FN individuals had normal anxiety (48%, versus 80%, p = 0.012) and depression (90% versus 94%; p = 0.07) scores. On the SUNS, FNs versus non-FNs respondents had higher unmet need scores in all categories: Information (2.29 versus 0.8; p < 0.001), Work and Financial (1.66 versus 0.5; p < 0.001), Access and Continuity of Health Care (1.83 vs. 0.44; p < 0.001), Coping and Sharing (2.22 versus 0.62; p <0.001), and Emotional (2.12 versus 0.63; p < 0.001). Different qualitative themes were identified and will be presented. Conclusion: FN survivors have significantly higher anxiety, depression, and unmet needs compared to their rural non-FN counterparts. In addition, different qualitative themes were identified. These findings support developing unique approaches to survivorship care planning in these two unique rural populations.

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CONCERNS AND PERCEPTIONS OF BREAST CANCER SURVIVORS' IMPACT OF TREATMENT WITHIN DIFFERENT HEALTHCARE SYSTEMS

Presented by: Dr. Savitri Singh-Carlson, PhD, Associate Researcher, BC Cancer Agency

Two independent studies exploring experiences and concerns of BCS post-treatment at different life stages were conducted in Southern California with American Caucasian/Hispanic and the other in British Columbia with Canadian South Asian (SA) BCS. This paper will compare how findings are similar, or differ for BCS from two countries with diverse healthcare systems. Both studies used qualitative methodology and interviewed women ranging from 19-80 years old, had non-metastatic breast cancer, and were 3-60 months post-treatment. Canadian BCS were discharged from cancer agency settings to family physicians, whereas the American BCS counterparts were either followed by oncologists or family-physicians, mostly dependent on the type of medical insurance coverage. Groups were stratified by age, < 44, 45-54, 55-64, and >65. Both studies followed qualitative methods of data collection and analysis. Themes from these studies will be compared to identify how impact of treatments varies among BCS from the two populations in light of differing healthcare structuring. Some universal effects were fatigue-loss of physical energy, or strength, fear, uncertainty, cognitive changes, and the need to normalize post-treatment. Financial concerns leading to mental distress was experienced by most BCS due to loss of wages. However BCS in American healthcare system experienced a higher rate of impact due to medical insurance costs. Similar findings of reassessing priorities, depression, intimacy issues and peer or social support were reported with varying degrees. Themes such as accessing inner strength and experiencing losses had different cultural and social nuances for BCS from both settings; however, Canadian South Asian BCS talked about deepening of faith and quiet acceptance that was unique to them. BCS experiences of treatment impacts and perceptions of SCP content seemed to resonate for women regardless of healthcare structuring. Although findings are not transferable, many of the impacts of breast cancer treatment may be shared in women of other ethnic backgrounds. Comparison of these populations show the need for development and implementation of appropriate SCP that focus on varying ages, being mindful of different healthcare systems social and cultural nuances.

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PATIENT-REPORTED CANCER SERVICES RESPONSIVENESS: INSIGHTS FROM A CROSS-SECTIONAL SURVEY IN THE PROVINCE OF QUEBEC

Presented by: Dr. Dominique Tremblay, Assistant Professor, Université de Sherbrooke

This study aims to report on patient perception of cancer services responsiveness and to identify individual and organizational determinants of positive patient experience, in view of highlighting areas for potential improvements. We have defined responsiveness as the response to cancer patients' needs when they interact with the healthcare system. A cross-sectional survey was conducted among 1379 adult patients (response rate: 80%) who visited consecutively one of the participating ambulatory cancer clinics of nine hospitals across the province of Quebec. Responsiveness was measured using an adapted version of the WHO's Health Services Responsiveness questionnaire, the Cancer Services Responsiveness tool (CSR-T). The CSR-T has 19 items (Min= 1; Max= 4) and four dimensions: prompt access to care, communication, person-centered response and quality of care environment. Descriptive statistics and logistic regression analysis were conducted in order to report on perceived responsiveness and to identify individual and organizational influencing factors. Our study suggests that cancer services were perceived highly responsive with mean scores for the overall CSR-T (Mean= 3.87, SD= 0.14) and each dimension ranging from 3.34 to 3.72 with small SD (0.48 and 0.17, respectively). Regression models showed that perceived responsiveness increased with age and was higher among male respondents, those with the lowest level of education and those who reported a positive self-assessed health status and well-being. Regarding organizational determinants, rural geographic location of the cancer clinic was deemed the most consistent determinant of positive patient perception cancer services responsiveness. Academic affiliation was associated with a positive perception of care environment and overall responsiveness. Our findings indicate that cancer services responsiveness is very positively rated by patients. Nevertheless, variations exist and may be explained by both patient and organizational characteristics. This study provides valuable information from the cancer services users' perspective to enable care providers to target cancer services improvements.

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A PILOT STUDY EVALUATING CANADIAN CANCER PATIENTS' TREATMENT RELATED OUT-OF-POCKET COSTS

Presented by: Dr. Christopher Longo, Associate Professor, McMaster University

This pilot project intends to inform existing quantitative work examining cancer patients' out-of-pocket costs (OOPC) for healthcare services, and the implications on quality of life and insurance purchasing behavior. This pilot phase explores these same issues using qualitative methods in order to get a deeper understanding of these costs. Participant interviews were done face-to-face during clinic visits (or by phone) and were recorded between June 2011 and July 2012, and then transcribed for analysis, demographics were also collected. The research team collaborated early in the process (after 3 subjects were enrolled) to develop a preliminary coding scheme. The coding scheme was modified to incorporate additional emerging themes until saturation of themes was evident. Transcripts were coded using the qualitative software NVivo version 9.0. In addition to the value of this deeper examination of patient cost it is expected to assist in the development of an updated quantitative OOPC questionnaire. Fifteen patients participated in the study and 14 completed the interview (7 breast, 3 colorectal, 2 lung and 2 prostate). Consistent with existing published work participants expressed concerns regarding expenses related to: medications, complementary/alternative medicines, devices, parking and travel. These were exacerbated if they did not have insurance or lost insurance coverage due to loss of work. Several participants noted these financial challenges had a negative impact on their personal and family's quality of life (QoL). Although many acknowledged in hindsight that additional insurance would have helped, they also recognized that at the time of their diagnoses it was not an option. Previously unidentified categorical costs identified in this study included: modifications to housing arrangements or renovations, impacts of an altered diet, and special clothing.We confirm the results of earlier Canadian quantitative work. Additional cost categories not previously explored were identified, which should facilitate the development of an improved quantitative questionnaire. Participant comments suggest these financial burdens often decrease patient and family QoL. Many patients indicated that better insurance would have made their cancer journey less stressful.

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METHODS AND CHALLENGES IN EVALUATING OPERATIONAL PROGRAMS: AN EXAMPLE FROM A VIRTUAL BREAST PATIENT NAVIGATION PROGRAM

Presented by: Dr. Marcy Winget, Director, Innovation and Decision Support,Alberta Health Services

Evaluating program effectiveness is challenging when neither historic nor current data exist to directly compare enrolled vs. non-enrolled patients. We applied a multi-faceted approach to overcome these challenges in evaluating the Comprehensive Breast Care Program (CBCP),a virtual patient navigation program to ensure timely diagnosis and treatment of breast cancer. We identified CBCP patients in years 2007 - 2010 whose breast cancer was diagnosed after their enrollment to the program. For this group, the dates of diagnostic imaging tests between enrollment and cancer diagnosis and dates of the tests within 6 months prior to diagnosis were identified from provincial diagnostic imaging data. Two groups of non-CBCP breast cancer patients were matched to the CBCP patients based on the two definitions of 'first' test used. We compared the two matched groups of CBCP and non-CBCP patients from time of 'first' test to diagnosis using K-M curves and 90th percentiles. There were 92 breast cancer cases included who had at least one mammogram or ultrasound between date of enrolling into CBCP and cancer diagnosis. In both CBCP/non-CBCP matched groups the time from the 'first' test to diagnosis was significantly shorter for the CBCP patients than the non-CBCP patients: 90% of the CBCP patients were diagnosed within 10 days of their first diagnostic imaging test after enrolling in CBCP compared to 28 days for the same patients when identifying first imaging test within 6 months of diagnosis. The 90th percentile for the matched non-CBCP patients for both sets of matched 'first' tests was 43 days. Only 17 of 92 patients had a diagnostic imaging test prior to their first test after CBCP enrollment. Creating two sets of matched comparison groups of CBCP/non-CBCP patients allowed us to conduct a robust evaluation of the program. The results indicate the majority of breast cancer patients are enrolled into CBCP near the beginning of their diagnostic testing and are diagnosed faster than those not enrolled in CBCP.

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A CASE STUDY OF HUMAN PAPILLOMAVIRUS VACCINATION IN MALES: MIXED MESSAGES FROM NEGATIVE COST-EFFECTIVENESS RATIOS
Presented by: Dr. Wanrudee Isaranuwatchai, PhD, Health Economist, Canadian Centre for Applied Research in Cancer Control, Cancer Care Ontario

Economic evaluations commonly present incremental cost-effectiveness ratios (ICERs). However, a negative ICER can be difficult to interpret into policy. Using a preliminary case study of human papillomavirus (HPV) vaccination, we examined how a negative ICER may lead to misleading conclusions. Using a Markov model, we examined the potential cost-effectiveness of the HPV vaccine among Canadian males aged 12 years old against usual care of no vaccination. The analysis was conducted from the Ministry of Health and Long-Term Care's perspective. We obtained cost and clinical effectiveness estimates from published studies. The outcome of the analysis was the ICER using quality-adjusted life-years (QALYs). The model had a cycle length of three months and the time horizon was the patient's lifetime (i.e., participants may move between health states every three months; they were followed until death). With 99% vaccine efficacy and 50% vaccine uptake, the ICER was -$4533 Canadian dollars (CAD) per QALY. With 70% vaccine uptake, the ICER became -$4080 CAD per QALY. Two general limitations of negative ICERs were identified. With information only on negative ICERs, it was unclear whether the treatment was less costly and more effective or more costly and less effective than usual care. The negative ICERs indicated greater cost-effectiveness with the scenario using 50% vaccine uptake in comparison to the scenario using 70% uptake. However, examining differences in cost and effect, the scenario with 70% uptake showed a higher cost saving and higher effectiveness (-$204 and 0.05 QALYs) than the scenario with 50% uptake (-$136 and 0.03 QALY). Negative cost-effectiveness ratios should be reported with caution as they may lead to misleading conclusions and policy implications. If the ICER is negative, details on the differences in cost and effect between the study groups should be reported and examined to provide clarity regarding the results' meaning.

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A PAN-CANADIAN FRAMEWORK PROPOSAL FOR QUALITY INITIATIVE PRIORITIES IN CANCER CONTROL
Presented by: Gunita Mitera, Quality Initiatives Specialist, Canadian Partnership Against Cancer

The Canadian Partnership Against Cancer (CPAC) is embarking upon a pan-Canadian approach to quality to enable the advancement of efficient, coordinated high-quality patient care though the cancer continuum. A component of this work will develop discussion papers reflecting pan-Canadian priorities, aimed to ultimately impact inter-provincial health services planning. Vast geographic and population distribution in Canada contributes to the heterogeneity and challenges in the delivery of high quality care across the country. Therefore, it is important to highlight priority topics that are relevant at a multi-provincial level. These will be chosen collaboratively with CPAC and relevant national and provincial stakeholders. An innovative methodology for developing pertinent discussion papers will include initiating a Request for Proposal (RFP). A transparent patient and public engagement strategy will be executed. Multiple evidence methodologies will be applied to assess the impact and sustainability of the discussion papers content. Potential priorities of pan-Canadian relevance will be proposed by CPAC and relevant stakeholders. Subsequently, these will be revised and ranked in order of importance. A resultant RFP for comprehensive discussion papers will be initiated to further engage cancer system leaders and academics. Relevance of the priorities will be determined through the response rate to the RFPs. The patient and public perspective of both the priorities and the proposed plan will be documented and incorporated into the papers, and specific attention will be focused on the potential tension between care close to home, access and quality. Feasibility and sustainability of the proposed plan in the discussion papers will be determined through the impact analysis. This novel approach to developing discussion papers around pan-Canadian cancer priorities will be used as a key inter-provincial health services planning resource for high quality cancer care delivery. This methodology may also serve as a strategic framework for assessing other health services issues outside of cancer care.

Co-Authors: Terry Sullivan; Mary Argent-Katwala; Geoff Porter; Heather Bryant

BUILDING A LEARNING ORGANIZATION IN PSYCHOSOCIAL ONCOLOGY: LESSONS LEARNED
Presented by: Lynne Robinson, Co-Chair, CPOPonline

Meeting the psychosocial needs of cancer survivors is increasingly recognized as important but the healthcare system does not fully utilize either knowledge resources or the resources of Community Based Organizations (CBOs). Our goal was health system improvement through promoting integrated, evidence-based, person-centred psychosocial cancer care across the continuum. Chunharas (2006) advocates for a 'learning organization' model for knowledge translation, based upon integration between research producers and research consumers on an ongoing basis, with regular interactions. He includes trusted sources and personal experience as part of the legitimate decision-making process. Canadian Psychosocial Oncology Partners (CPOP) was founded in 2007 to develop such an organization, bringing together researchers, health care providers and CBOs through annual workshops (six to date). The first objective identified was to create an online portal to facilitate information-sharing amongst stakeholders. In 2011, this website was launched at www.cpoponline.ca, along with an associated newsletter (CPOPTalk). CPOP has held six annual workshops each of which focused on a particular set of tasks required to build the capacity for knowledge exchange and attracted over 30 participants. Workshop processes are recorded and evaluated, documenting the ongoing development of this project. A quarterly emailed newsletter goes out to over 500 individuals. The website has grown from a high of 150 unique users per day to a high of over 300 unique visitors in 2012. Regular personal contact and the newsletter facilitate engagement. Additional lessons learned: work within a strong umbrella organization; develop multiple routes for sharing; create accessible user-friendly products; be flexible in offering services; create partnerships and provide talented KTE support. Consistent financial support is also crucial. CPOP has been successful in creating a unique collaboration and venue for knowledge exchange amongst key partners involved in psychosocial oncology in Canada. The challenge now is sustainability, including both financial resources and active participation from members. Audience members are invited to share their own experiences.

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CANCER PATIENTS' FUNCTIONAL STATUS AND INITIATION OF CHEMOTHERAPY: DOES LESS MEAN LESS?

Presented by: Joan Porter, Lead RC, Cancer Program, Institute for Clinical Evaluative Sciences

To examine the relationship between clinician reported functional status and the decision to initiate chemotherapy in an Ontario ambulatory cancer population with poor functional status as determined by the Palliative Performance Scale (PPS) and to evaluate the risk of unplanned health care utilization among those who received chemotherapy. In this observational, population-based study, patients who had at least one PPS assessment between January 1, 2007 and March 31, 2011 indicating poor functional status (PPS score of ≤50%) comprised the study cohort. The cohort was linked to several administrative databases and observed for initiation of chemotherapy within 30 days of the first poor PPS assessment (index PPS) and for subsequent unplanned utilization that includes ED visit, urgent hospitalization, and admission to ICU. Outcomes of initiation of chemotherapy and unplanned utilization events were modeled using logistic regression adjusting for patient and system characteristics. The source of PPS data is the Symptom Management Reporting Database held at Cancer Care Ontario. After excluding patients where chemotherapy was ongoing, recently completed, or where functional status improved following the index assessment, 9.3% of the remaining cohort (264/2842) received chemotherapy within 30 days of the index PPS. Patients with an index PPS score of 40% (OR 0.53, 95% CI 0.36, 0.78), older age (OR 0.96, 0.95,0.97), assessment conducted at home (OR 0.39, 0.23, 0.66) and as the interval between diagnosis and index assessment increased (OR 0.94, 0.92, 0.96) were less likely to receive chemotherapy. For the logistic regression that modeled ED visits, chemotherapy was a significant predictor (OR 1.45, 1.1, 1.9). Those who had chemotherapy were 45% more likely to make a visit to the ED compared to those who did not have chemo. A small number of cancer patients with poor functional status had chemotherapy initiated in the month following assessment. While receipt of chemotherapy resulted in greater odds of making an ED visit in the 30-day period after treatment initiation, excess hospitalization or ICU stay in this patient group was not found.

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CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHIES: AN INTEGRATIVE REVIEW OF REHABILITATION PRACTICES

Presented by: Stephanie Dion, Occupational Therapist, BC Children`s Hospital

Identify non-pharmacological interventions for CIPN in adults and children 2) Identify rehabilitation practices (especially in Occupational Therapy) associated with evidence and provide recommendations for the practice and future research. A systematic integrative review of the database related to the non-pharmacological interventions for CIPN was completed. Articles were selected according to inclusion and exclusion criteria and with an evaluation of their quality. A systematic review of the articles published between January 2000 and December 2011 was completed. Articles could have had been published either in French or in English in the following Databases: PubMed, OTseeker, OTDBASE, MEDLINE, CINAHL, ProQuest and PEDro. Abstract were reviewed by both authors to determine their eligibility for inclusion in the study. A systematic and transverse analysis was done to identify the most efficient practices to prevent, detect or treat CIPN. 20 articles were selected. 4 types of non-pharmacological interventions were identified for CIPN: assessment, rehabilitation interventions, patient and family education and alternative interventions. According to the studies selected, there is no intervention to treat CIPN. Several articles mention the under-detection of CIPN. There is no evidence for best-practice for CIPN evaluation. Although lots of non-pharmacological interventions are discussed in most of the articles, there is a lack of studies supporting their effectiveness. The professional roles for the management of CIPN are different from one center to another. An interdisciplinary approach is important to improve management of CIPN. Patient and family education can also help to prevent CIPN and to decrease the risk of injuries associated with it, but this intervention is not supported by any evidence. CIPN is frequent but under-detected. Our review shows an important lack of knowledge for the best practices for prevention, treatment and rehabilitation of CIPN. It was not possible to identify best practices due to the limits of the studies selected. More research is needed to assess the evaluation tools and the non-pharmacological interventions for CIPN.

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COMPARATIVE EVALUATION OF STRATEGIES IN COLORECTAL CANCER SCREENING AND TREATMENT USING THE CANCER RISK MANAGEMENT MODEL (CRMM)

Presented by: William Flanagan, Chief of Microsimulation, Statistics Canada; Natalie Fitzgerald, Canadian Partnership Against Cancer

To perform a comparative evaluation of colorectal cancer screening strategies and potential new treatment options for advanced stage colorectal cancer. CRMM is a continuous-time, Monte-Carlo microsimulation model that simulates the natural history of colorectal cancer from polyp onset by location within the colon and progression to cancer mortality through stages of cancer. Cancer cases are treated according to an elaborate cancer management algorithm; survival is conditional on stage at diagnosis. Hypothetical screening programs can be evaluated under various specifications (participation, adherence, frequency, age eligibility ranges) and for different modalities (guaiac and immunological faecal occult blood tests (FOBT) and flexible sigmoidoscopy (FS)). New treatment options for advanced stage disease can be evaluated by modifying the management algorithm to incorporate cost and benefit. The model matches incidence reported to the Canadian Cancer Registry by age, sex, province, stage and site for recent years. Overall CRMM projects 24,217 new cases of colorectal cancer in 2013, and has projected incidence within 1-5% of actual counts between 2007 and 2009. The model has been assessed against different randomized clinical trial results for FOBT and FS to ensure that both natural history and screening assumptions are plausible. The impact of different screening strategies on future incidence, death and system costs will be assessed and compared to the costs and benefits of hypothetical new drug treatment therapies for advanced stage disease. CRMM is a powerful, accessible and user-friendly tool that can be used to compare various intervention strategies to inform policy.

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COST-EFFECTIVENESS OF EML4-ALK FUSION TESTING IN COMBINATION WITH CRIZOTINIB TREATMENT FOR PATIENTS WITH ADVANCED NON-SMALL CELL LUNG CANCER

Presented by: Jaclyn Beca, Research Manager, Keenan Research Centre, Li Ka Shing Knowledge Institute, St. Michael's Hospital, Canadian Centre for Applied Research in Cancer Control

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 for 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 8,113 patients obtained from the Cancer Care Ontario New Drug Funding Program database for 2005-2009. 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. Our preliminary results show that genetic testing and treatment combination strategy gained 0.11 QALYs when compared to no testing. The incremental cost was CAD $4,179 compared to standard care, and the incremental cost-effectiveness ratio for the base case was $392,538 per QALY. The results of the one-way sensitivity analysis indicated that the primary drivers of the ICER were the utilities and cost of crizotinib treatment, cost of platinum doublet treatment, prevalence of EML4-ALK fusion in NSCLC patients, specificity of IHC test and mortality while on pemetrexed or 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 attractive at conventional cost-effectiveness thresholds.

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DEVELOPING A FRAMEWORK FOR INTEGRATING PRIMARY CARE AND THE CANCER SYSTEM

Presented by: Jacqueline Liberty, Research Associate, Cancer Care Ontario, Canadian Centre for Applied Research in Cancer Control

To develop a conceptual framework to further guide the integration of primary care in Ontario's cancer system by examining the relationships between the various structures and tools used to support the role of primary care providers. A structured search of Ovid Medline and Embase was conducted in August of 2011 using a combination of keywords and free-text terms. Results were limited to English and the year 2000 onwards. No restrictions were made on publication type. To supplement the scoping review, broad and targeted searches of grey literature were conducted. Searches yielded a total of 482 unique publications of which 76 pertaining to models of care or tools for integration were retained. For those articles meeting the inclusion criteria, full texts were obtained and relevant information extracted into tables. A thematic synthesis approach was used to develop the framework.This review identified three levels of integration for primary care and cancer systems as well as tools for integration associated with each level. For the purpose of this review, a 'tool for integration' was defined as 'a specific resource or process which facilitates the participation of primary care professionals within the cancer system'. In general, integration efforts are most likely effective when the intervention is multifaceted and focused on numerous levels of integration: the group level (integration between different providers); the practice level (integration between providers and patients); and the system level (integration between providers and the wider healthcare system). Each of these levels of integration may require different forms of infrastructure (funding, IT, decision-support, etc.) and specific evaluative methods.While there is no one ideal model to integrate primary care in the cancer system, this framework can be used to further inform the ongoing planning and development of a comprehensive model of integration for primary care in Ontario's cancer system.

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

Presented by: Dr. Paul Rogers, Clinical Professor, BC Childrens Hospital andUniversity of British Columbia

The basic objective 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 pediatric oncology programs in the country). We reviewed the current status in Canada plus existing literature and established a series of working groups. Two international workshops have been held with attendance by multidisciplinary healthcare professionals, survivors, administrators and international experts. Experience was drawn from the United Kingdom, Australia and elsewhere. A developmental approach combined with disease-specific clinical expertise is fundamental to achieving the maximum survival benefits, the greatest impact on quality of life and the optimal functioning and productivity of survivors.The first work shop (March 2010) produced specific recommendations published in the Journal of Adolescent and Young Adult Oncology (JAYAO 2011, 1(1):53-59). The second (March 2012) produced a framework for action, to be published in JAYAO, to implement those recommendations. This will require the development of regional action partnerships to improve active treatment, increase accrual to clinical trials, develop guidelines for survivorship, and establish specific age-specific psychosocial supports that are required for optimal outcomes. Other initiatives include the creation of an AYA cancer diploma program administered by the Royal College of Physicians and Surgeons of Canada, a program of collaborative research that will benefit the AYA cohort directly, a knowledge translation and exchange strategy and an evaluation process inclusive of economic metrics.The NTF continues communicating and working with all stakeholders about its recommendations and action plans. 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.

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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: Shannon Vogels, Methodologist, BC Cancer Agency

This research aims to address barriers to health and educational success faced by young cancer survivors. Cancer and its treatment can have lasting negative impacts. This work will develop decision-maker 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 will summarize the risks faced by childhood cancer survivors in the domains of health and education, and barriers to appropriate care. 2. consultations with stakeholders and survivor representatives will confirm the support goals and priorities of each group, and will describe potential interventions. This stage will consist of individual interviews and a collaborative group consultation meeting. 3. once the results have been confirmed, they will be compiled into a report and also used to develop other knowledge translation materials to disseminate to decision makers across the province. Progress to date will include: 1. Identification of key experts and decision makers in the fields of oncology, primary care, education and policy, and rationale for their inclusion in the study. 2. Description of the literature review protocol and search topics. 3. An outline of the health and educational risks faced by young cancer survivors, and identified barriers to addressing these risks at a policy level. 4. Summary of existing models of follow-up care for child cancer survivors. 5. Description of the methodological approach taken to develop a knowledge translation plan. 6. Reporting of the preliminary results of interviews with decision-makers and survivor representatives, and an explanation of how these results will be used for the development of a knowledge translation plan.This outline will demonstrate the application of the CIHR Knowledge Translation model and the World Health Organization Quality Care Strategy to the emerging issue of cost-effective provision of quality follow-up care to childhood cancer survivors, and will provide information on barriers and solutions to provision of risk-based care.

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DIAGNOSTIC ASSESSMENT UNITS' IMPACT ON DIAGNOSTIC DELAY IN BREAST CANCER: A POPULATION-BASED STUDY IN ONTARIO, CANADA

Presented by: Li Jiang, Queen's University

Breast cancer diagnostic assessment units are organizational structures in Ontario to improve the quality and timeliness of care during a breast cancer diagnosis. This study examined the length of diagnostic intervals for breast cancer patients diagnosed at a diagnostic assessment unit versus those diagnosed through usual care routes. This was a retrospective population-based cohort study of approximately 8,300 women diagnosed with invasive breast cancer between Jan 1, 2011 and December 31, 2011. Data sources included administrative databases available at Institute for Clinical Evaluative Sciences (ICES) and Cancer Care Ontario (CCO). Diagnostic delay was defined as the time interval between index contact and date of definitive diagnosis. DAU status was assigned based on the hospital where patients were diagnosed. Linear and log-binomial regression were used to evaluate the association between DAU status and diagnostic delay while controlling for confounders, with separate analyses for screen-detected and symptomatic patients. Data processing and analysis is in progress. The study will be completed by the time of conference. The results of this study will provide insights into the effects of DAUs on timeliness of breast cancer diagnosis.

Co-Authors: Patti Groome, Professor, Queen's University; Hugh Langley, Ontario Ministry of Health and Long Term Care; Julie Gilbert, Cancer Care Ontario

DISEASE, PATIENT AND HEALTHCARE SYSTEM LEVEL PREDICTORS OF ACCUMULATED INPATIENT DAYS AND HOME CARE USE FOR METASTATIC GASTRIC CANCER PATIENTS

Presented by: Alyson Mahar, PhD Candidate, Queen's University

Predictors of major cost drivers for end-of-life care are unknown for the management of metastatic gastric cancer. This study examined disease, patient and healthcare system level predictors of inpatient hospital days and receipt of home care.This is a population-based, retrospective cohort study of data on patients diagnosed in Ontario between 2005 and 2008. Chart review and administrative healthcare data were linked, using a twenty-six month time horizon for resource utilization data collection, using the healthcare system perspective. The cumulative inpatient hospital stay was defined using admission and discharge dates from hospitalizations over the time horizon. Home care use was defined as yes/no, using data from the Ontario Home Care Database. Negative binomial regression was used to model the number of inpatient hospital days and modified poisson regression to model the receipt of home care. Patients with primary tumours in the gastroesophageal junction compared to the distal stomach, and younger age were significantly associated with fewer inpatient days. Patients who underwent a gastrectomy were significantly less likely to accumulate inpatient hospital days (RR 0.65; 95% CI 0.55-0.76), as were patients who interacted with a high volume specialist (RR=0.54; 95% CI=0.46-0.63). Proximal compared to distal tumour location was associated with an increased likelihood of receiving home care (RR=1.12; 95% CI: 1.04-1.20). Increasing age was significantly associated with not receiving a home care visit (p=0.0010). Patients in the high resource use category were 78% more likely to receive home care than healthy users (RR=1.78; 95% CI=1.02-3.08). Patients interacting with a high volume specialist were 15% more likely to receive home care than those who did not (RR=1.15; 95% CI=1.09-1.21). A number of predictors of healthcare resource utilization were identified; however, not all were modifiable. Further research needs to examine how differences in home care use and inpatient hospital stay impact clinical outcomes such as symptom relief and quality of life, and how policies may be targeted to reduce costs to the healthcare system while maintaining optimal clinical care.

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DOES PREDICTIVE GENETIC INFORMATION MOTIVATE BEHAVIOUR CHANGE? A SYSTEMATIC LITERATURE REVIEW TO EVALUATE PERSONALIZED MEDICINE IN CANCER PREVENTION

Presented by: Joanne Kim, PhD Candidate, Institute of Health Policy, Management and Evaluation, University of Toronto, Canadian Centre for Applied Research in Cancer Control

Personalized medicine promises to revolutionize healthcare. Using individual molecular profiles to identify at-risk populations for disease prevention is expected to improve population health while saving healthcare costs. This study conducted a comprehensive, critical review of the current literature for studies that have assessed the impact of predictive genetic testing for colorectal cancer on risk-reducing health behaviours as a way of evaluating the assumed promise of personalized medicine. A systematic literature review was conducted in consultation with the guidelines from the Evidence for Policy and Practice Information and Coordinating Centre and those from the Cochrane Handbook. The search strategies of a previous Cochrane review on a similar topic were adapted and applied to seven different databases. Predefined inclusion/exclusion criteria were used to identify studies of various designs that assessed the impact of predictive genetic testing for all cancers on risk-reducing health behaviours in adults. Following data were extracted from the included studies: type(s) of cancer(s) examined if not colorectal; methods used; participants included intervention(s) assessed; behaviour outcome(s) studied; and reported finding(s). In total, 9,663 citations were retrieved from the search. After duplicates were removed, 6,620 citations remained and were screened from their title and abstract for possible inclusion. From this screen, 13 citations met the inclusion/exclusion criteria for risk-reducing health behaviours for colorectal cancer and an additional 5 citations were identified from reference lists. All 18 citations focused on screening and no other health behaviours. The reviewed studies generally reported increased screening amongst mutation carriers who were at elevated risk, and decreased screening amongst mutation non-carriers who were at population-level risk, and concluded that there was proper adherence to screening guidelines as a result of predictive genetic testing. However, the reviewed studies faced severe limitations largely from their small sample sizes, use of improper or inconsistent measures of colonoscopy use, and lack of methodological rigor in establishing causality, all of which compromised the validity of their findings. There is little convincing evidence demonstrating that predictive genetic testing for colorectal cancer, an example of personalized medicine in disease prevention, leads to positive change in individual health behaviours. The poor quality of the reviewed studies cautions against making firm conclusions and warrants further investigation on the topic.

ECONOMIC CONSEQUENCES ARISING FROM EARLY SCREENING AND TREATMENT OF DISTRESS IN CANCER PATIENTS

Presented by: Konrad Fassbender, PhD, Assistant Professor, University of Alberta and Covenant Health

Untreated cancer-related distress in patients causes physical, emotional and practical challenges for the patient. The Integrated Symptom Relief Service (ISRS) program identifies symptom severity and service needs for outpatients. The objective of the current study was to evaluate resource utilization and economic consequences of the ISRS. We prospectively evaluated economic outcomes using a before and after study design measuring consequences of the ISRS program for both patients and caregivers. The Health Services Inventory (HSI), an encounter-based semi-structured interview tool, was used. Prior month resource use was captured through a medical organizer (memory aid to reduce recall bias) and telephone interview. Quality-of-life consequences were assessed using EQ-5D, Edmonton Symptom Assessment Survey (ESAS), and Functional Assessment of Cancer Therapy - Brain plus Head and Neck (FACT-Br, FACT-H&N). 247 patients (114 before, 133 after) reported 978 (588, 390) healthcare encounters in the prior month. Health care encounters declined from 5.2 (before) to 3.1 (after) (p=0.000). Oncologists represented the most frequent encounter type (22%). Family physicians were encountered by approximately 25% of patients. Pharmacists, nurses and neurologists were the next most frequent providers. Patient encounter duration decreased from roughly 70 to 45 minutes (p=0.041). Over 90% of patients reported relying on transportation and had at least one caregiver accompany them to all medical appointments. Patients experienced greater out-of-pocket costs associated with their visits during the after period (9% @ $88, 14% @ $166). Non-visit related expenses increased in prevalence but not in dollar values (9.0% @ $256, 36.8% @ $217). Improvements in quality of life are modest and confined to anxiety and depression. As hypothesized, the ISRS program resulted in significant cost-shifting with implications from both public and private perspectives.

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ETHICS AT THE CROSSROADS: THE ETHICAL, STATISTICAL AND POLICY IMPLICATIONS OF CROSS-OVER IN ONCOLOGY TRIALS

Presented by: Shawn Bugden, PhD, Associate Professor, Faculty of Pharmacy, University of Manitoba

To review the ramifications of cross-over in oncology trials with reference to its ethical justifications, statistical implications and its impact on policy decisions in Canada. Cross-over between treatment arms in randomized trials effectively ends the trial early and diminishes the ability of the trial to answer its intended clinical question. A survey of recently reviewed oncology drugs was completed. Each agent was reviewed and the primary literature supporting the submission was collected and assessed both for cross-over design and its impact on the study's results. Where possible the ethical framework supporting the study approval was also reviewed. The listing recommendation summaries for all reviewed drugs were assessed for the implications of cross-over on uncertainty for decision makers. Cross-over was found to be a common feature of the supporting trials in the oncology drugs reviewed. Cross-over contributed substantially to the uncertainty of the clinical studies efficacy results. This uncertainty also contributed to the extrapolation required and the uncertainty present in the economic assessment of the reviewed medications. The full societal-ethical implications of cross-over were never considered in the supporting primary literature. Other than indicating research ethic board approval, other aspects of the ethics of cross-over were rarely mentioned in the primary literature documents. The review of the listing recommendations suggested that cross-over contributed to uncertainty in the decision-making process. Surrogate markers, non-randomized on-treatment assessment and extrapolation techniques were frequently required to make inference where study results were unavailable. The downstream ethical considerations seem to be incompletely considered in trial design and approval. The resulting process delays rather than resolves the ethical dilemma. Cross-over can make difficult drug approval decision near impossible and passes uncertainty regarding the efficacy and effectiveness of new products to the broader patient population.

EXPLORING THE GENERAL PUBLIC'S PERCEPTIONS OF RATIONING SCENARIOS: A MIXED-METHODS STUDY
Presented by: Helen McTaggart-Cowan, PhD, Health Economist, Canadian Centre for Applied Research in Cancer Control, BC Cancer Agency

In many countries, policy decisions are increasingly being based on general public preferences. However, there is little information on individuals' decision-making processes in the context of rationing in healthcare. This study explores the factors that affect the general public's perceptions of hypothetical rationing scenarios using a mixed-methods design. Seventy-three members of the general public were divided into eight focus groups. Four of the groups were asked to take an individual perspective, while the remaining groups took a decision-maker perspective. Each respondent individually rated four hypothetical rationing scenarios, then discussed their ratings with their group, then rated the scenarios again. Before the second rating, additional information including the specific health condition in each scenario was provided. The second rating was followed by a group discussion to understand participants' rationales, followed by a final individual rating of the same scenarios. The identity of the health condition was important to the general public when making healthcare decisions. The label confirmed for some that priority should be given to those in greatest need of healthcare. They considered the disease prevalence in their assessment in an attempt to maximize societal health. This was verified as the priority ratings for the breast cancer and the osteoarthritis scenarios increased statistically (p<0.03) once the disease label was provided. In addition to the information presented in the scenarios, analysis of the discussion revealed that an individual's level of empathy (i.e., illness experience) was an important factor in his or her decision-making. When the responses were stratified on different perspectives held by the participant, the decision-maker perspective consistently yielded lower ratings. When additional information is provided, the public desired to maximize societal health as well as prioritize healthcare to those in need. They appeared to consider all aspects of the scenarios when making their decisions. This suggests that they may be able to play a more active role in healthcare decision-making.

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EXPLORING THE UPTAKE OF A NEW TOOL IN PATHOLOGY PRACTICE FOR OVARIAN CANCER: A PILOT STUDY
Presented by: Robin Urquhart, PhD Candidate, Knowledge Broker, Cancer Outcomes Research Program, Dalhousie University, Capital Health

Amongst pathologists, the classification of ovarian cancer cell type (i.e., sub-typing) has been widely considered to have low reproducibility. This study aimed to gain pathologists' views on using a new tool to classify ovarian cancer cell type, including barriers to and facilitators of using the tool in practice. In 2008, six pathologists from different centers across Canada completed a training/test session using refined World Health Organization criteria to classify, or sub-type, ovarian cancer (i.e., the tool). This work was published, showing that the classification of ovarian cancer cell type can be highly reproducible following brief training with the tool. In this study, five of the six pathologists who had completed the training/test session were interviewed. Three gynecological oncologists were subsequently interviewed to gain their views on ovarian cancer sub-typing and its usefulness in practice. All interviews were via telephone. A thematic analysis of the interviews was conducted. Pathologists viewed the tool as easy to use, aligning with experience, and offering an advantage in practice. All used the tool, with four disseminating the tool to colleagues, either formally or informally. Most discerned low clinical (i.e., oncologist) demand for sub-typing, except in one province. Perceived barriers to tool use included: lack of awareness; limited evidence base; general resistance to change; interpersonal relationships in pathology departments; and limited treatment options for ovarian cancer, reducing the clinical usefulness of sub-typing information. Facilitators included: contact with respected colleagues; training with peers; articulating the value of sub-typing; and incorporating the tool in existing practices (e.g., central reviews). Gynecological oncologists stated a desire for sub-typing information, viewing it as valuable despite limited treatment options for ovarian cancer at present. Numerous barriers and facilitators were identified as influencing use of a specific tool in pathology practice. Knowledge of these factors is important since they will inform the development of pathologist-targeted strategies to improve the uptake of the tool in pathology laboratories across Canada.

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FAMILY PHYSICIANS' (FP) PERSPECTIVES ON SURVIVORSHIP CARE PLANS (SCPs) TO SUPPORT FOLLOW-UP OF BREAST CANCER PATIENTS
Presented by: Dr.Mary Ann O'Brien, Assistant Professor, Department of Family and Community Medicine, University of Toronto

It is recommended that cancer patients receive a SCP consisting of a comprehensive treatment summary and follow-up plan. The study objectives were to learn the views of FPs involved in a parent RCT on their experiences with SCPs and/or oncologist discharge letters to support follow-up of breast cancer patients. FPs were eligible for inclusion if their patient had participated in the RCT at 1 of 3 cancer centres in Ontario or Nova Scotia, Canada. We conducted a qualitative study with semi-structured interviews in which participants discussed their views on the SCP or usual discharge letter, and explored participants' confidence in providing follow-up cancer care. Interview transcripts were analyzed using the constant comparative method. 18 FPs (10 intervention, 8 control) were interviewed (12 female; 6 male; median age 51 years). While FPs indicated that follow-up care was straightforward, several problems including electronic medical record (EMR) inadequacies and competing health issues contributed to gaps in care delivery. Approximately one-quarter of FPs had difficulty locating SCP components and/or discharge letters in the office record. The most useful SCP component was the 1-page record of care. Many FPs said that discharge letters could be improved by adding information about expected problems. FPs were comfortable providing follow-up care 3-5 years post diagnosis when oncologists clearly identified expectations. The record of care was perceived as a useful component of SCPs. Discharge letters were viewed as sometimes incomplete. EMR problems meant that SCPs were often not accessible to FPs and reminders for care were not always sent. Developers of SCPs should consider how they will be integrated within EMRs.

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FAMILY PHYSICIANS' PERSPECTIVES ON COMPUTER-BASED HEALTH RISK ASSESSMENT TOOLS FOR CHRONIC DISEASES
Presented by: Dr. Mary Ann O'Brien, Assistant Professor, Department of Family and Community Medicine, University of Toronto

Computer-based health risk assessment (RA) tools compute an individual's risk of developing a condition. Such tools may support family physicians when counselling patients about the risk of cancer and other chronic diseases. The study objective was to investigate the opinions of family physicians regarding the usefulness of health RA tools. This study employed a qualitative design using grounded theory. Focus groups and usability testing interviews were conducted with family physicians from Ontario and Alberta. Focus group discussions explored how and why risk assessment tools are used, and the design aspects for future tools were considered. Usability testing simulated the use of a risk calculator within an electronic medical record (EMR) system. Data from focus groups and usability testing were corroborated with opinion survey responses and discussions with key informants. Several themes surrounding awareness, usefulness, and usability of risk assessment tools in family practice emerged from collected data. It was found that family physicians use risk assessment tools for many reasons including to support patient understanding during discussions around risk, to assist with motivating lifestyle change, and to guide screening decisions. Many participants felt that the integration of risk assessment tools into EMR systems is important to facilitate uptake of the tools. Another important consideration influencing whether family physicians use a tool is the strength of evidence supporting the validity of risk assessment tool calculations. Family physicians are willing to use computer-based health RA tools to facilitate chronic disease prevention and screening. To promote uptake, such tools should be evidenced-based and better integrated within EMR systems. These results will be relevant to Cancer Care Ontario's plan to develop a health RA tool for cancer.

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IDENTIFYING INCLUSIVE KNOWLEDGE TRANSLATION
Presented by: Eleni Wener, University of Manitoba

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 research study asked: 'using the indicators of inclusive knowledge translation, to what extent does VP-Net succeed in conducting inclusive knowledge translation?' VP-Net offers a cross-disability focus on end-of-life and palliative care by focusing on issues that affect people with disabilities regardless of their specific impairment. In order to understand if the markers of IKT were successfully used in VP-Net, three phases of data collection were undertaken:1) narrative data gathering documenting the KT activities of VP-Net;2) semi-structured interviews with research participants (individuals with disabilities, policy-makers and healthcare providers) and 3) a focus group and critical reflection with the VP-Net team members. Inclusive knowledge translation has never been studied. Results complete by April 2013. All data collection is complete. Thematic analysis used to generate common themes and unique experiences from the data and to develop the indicators of IKT. The results will critically evaluate the KT process undertaken by an interdisciplinary group of researchers and indicate what healthcare providers, policy-makers and people with disabilities believe are the groundbreaking elements of IKT. The elements of IKT will be shared and translated in an accessible way with persons with disabilities, healthcare providers, policy-makers, community organizations and researchers. As well the elements of IKT will be shared to contribute to knowledge translation at the Canadian Institutes of Health Research (CIHR). The list will also be shared with researchers, community organizations and put on VP-Net's website. 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.

IMPROVING CHRONIC KIDNEY DISEASE CARE IN ONTARIO THROUGH PATIENT-BASED FUNDING
Presented by: Ophelia Michaelides, Policy Research Analyst, Ontario Renal Network , Cancer Care Ontario

The Ontario Renal Network (ORN), Cancer Care Ontario - aims to lead a province-wide effort to better manage the delivery of renal services. The ORN's Triple Aim strategy will: improve the health of the chronic kidney disease (CKD) population; be accountable to CKD patients; and manage the costs of CKD-care. The ORN is championing the path towards a patient-centered approach to delivering CKD-care through the development of a patient-based funding framework, as the province undergoes health system funding reform. The objectives of this funding framework are to provide a clinically meaningful approach to align funding with best practice and improve patient outcomes and provider accountability. Implementation of the ORN patient-based funding framework began in 2012/13 and will be phased-in over a three-year period, eventually establishing funding equity across service providers in addition to aligning funding with quality care. The ORN has begun to achieve its funding framework objectives by revising funding rates for CKD services and implementing bundled patient-based payment for dialysis and pre-dialysis care. As part of the ORN's multi-year implementation timeline, the funding framework will also be extending beyond the hospital sector, while continuing to improve upon current activities. The ORN framework leverages upon Cancer Care Ontario's proven track record in driving change and quality improvement in Ontario's cancer system and is guided by the principles of shared accountability and transparent information sharing, and is mobilized by strong medical leadership, multidisciplinary provincial and regional forums and efforts to equip service providers to integrate new ideas. The ORN's CKD patient-based funding framework is helping to align funding to high quality patient-focused care and has significant potential for positive impact, particularly when integrated with other ORN initiatives to improve access to needed services, to promote evidence-based practice and to drive quality improvement across the provincial CKD system.

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IMPROVING UNDERSTANDING AND UTILIZATION OF SCREENING MAMMOGRAPHY IN A NORTHERN BRITISH COLUMBIAN ABORIGINAL COMMUNITY

Presented by: Dr. Chelsea Anchikoski, Family Medicine Residency Program, University of British Columbia

Lack of awareness of breast cancer and screening mammography (SM) may explain delayed diagnosis and poorer prognosis in Aboriginal women. Objectives: 1) to increase awareness of SM in this Aboriginal population. 2) to improve utilization of SM in study population. 3) to identify potential barriers to SM for Aboriginal women. Participants attended a single-day Aboriginal breast cancer (BrC) awareness event (ABCAE) in a Northern British Columbia community. Pre-event and post-event surveys were completed to document participants' demographics and utilization of screening mammography (SM) prior to and at the event itself. On-site mobile SM (set up specifically for this event held at a culturally sensitive Native Friendship Center) was available through pre-booked and "drop-in" appointments. A quiz was completed pre and post-event to evaluate the event's impact on understanding of BrC and its screening protocols. The day was documented via photography and videography for future culturally sensitive cancer screening awareness tools. Ninety-eight participants (76% Aboriginal) provided pre/post-ABCAE response rates of 95% and 74%, respectively. Self-rated knowledge of BrC improved 27.6% (mean Likert score 2.66/5 increased to 4.04/5). Improved understanding of BrCa and SM was demonstrated in 8/10 quiz questions with participants 1.74 times more likely to answer quiz questions correctly (95% CI: 1.37, 2.21). The mean overall group quiz scores increased by 15%. Thirty-four women underwent on-site SM with 94% of these being from 'drop-in' appointments. The 'no-show' rate for pre-booked appointments (the standard Western medicine approach to screening health services) was 86%. Twenty-seven women signed up for future SM - or planned to - and 19 attendees did not meet SM criteria. Only 6 did not wish to pursue the SM option. ABCAE surveys and quizzes demonstrated significant improvements in awareness of BrC and SM in this northern Aboriginal population. Mobile SM was well utilized on a 'drop-in' basis but pre-scheduled appointments had poor attendance. Further evaluation of culturally safe environments for healthcare and barriers to access to SM are vital.

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INCOME INEQUALITIES AND CANCER TRANSITIONS AMONGST ADULTS 50 YEARS OF AGE AND OLDER

Presented by: Dr. Margaret Penning, PhD, Professor, University of Victoria

Research evidence suggests that the onset of morbidity occurs at relatively younger ages among individuals with lower socioeconomic status than amongst those with higher SES. To examine whether this also occurs with regard to cancer, we examined the influence of age and income on several cancer transitions. This study used BC provincial administrative health data for adults aged 50+ registered to receive health services from 1986 through 2003 (total n=1,897,023; annual mean =1,052,518). Logistic regression and repeated measures analysis using generalized estimating equations were conducted to examine the influence of age and income on three cancer transitions: from the general population of health service users in British Columbia to the provincial cancer registry; from single-only to multiple cancers; and amongst individuals with multiple cancers, between first and subsequent cancers. Effects were assessed overall and with respect to specific cancers. The results indicated that lower income lent itself to earlier entry into the cancer registry, consistent with an earlier aging effect. In the transition from single-only to multiple cancers and, within the latter group, from first to subsequent cancers, social influences diminished both overall and by specific cancer, more so for women than men, and particularly within the second transition. However, age, income and their interaction remained significant influences at points through all of the transitions examined, indicating the continuing importance of social factors within the cancer process. The results are consistent with an earlier aging effect in the transition from the general population of health service users to the cancer registry. In addition, as with entry into the cancer cohort, transition risks to and within multiple primary cancers include social factors. Further research should clarify these effects.

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INCORPORATING MULTI CRITERIA DECISION ANALYSIS INTO PATIENTS DECISION AIDS

Presented by: Dr. Nick Bansback, PhD, Assistant Professor, School of Population and Public Health, University of British Columbia

Patient decision aids (PtDAs) are evidence-based tools designed to help individuals choose between two or more treatment options. Previous research into cognitive biases suggests that choices are informed by, and adapt to, the way information is presented. The consequence is that the design of the PtDA might inadvertently lead to patients failing to choose the best option for them. We tested whether incorporating Multi Criteria Decision Analysis (MCDA) into a PtDA could overcome these biases, improving the quality of decisions. We developed a Dynamic Computer-Interactive Decision Application (DCIDA) to augment a PtDA designed to help choose whether to use chemotherapy after surgery for Non Small Cell Lung Cancer. In contrast to previous 'black box' approaches to using MCDA to inform patient decision-making, the DCIDA uses subtle visual cues and default options to help 'nudge' patients towards better quality choices. In this preliminary efficacy study, healthy volunteers recruited to an online study were randomized to either a conventional PtDA (followed by MCDA questions) or the DCIDA version. Of 210 respondents that began survey, 152 completed (72%). Mean age was 37 (range 19-46) and 49% were male. In the conventional arm: of the 21% of respondents for whom the MCDA results suggested chemotherapy was the optimal choice, 81% of respondents chose chemotherapy as their preferred option. In the DCIDA arm: of the 26% of respondents for whom MCDA results suggested chemotherapy to be optimal, 86% chose chemotherapy. This small improvement was reflected in improved scores on the decisional conflict scale for the DCIDA group. The results of this preliminary study suggest that the DCIDA could improve choices made using PtDAs. However, the initial experiment was impaired by the small proportion of respondents preferring chemotherapy creating a ceiling effect for the potential influence for DCIDA. Further research is planned to explore the influence in other settings.

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INEQUALITIES IN CANCER MORTALITY AMONG WOMEN: SOCIO-DEMOGRAPHIC COMPARISONS IN CHILE

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

To calculate and compare mortality rates of cancer among women during the period 2002-2006 in Chile, according to anatomic location, educational level and area of residence. To identify socio-demographic differences in mortality rates of the five leading causes of cancer mortality among women. Records of all women over 25 years-old who died due to cancer from January 1, 2002 to December 31, 2006 were obtained from the Chilean Vital Statistics System which comprises individual data of official death reports. Thus, the five leading causes of cancer death in women were identified and standardised mortality rates were calculated according to educational level and area of residence. Population estimations from the National Institute of Statistics, the world standard population, and the direct method were used for mortality rate calculations and standardisations. Besides, 95% confidence intervals were calculated for standardised mortality rate ratios (SRR). The five leading causes of cancer mortality among women were: gallbladder, breast, stomach, trachea, bronchus and lung, and cervix. Women with primary education had higher cancer mortality rates compared with women with post-secondary education. The SRR for gallbladder cancer declined among women with primary education from 11.50 in 2002 (95% CI=9.28-14.25) to 7.2 in 2006 (95% CI=5.82-8.91). In contrast, the SRR for stomach cancer increased from 5.27 in 2002 (95% CI=4.17-6.66) to 8.11 in 2006 (95% CI=6.26-10.51). Further, women in rural areas had lower mortality rates for the five leading causes of cancer than those living in urban areas. Regardless, gallbladder cancer mortality rates in rural areas were higher from 2004 to 2006. Cancer mortality inequalities among women in Chile were identified. Women with primary education had higher mortality rates compared to those with postsecondary studies. Additionally, gallbladder cancer showed higher mortality rates in rural areas. Studies that identify cancer inequalities among women are recommended to support healthy public policies and healthcare reforms.

INTENSITY OF CANCER CARE IN THE FINAL MONTH OF LIFE: A RETROSPECTIVE REVIEW OF CANCER DECEDENTS IN THE CALGARY HEALTH SERVICE REGION FROM 2003 TO 2010

Presented by: Dr. Petra Grendarova, MD, Tom Baker Cancer Centre, University of Calgary

The purpose of this study is (1) to examine the intensity of cancer therapies in the final 30 days of life using published metrics; (2) to identify trends in practice patterns over time and across major cancer types at the Tom Baker Cancer Centre (TBCC), a Canadian tertiary regional centre. This observational study identified all cancer deaths from 2003-2010 confirmed by the Alberta Cancer Registry to have occurred in the Calgary area based on the postal code of residence at time of death. Invasive solid and hematological neoplasms with adult cancer care registration were included. Deaths occurring within 30 days of the cancer diagnosis were excluded from analysis. Utilization of radiotherapy and intravenous chemotherapy within the last 30 days of life was identified based on non-cancelled TBCC treatment appointments. Chemotherapy was verified with pharmacy database. 9863 decedents were included for analysis. Median age at death was 72 years, with lung, gastrointestinal, and genitourinary cancers being most common. Thirty-five percent of deaths occurred in acute care hospitals, 29% in hospices, 19% at home and 17% under long-term care. Within the final 14 and 30 days of life, 4.8% and 10% patients had received radiation respectively, while 2.5% and 5.4% received chemotherapy. Introduction to a new chemotherapy regimen in the last 30 days occurred in 2.2% of patients. These proportions were stable from year to year. Dying in hospital, cancer type and younger age were significantly associated with chemotherapy and radiation use in the last 30 days. There was no correlation between chemotherapy and radiation use. While end-of-life chemotherapy and radiotherapy use at a Canadian tertiary regional centre concurred with published key quality indicators, the proportion of deaths in acute care hospitals exceeded expectations. Because some palliative care services are given within acute care settings, further analyses are needed to verify the nature of hospital deaths.

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LAY NAVIGATION FOR PEOPLE NEWLY DIAGNOSED WITH LUNG CANCER: A PILOT STUDY

Presented by: Dr. Helena Daudt, PhD, Clinical Research Manager, BC Cancer Agency

The purpose of the study was to evaluate the sustainability and efficacy of implementing a volunteer-based Lay Navigation program to support people with lung cancer in accessing services and addressing barriers to care during the time between diagnosis and first oncology appointment. The lay navigation study is a three-step intervention where newly-diagnosed patients are offered two phone calls and one in-person visit with a navigator at the cancer centre. To assess the efficacy of the intervention, people completed a service evaluation and participated in a semi-structured interview. Quantitative psychosocial data was collected using the Health Education Impact Questionnaire (heiQ) pre and post intervention. The heiQ assessed improvement in patient's general emotional well-being, satisfaction with life, self efficacy and confidence with health service navigation. Resource and cost requirements were collected through coordinator and navigator time and activity logs. Of 35 study participants, 25 people have completed to date. From the patient perspective, the Lay Navigation program was both useful and appreciated. Participants noted that the timing of the intervention was 'just right' and the navigators helped them feel calm, cared for and supported. Data shows that the Lay Navigation service was successful in addressing practical barriers such as transportation and lodging, connecting people with needed services and providing emotional support to cope with diagnosis and treatment. It was further noted that support was needed later on in the cancer trajectory, not only by the person living with cancer, but also by the family and caregivers. Sustainability data is being analyzed. The Lay Navigation intervention program is both useful and successful in addressing barriers to care. A drop in navigation service may increase the capacity for navigators to address patient and family needs at any point during the cancer trajectory.

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MAKING THE LINK FROM DIAGNOSIS TO WORK-RELATEDNESS: ASSESSING PATIENTS' OCCUPATIONAL ASBESTOS EXPOSURE
Presented by: Kris Moore, Research Associate, Occupational Cancer Research Centre

Occupational cancers are under-recognized and under-reported and hence eligible workers often do not receive workers' compensation. This study tested the feasibility of a process designed to simultaneously improve occupational history taking, make the link between asbestos exposure and cancer, and assist interested patients with reporting to workers' compensation authorities. The study was conducted at the Juravinski Cancer Centre in Hamilton, Ontario. Patients in the lung cancer clinic received a package from the receptionist containing a study description; an asbestos exposure questionnaire; and an asbestos and workers' compensation fact sheet. After completion, respondents were then contacted by phone and referred to an occupational hygienist. Six to twelve weeks following referral phone calls, semi-structured interviews were conducted. Information was analyzed to identify specific barriers and facilitators that arose for the participating patients, occupational hygienists and lung cancer clinic staff. 62 surveys were returned and completed. 18 (29%) participants indicated that they were aware of being exposed to asbestos at work. 14 (23%) participants believed their asbestos exposure could have contributed to their disease. 17 (27%) participants were interested in a referral to an occupational hygienist. While 14 participants were referred, only nine called the occupational hygienist. Perceptions of exposure, treatment and illness, and the burden of proof acted as barriers for participants to pursue investigation with an occupational hygienist, whereas increased knowledge of occupational health resources and flexibility in occupational history taking acted as facilitators. In the end, of those who called the occupational hygienist, two decided to file a workers' compensation claim, three decided not to file a claim, and four were undecided. Attempting to navigate the workers' compensation system can be a drain on patients' limited time and energy. This study highlights the need for implementing strategies and policies that support these patients through the cancer journey and identifies ways to systematically embed the collection of occupational information within the diagnostic path.

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MAPPING OF BREAST CANCER CARE PATHS IN BRITISH COLUMBIA FOR A BREAST CANCER MICROSIMULATION MODEL
Presented by: Chelsea Vandenberg, Research Student, BC Cancer Agency

To fully document the breast cancer care paths including screening, diagnosis, treatment, survivorship, and end-of-life care for women in British Columbia. This will be documented in such a way so that a microsimulation model for breast cancer can be developed using these care paths and cancer control data from BC. Information on care paths for the model was gathered from expert opinions in the fields of radiology, radiation oncology, surgical oncology, medical oncology, and palliative care. The screening and diagnositic imaging portions of the model were based also on previously published care paths in the Provincial Breast Health Strategy and the Screening Mammography Program of BC. The palliative care portion follows guidelines from the Cancer Care Ontario publication. Using this information, the comprehensive care pathway involved in breast cancer care was documented. The path begins with early detection of breast cancer by using screening mammography or referral by a GP. The next stage is diagnosis and then women progress through treatment. The treatment paths in this map have been divided into two main branches based on whether the cancer is metastatic or non-metastatic. The surgical and radiation treatment options in the care paths are based on TNM staging whereas the systemic treatment options are based on TNM staging as well as tumour biology. For systemic treatment, the map includes additional options for hormone therapy which are based on menopausal status as well as tumour biology and staging. For patients who have had metastatic disease or require supportive care only, there is an additional palliative care pathway.The care paths for breast cancer in British Columbia have been fully documented and the map is ready to be validated.

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MODELLING THE ECONOMIC IMPACTS OF NEW GENOMIC TESTS FOR TREATMENT STRATIFICATION IN ACUTE MYELOID LEUKEMIA
Presented by: Dr. Sonya Cressman, PhD, Health Economist, Canadian Centre for Applied Research in Cancer Control, BC Cancer Agency

In recent years genetic testing has enriched the information provided by incumbent diagnostic tests for acute myeloid leukemia (AML). Our objective was to build a simulation model to assess the impact of genomics-based tests in AML considering the current increase in availability of genetic information and affordability of sequencing. Using data from AML patients diagnosed between years 2000-2011 in BC, inclusion and exclusion criteria were applied to individuals who could benefit from expanded genetic testing. Two comparison arms were generated to compare data in eras with (post-2008) and without (pre-2008) genetic testing and a simulation model was constructed that considers the complex and history-dependent nature of decision making for AML treatment. Resource utilization was conducted using retrospective hospital, cancer agency and outpatient daycare data in BC for 10% of the patients in our model. Costs were applied from the BC/Ontario government payer perspective and survival analysis was undertaken to account for time censoring and differences in relapse and overall survival in the model. Probabilistic sensitivity analysis was conducted to assess the impact of further genetic testing. We have built a simulation model that separates health states and key decision points that would impact on the treatment of 376 AML patients in BC who would qualify for genetic testing. The total cost of treatment and diagnostic testing for eligible persons in the pre-2008 era were compared with the costs and outcomes of those eligible in the post-2008 era where treatment decisions were informed by testing for two genetic markers. The impact of further genetic testing has been grafted onto the decision model using literature values for mutations with known correlations with outcomes and preliminary cost-effectiveness estimates have been projected. Discussion will focus on the analysis of uncertainty in the model and the value of adding more information from genomic tests to the current standard.We have developed a model that incorporates the complexity of AML treatment and consequences of adopting genetic tests as part of the diagnostic workup. In coming years it is anticipated that the amount of genetic information available to predict outcome of AML patients is likely to grow and economic models will become increasingly complex and history-dependent.

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NEVER TOO EARLY: SYMPTOM SCREENING AMONG PATIENTS BEING ASSESSED FOR CANCER

Presented by: Dr. Julie Gilbert, PhD, Manager, Research and Evaluation, Cancer Care Ontario

Symptom assessment is routine for cancer patients but not for patients not yet diagnosed. The project's objective was to develop an approach to assessing symptoms among patients suspicious for cancer and undergoing diagnostic testing, focusing on the utility of the Edmonton Symptom Assessment System (ESAS), currently used across Ontario. Diagnostic Assessment Programs (DAPs) feature multi-disciplinary healthcare teams that manage and coordinate patients' diagnostic care from testing to definitive diagnosis. Patient navigators are a central element of the DAP, providing physical and psychosocial support for patients, information, and a strong linkage with the healthcare team. In a pilot project, ESAS was used in an initial patient assessment and again at the time of diagnosis. A descriptive analysis looked at the prevalence of symptoms among patients managed in the DAPs. Interviews with nurse navigators were conducted to determine the clinical utility of the ESAS tool in this phase of care. The analysis revealed that most symptoms are present but often mild. Between 5% and 35% of patients had symptoms they described as medium or high severity. Anxiety was the most prevalent, with over 75% of patients reporting mild (46.9%), moderate (20.9%) or severe (9.1%) symptoms. Other symptoms, including tiredness, dyspnea, wellbeing, and pain were also seen in 50% or more of patients. Some of these symptoms may be secondary to anxiety. The ESAS tool was seen as a useful way of structuring or starting conversations with patients about symptoms and to set baseline symptom scores, which are valuable for the clinical team. Routine symptom screening also serves to demonstrate the need for symptom support resources such as social work, in the diagnostic phase of care. There is clear need for symptom assessment during the diagnostic phase of care. Uncertainty often provokes considerable anxiety that can exacerbate symptoms which may already be advancing. ESAS has clinical value for helping nurse navigators assess and respond to patient needs even at this early phase in the patient journey.

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ONCOLOGY RECOMMENDATIONS IN CANADA: WHAT CAN WE LEARN?

Presented by: Jim Favaro, Senior Manager Corporate Accounts and Government Affairs, Amgen Canada Inc.

Funding recommendations issued by the pan-Canadian Oncology Drug Review (pCODR), L'Institut national d'excellence en santé et en services sociaux/ Comité de l'évolution des pratiques en oncologie (INESSS/CEPO), and the interim Joint Oncology Drug Review/Committee to Evaluate Drugs (iJODR/CED) were reviewed to explore clinical and economic predictors for recommendations. Final recommendations (n= 53) were identified from January 2008 to October 2012 for iJODR/CED (n= 26), from October 2011 to October 2012 for INESSS (n= 16), and from inception to October 2012 for pCODR (n= 11). Each unique recommendation was analyzed under several categories, including: review agency, drug characteristics, recommendation and funding, clinical and economic evidence. Descriptive statistical analyses were performed. Publicly available information including trial publications was used for this analysis. Overall survival was the primary endpoint in 34% of recommendations and secondary endpoint in 60%. A recommendation to fund (RtF) was made in 68% (n= 36) of cases (25% conditional upon price reduction, 30% with conditions other than price reduction, 13% with no additional conditions). The clinical value hurdle was not met in 15% (n= 8) of total recommendations. Despite its importance in the oncology setting, QoL was reported in only 34% of recommendations. Stated or implied unmet medical need did not appear to have an influence on the funding recommendation (unmet medical need [RtF= 62.5%] vs other alternatives identified [RtF= 60%]). Oncology decision-making garners much attention in Canada. The information provided by pCODR and INESSS provides important insight into the rationale behind reimbursement recommendations. This translates into improved decision making by public funders.

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OVERCOMING OBSTACLES IN ACCESSING UNFUNDED ORAL CHEMOTHERAPY: PHYSICIAN EXPERIENCE AND CHALLENGES

Presented by: Dolly Han, MSc Student, University of Toronto

Studies have shown hematologists and medical oncologists may not accept the financial limits set by governing agencies on patient access to unfunded oral chemotherapy. The objective of this study was to capture approaches used to overcome barriers, the perceived impact of inability to access these drugs and potential solutions. A total of 640 medical oncologists and haematologists across Canada were surveyed using a 13-item Web-based survey tool. The survey was delivered by e-mail with three follow-up reminders. After a response period of 3 months, results were collated and analyzed with descriptive statistics. Of the 640 invitations, 568 were successfully delivered, and 183 responses were received (response rate, 32.0%). To overcome funding barriers, participating oncologists enrolled patients onto clinical trials (90.5%), used compassionate access programs (96.1%), and made special requests to government (91.8%). Other methods included writing false claims on forms to fit funding criteria for drugs (31.1%) and using leftover drug supplies (31.0%). Physicians felt their inability to obtain unfunded medications had a negative impact on their patients' clinical outcomes (56.0%) and psychosocial quality of life (73.0%). There was general agreement improvements would occur if physicians were directly involved in government priority-setting decisions (81.5%). Only 28.5% of physicians contacted their governing body with concerns about oral chemotherapy funding. Canadian physicians use numerous methods to obtain unfunded oral chemotherapies, including falsifying claims on access forms and submitting special requests to government agencies. Further study is warranted to explore the disconnection between policymakers and physicians with regard to funding of oral chemotherapies.

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PATIENT-BASED FUNDING MODELS FOR CANCER SCREENINGS: A SCOPING REVIEW
Presented by: Geetha Sanmugalingham, Reimbursement Associate, Cancer Care Ontario

To examine what is known about patient-based funding models for cancer screening, cancer and/or chronic disease and the effectiveness of these models. The purpose was to assess the implications of using a patient-based funding framework specifically for cancer screening in Ontario as the province reforms its funding framework. With the high cost of healthcare, Canadians are concerned about the often unclear relationship between increased spending and the provision of high quality patient care. This is particularly significant within the cancer system, which accounts for a large proportion of the provincial healthcare spending in Ontario. One promising method of funding is the Patient-Based Funding (PBF) model. A systematic scoping review which looked at nine databases and grey literature was executed to answer the research question. A proportion of the articles were double screened to ensure consistency. PBF models exist in numerous jurisdictions such as the US, the UK, Japan and Australia. Within Canada, PBF has been implemented in two provinces: British Columbia and Alberta. After reviewing 2455 abstracts and webpages, 44 articles and grey literature was included in the review. Three main themes of efficiency, accessibility and effectiveness became apparent; patient-based funding has the potential to decrease mean length of stay, improve access through performing services in the appropriate location of care, drive consistent quality of in-hospital care, and decrease hospital costs. The articles also indicated some considerations for when implementing PBF. Case-mix measurements and coding should be appropriate for the patients that are being treated. Monitoring and evaluating the funding model is pertinent to see it's appropriate and doesn't unintentionally shift costs to other care settings. Findings suggest that PBF, when implemented appropriately, may result in lowered costs while maintaining quality of care. While it is not possible to determine whether PBF will be effective in Ontario for cancer screening, it seems reasonable that PBF can incent providers to improve screening in accordance with clinical guidelines.

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PATIENTS' PERCEPTIONS OF WAIT TIMES CAUSES AND THEIR STRATEGIES TO OVERCOME THEM
Presented by: Dr. Maria Mathews, PhD, Professor, Memorial University

What do patients perceive as causes of waits when seeking cancer care? We explore cancer patients' care seeking experiences to understand the causes of wait times which create the most and least dissatisfaction and to describe strategies patients used to reduce wait times. We conducted qualitative interviews with urban, semi-urban and rural patients (n=60) to explore their perceptions of the waits they experienced in the detection and treatment of their breast, prostate, lung or colorectal cancer. We asked each participant to describe their experiences from onset of symptom to start of treatment at the cancer clinic and their satisfaction with waits at various intervals. Interview transcripts were coded using a thematic approach. Patients identified 5 groups of wait time causes: 1) patient- related (e.g. vacations, illness and comorbidities, symptoms awareness, etc.); 2) treatment-related (healing time, side effects, preparation time, further testing, etc.); 3) system-related (e.g. staff shortages, nosocomial infection, poor coordination, missed tests, supply shortages, etc.,); 4) physician-related (e.g. dismissing symptoms, poor follow-up, absence, etc.); and 5) other causes (e.g. weather, flooding, holidays). Poor communication/coordination between centers or providers and physician related causes produced the most anger or dissatisfaction among patients, likely because these were seen as preventable. To reduce wait times patients would 1) routinely inquire about tests results and appointments); 2) have health professional family members review test results or use personal connections; 3) ask family physicians to advocate on their behalf. Although patients identified multiple causes of wait times, they were most dissatisfied by waits where their experiences of system or physician functioning did not meet their expectations. Strategies used by patients to reduce wait times appeared to address concerns of poor co-ordination or missed diagnoses rather than attempting to jump the queue.

Co-Authors: Dana Ryan, Memorial University; Donna Bulman, University of New Brunswick; Kathy Fowler, Eastern Health

PRIVATE WELL WATER ARSENIC EXPOSURE AND RISK PERCEPTIONS IN NOVA SCOTIA
Presented by: Laura Nauta, GIS Analyst and MSc Student, Dalhousie University

Arsenic is a naturally occurring carcinogen, present in well water of Nova Scotia. This study analyzes the risks of groundwater contamination by arsenic in Nova Scotia. Risk perceptions of water quality and testing practices of well owners in high arsenic (>10μg/L) and low arsenic risk (<10μg/L) communities is also investigated. Geospatial methods of approximately 3500 tap water samples in the Atlantic Partnership for Tomorrow's Health (Atlantic PATH) cohort project arsenic study were used to identify and analyze high arsenic risk (>10μg/L) and low arsenic risk (<10μg/L) areas in Nova Scotia. Five areas, consisting of 13 higher arsenic risk and 11 lower arsenic risk communities, were subsequently selected for inclusion in the well water quality Knowledge To Action (KTA) project. Atlantic PATH participants residing in these communities and on private well water supply were surveyed and interviewed about their water quality perceptions and testing practices for chemical contaminants. Geospatial analysis of arsenic levels in private wells across the province indicated significant variation in arsenic levels, with 9% of drilled wells above the guideline limit (10μg/L). Of the 420 well water quality survey respondents, for the arsenic KTA sub study, approximately 76-77% are confident that their well water is safe to drink, is of overall good quality and is of the same or better in quality than municipal supplies. Only 13.8% of respondents have indicated that their well water has been chemically tested in line with the two year Nova Scotia Environment testing recommendation. Even in areas where high levels of arsenic have been found, most people are satisfied with well water quality although few regularly test this water. The results suggest a need to increase public understanding of risk and improve communication of water quality recommendations for testing of private well supplies.

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PUBLIC DRUG FUNDING OF CANCER MEDICATIONS: HOW DOES THE COMMITTEE TO EVALUATE DRUGS (CED) MAKE DECISIONS IN ONTARIO?

Presented by: Alyson Mahar, PhD Candidate, Queen's University

To provide a comprehensive review, synthesis and analysis of the public cancer drug funding decision-making process in Ontario. Access to Ontario's Committee to Evaluate Drugs' (CED) monthly meeting minutes between January 2007 and December 2011 was granted. Drugs were excluded if already funded and requesting modification to reimbursement. A standardized data abstraction form was created, based on the framework established by Johnson et al. (2009). Items including the date of review, cancer site, indication (e.g. first or second-line chemotherapy, analgesic), the individual or organization requesting funding, the stream of funding requested (e.g. Ontario Drug Benefit (ODB), New Drug Funding Program(NDFP)), and the committee's decision were recorded. Data on six key criteria were abstracted: clinical benefit, need, burden of disease, social values, value for money, and health system impact. For each criterion, strength and quality of the evidence, and importance to the decision were recorded. Sixty-eight drugs were included, from a total of 111 drug funding requests. Almost 24% of the included drugs were for breast cancer management, 21% for leukemias or lymphomas and the third most common cancer site was colorectal (10%). Forty-three (63%) were first reviews, and the remaining 37% were reconsiderations. A 34% approval rate was recorded. Nine drugs were approved for special access funding, either through the exceptional access program (EAP) or the Individual Criteria Review (ICR) program; 11 were approved through the NDFP; 3 were approved through the general ODB formulary. Value for money was considered in 96% of requests, and considered important to the final decision in 85% of requests. The committee concluded that there was evidence that the drug was cost-effective in only 9 cases of the 53 it provided enough information to interpret. Further analysis (including trends in decisions over time, willingness to pay graphs and qualitative themes) will be completed prior to the meeting. Applications for the public drug funding of cancer drugs in Ontario generally address both the clinical benefit and value for money, and these are core elements of the review process.

Co-Authors: Gerald Evans, Departments of Medicine, Microbiology and Immunology, Pathology and Molecular Medicine, Queen's University; Ana Johnson, Centre for Health Services and Policy Research, Queen's University

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

Presented by: Dr. Colene Bentley, PhD, Health Services Researcher, Canadian Centre for Applied Research in Cancer Control, BC Cancer Agency

The survey is a component of a CIHR-PHSI funded grant to understand how evidence-especially evidence from the public-is incorporated into priority-setting decisions in cancer control. The objective was to examine the types of evidence used and to understand the approaches employed when public values inform cancer control decision-making. The sample frame targeted decision makers and advisors at cancer agencies and societies across Canada, including representatives from the pan-Canadian Oncology Drug Review. Likert scales and binary (yes/no) questionnaire formats were employed to inquire about the types of evidence and approaches used for evidentiary inputs. Evidence was interpreted broadly to include cost, effectiveness, program analysis, expert opinion, and public and stakeholder input. The term 'public' was broad and was parsed to include academics, professionals, the general public, industry, and patients and their representatives. Methods for involving the public included internet-based approaches and in-person methods including focus groups, consensus conferences, and town halls. The survey was administered in November 2012. 67 respondents from 117 invited individuals responded (response rate: 57%). Most respondents were employed by provincial cancer agencies (52%) and representation from across Canada was achieved. 87% and 93% of respondents stated that effectiveness and total cost were 'often' or 'always' used to inform recommendations; 69% often/always used cost-effectiveness analysis. 33% and 23% of respondents stated that patient and general public input were often/always used as evidentiary input. When publics were consulted, 66% of respondents had utilized patients or their representatives at one time, 58% had pursued advice from academia, and 32% utilized societal input. Popular methods for engaging the public were focus groups (39% of the sample used this approach), consultation documents (37%), and opinion polls (35%). Our pan-Canadian survey characterizes the evidentiary inputs and approaches to public engagement employed in cancer priority-setting decisions. While clinical effectiveness and costs are frequently used inputs, the reliance on consultation documents and opinion polls for public input suggests a lack of deliberative engagement with the public in cancer policy making.

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RATE OF OVER-DIAGNOSIS OF BREAST CANCER AFTER UNIVERSAL SCREENING IN ONTARIO, CANADA

Presented by: Dr. Bin Xie, PhD, Assistant Professor, University of Western Ontario

There is currently a wide range of estimates for the rate of over-diagnosis of breast cancer at screening. An accurate estimate of this rate would help to settle the debate on breast cancer screening. This paper attempts to provide an accurate estimate using a novel approach. A discrete event simulation model was developed to simulate the population in the province of Ontario, Canada. The rates of breast cancer incidence before, during and after the implementation of the Ontario's Breast Screening Program (OBSP), as well as uptake rate for each year since the start of OBSP (1990), were used to populate the simulation model. The rate over-diagnosis of breast cancer at screening in Ontario was estimated at 26.5% (95% CI: 24.6%-28.5%), at the high end of the range reported in the literature. The rate over-diagnosis of breast cancer at screening could be at the high end of the estimates reported in the literature. Policy makers should take this high rate of over-diagnosis into account when designing breast cancer screening strategies.

RELATIVE SURVIVAL AND CARE OF COLORECTAL CANCER PATIENT DIAGNOSED IN QUEBEC BETWEEN 1998 AND 2003

Presented by: Dr. Jean Rousseau, PhD, Institut National de Santé Publique du Québec

Relative survival, stage distribution and proportion of patients receiving care according to guidelines were measured in men and women diagnosed with colorectal cancer (CRC) in Quebec in 1998 and 2003. The relation of age, sex, cancer site, and stage at diagnosis to relative survival and proportion receiving quality care were assessed. Double degree random samples representing 20% of CRC cases declared to Quebec cancer registry in 1998 and in 2003 were drawn. Two oncology registrars reviewed medical charts of all selected cases. Additional information was obtained by linkage to administrative databases. Quality of care indicators were defined based on published CRC literature pertaining to the period 1998-2003. Relative survival was assessed using an adapted version of the Ederer II method. CRC relative excess risk was calculated using general linear model with Poisson type error. Relative survival, CRC death rates, proportions and proportion differences were all calculated taking into account the sampling plan. Relative survival among CRC patients remained stable between 1998 and 2003. Five-year relative survival of 2003 cases reached 59.6%, ranging from 91.1% to 6.2% for TNM I and IV, respectively. From 1998 data, 10-year relative survival was 56%. In those who survived the first year following diagnosis, conditional 5-year relative survival reached 73.3%. In 2003, 47.5% of cases were diagnosed at an early stage (TNM I or II), without change from 1998. All CRC investigation indicators (liver imaging, large bowel examination, number of lymph nodes examined, margin reported) showed clinically and statistically significant progress between 1998 and 2003, whereas CRC treatment indicators (radio-oncology consultation, adjuvant chemotherapy) and 30-day mortality remained stable. Proportion of patients receiving surgery in a timely fashion decreased during the 1998-2003 period. Older patients were less likely to receive care according to guidelines. This study provides reference measures to assess some effects of the upcoming Quebec CRC screening program. It also enables comparisons of CRC care in Quebec to that in other comparable nations and Canadian provinces.

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RESEARCH IN SUPPORTIVE CANCER CARE FOR CULTURALLY DIVERSE POPULATIONS: ISSUES IN CONCEPTUALIZATION AND MEASUREMENT

Presented by: Joyce Lee, PhD Candidate, University of British Columbia

This presentation addresses the issues in conceptualization and measurement in conducting research about supportive cancer care for culturally diverse patients and their family caregivers. Particularly, we report on lessons learned from challenges in the operationalization of research design during the early phase of our study. The current study adopts a mixed methods approach, which involves analyses of quantitative data from cross-sectional surveys and qualitative data from semi-structured interviews, to explore the psychosocial impacts of cancer among Chinese-speaking patients and families in British Columbia (BC). A comparison group of Anglophone Canadian cancer patients and family caregivers in BC is used. This study is in the recruitment phase: only 40 participants have completed the surveys thus far and interviews have yet to commence. The goal is to recruit 320 participants for the survey and 20 participants for interviews. Key challenges that have emerged thus far include the dyadic focus of the research and the contextualization of language in the respective participant groups. Given the family focus of the study, it is disappointing that the family caregiver participation rate is lower than the patient participation in both Chinese and Anglophons, although this discrepancy is greater in the Chinese-speaking group. We have also observed variation by gender in the response rate and in the participant preferred mode of survey data collection (phone vs. written survey). In addition, potential study participants have diverse interpretations and meanings of key concepts. Particularly, the terms 'Anglophone' and 'family caregiver' warrant further clarification. The importance of cross-cultural supportive cancer care research is evident by an increasingly diverse cancer population in Canada. Understanding the challenges in conducting such research is necessary to connecting with the purpose of enhancing supportive and psychosocial care for the culturally diverse patients and families living with cancer.

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SUPPORTING ADVANCE CARE PLANNING FOR PATIENTS THROUGH ONCOLOGY PROFESSIONAL EDUCATION

Presented by: Angela Bedard, Provincial Survivorship Program Facilitator, BC Cancer Agency

Attendees will better understand: advance care planning - processes for staff education, measuring impact of staff education in Canada there is a growing aging population, and at the same time the incidence of cancer is also increasing. Advance care planning is a process of reflection and communication to identify the values, wishes and beliefs of an individual's future healthcare plans, for if a time comes when they cannot speak for themselves. In British Columbia, the Ministry of Health announced Advance Care Planning as new legislation on September 1, 2011. The legislation allows for a process that may result in an Advance Directive and/or Representation Agreement. The BC Cancer Agency will be implementing an Advance Care Planning education program for physicians, nurses and allied healthcare providers in February 2013. Simultaneously the PRISM (Patient-Reported Information and Symptom Measurement) questionnaire will be introduced which assesses multiple domains for all patients including their knowledge of advance care planning. The education program is a compulsory introductory eLearning module on advance care planning. Staff will evaluate their knowledge and skills discussing advance care planning with patients and families. Along with staff performance, corresponding patient-reported outcomes will be analyzed.Through education our hope is to increase comfort and capacity to address advance care planning with patients and their families affected by cancer.

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SURGEON CASELOAD AND ITS ASSOCIATION WITH RATE OF BREAST CONSERVING SURGERY IN BREAST CANCER PATIENTS IN ALBERTA, CANADA

Presented by: Stacey Fisher, MSc Student, School of Public Health, University of Alberta

A recent national report on breast cancer has shown that the rate of breast conserving surgery (BCS) in Alberta is very low when compared to other Canadian provinces. We sought to investigate the relationship between surgery type (BCS or mastectomy) and surgeon caseload in breast cancer patients. All patients diagnosed with stage I, II or III breast cancer in Alberta from 2002-2010 who received surgery were identified from the Alberta Cancer Registry and included in the study. Patient demographics and clinical characteristics were obtained from the cancer registry. Type of surgery and surgeon (anonymized) were obtained from provincial physician claims data. Surgeons were categorized as high (> 30 surgeries per year) or mid/low (<30) volume. Surgeon-specific rates of BCS were calculated. Multiple regression was used to assess the relationship between surgeon volume and BCS adjusted for patient demographics and clinical characteristics.A total of 14 314 patients were included in the study and received surgery from 45 surgeons. BCS was received by 46% of patients, and 17% of all patients received at least one additional surgery within a year of their initial surgery. High volume surgeons (N= 35) performed 92% of all surgeries. Of all high volume surgeons, 54% performed BCS on more than half of their patients, while only 30% of all mid/low volume surgeons (N= 10) performed BCS on more than half of their patients. Low-volume surgeons are less likely to perform BCS than high volume surgeons, however, both groups have relatively low rates of BCS. Given patient preference for BCS, further investigation into this phenomenon in Alberta is needed to fully understand the difference in care from other parts of Canada and the US.

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SYSTEMATIC COLLECTION OF ETHNICITY DATA ACROSS MULTIPLE DISEASE SITES AT PRINCESS MARGARET CANCER CENTRE (PMCC)

Presented by: Oleksandr Halytskyy, Research Assistant, Princess Margaret Cancer Centre

Socio-cultural factors are important when determining healthcare delivery/policy. However, provincial cancer registries and hospitals do not collect ethnicity data systematically. We collected ethnicity data at a large, diverse, urban Canadian cancer centre in anticipation of developing programs to better tailor health care delivery to patients and their families. Toronto has a large East and South Asian population. At different time points between 2006 and 2012, several epidemiologic studies of incident cancer cases were performed at PMCC (each with over 80% recruitment rates). These studies captured self-reported ethnicity data in an identical fashion across the following disease sites: lung, head and neck, liver, pancreatic, gastroesophageal and thymic malignancies. Nasopharyngeal (NPC) and non-NPC squamous cell carcinomas were separately assessed, as were lung cancers in smokers versus never-smokers. Descriptive analyses are presented in the abstract, while additional analyses will be presented at the meeting. At PMCC, the proportion of cancer patients with a South or East Asian background differed significantly by disease site (p<0.0001). In some cases these differences were seen within the same disease site, stratified by histology or smoking characteristics. As expected, the highest percentage of Asians was found in patients with NPCs (47/71; 66%), followed by hepatocellular carcinomas (97/230; 42%); in contrast, Asians comprised a significantly lower proportion of patients with non-NPC head and neck cancers (110/1300; 8.5%) and pancreatic carcinomas (25/291; 8.6%). Among lung cancer patients, 41% (81/195) of never-smokers and 7% (54/768) of smokers were of Asian background. Even for rare tumours, differences persisted: only 10.3% (36/349) of gastro-esophageal cancer patients were of Asian descent, while 33% (44/132) of patients with thymomas were Asian. For some disease sites, Asians constitute a large proportion of patients. Understanding ethnic distributions is key to the delivery of proper health services and to health policy. If sufficient privacy safe-guards are in place, collection of ethnicity data in registries and databases can be extremely valuable.

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THE ECONOMIC BENEFITS OF RISK FACTOR REDUCTION IN BRITISH COLUMBIA: TOBACCO SMOKING, PHYSICAL INACTIVITY AND EXCESS WEIGHT

Presented by: Dr. Hans Krueger, PhD, President, H. Krueger & Associates Inc.

Tobacco smoking and excess weight are the #1 and 2 risk factors contributing to the disease burden in the population of high income North America, with physical inactivity only marginally down the list at #6. The purpose of our research is to assess the combined economic burden of these risk factors and then assess the potential economic benefits associated with reducing these risk factors. We have developed a model which addresses economic double-counting when assessing multiple risk factors in a given population by taking into account overlapping risk factors in some individuals (e.g. an obese individual who also smokes). Furthermore, the model projects direct and indirect economic benefits in the future of risk factor reduction in the population. For the current purposes, this model has been applied to the population of British Columbia in 2012. The combined annual economic burden of tobacco smoking, excess weight and physical inactivity is estimated at $5.1 billion in B.C. in 2012 ($1.5 billion in direct costs and $3.6 billion in indirect costs). Of this total economic burden, $1.5 billion is attributable to tobacco smoking, $2.5 billion to excess weight and $1.1 billion to physical inactivity. From a disease perspective, 15.3% of the economic burden is due to cancers, 38.9% due to cardiovascular diseases, 13.7% due to respiratory diseases and 32.1% due to other diseases. A modest 1% relative annual reduction in each of the risk factors would lead to a combined reduction in the economic burden of $8.1 billion over the next 20 years. The cumulative reduction consists of $1.8 billion associated with smoking cessation, $4.1 billion associated with maintaining a healthier weight and $2.2 billion associated with improved physical activity. To our knowledge, this is the first research to address economic double-counting when assessing the economic impact of multiple risk factors in a given population. Even modest gains in risk factor reduction at the population level have a significant economic impact.

THE EFFECTS OF REGIONALIZATION OF THORACIC SURGERY IN ONTARIO
Presented by: Anna Bendzsak, Graduate Student, Thoracic Surgery Resident, University of Torono

Arguments for regionalization of surgical services are based on the volume-outcome relationship in surgery. The consequences of centralizing services has not been explicitly tested. In 2007, Cancer Care Ontario (CCO) implemented a policy to regionalize thoracic surgery. We examine the effect of regionalization on surgical delivery and outcomes in Ontario. We examined all lung resections for cancer in Ontario between 2004 and 2010 captured in the CIHI Discharge Abstract Database. Our outcomes included surgery done in a designated hospital (DH), surgery for primary lung cancer, operative mortality, length of stay, readmission to any Ontario hospital, return to any emergency department (ED), and distance traveled. We used interrupted time series regression models to test the effect of the implementation of the CCO policy from January 1, 2008 and adjusted for confounding variables. The CCO policy significantly increased the proportion of people receiving surgery in DHs by 44% per year after the policy was implemented (95% C.I. 30% to 58%). It increased the median distance traveled by 8% per year (95% CI 2% to 14%). It had no effect on surgery for primary lung cancer (OR=0.99 95% C.I. 0.91-1.04) or operative mortality (OR=0.96 95% C.I. 0.78-1.18). Length of stay decreased from baseline trends by 6% per year after regionalization (95% C.I. 0.92-0.97), without changes to readmission or return to ED (OR=1.02 95% C.I. 0.90-1.14 and OR=1.01 95% C.I. 0.92-1.10 respectively). Regionalization of thoracic surgery occurred successfully. Although distance traveled increased after regionalization, there was no change in surgery for primary lung cancer across the province. There was no effect on operative mortality. Regionalization can therefore be carried out successfully, without measurable harm, and can result in improvements in surgical outcomes.

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THE EVALUATION AND USE OF ECONOMIC EVIDENCE TO INFORM CANCER DRUG REIMBURSEMENT DECISIONS IN CANADA
Presented by: Jaclyn Beca, Research Manager, Keenan Research Centre, Li Ka Shing Knowledge Institute, St. Michael's Hospital, Canadian Centre for Applied Research in Cancer Control

In Canada, pharmaceutical manufacturers are required to submit economic evaluations when seeking reimbursement. Our objectives were to describe the role of economic evidence in the cancer drug review process in Canada, and investigate the nature of problems encountered in the review and interpretation of economic evidence used in the process. We conducted a retrospective review of cancer drug review meeting minutes and reviewers' comments on pharmacoeconomic studies submitted to the interim Joint Oncology Drug Review (iJODR) process in Canada. We used pharmacoeconomic reviewers' reports and relevant cancer drug review expert advisory committee meeting minutes during the first year of the review process (April 2007 to March 2008). Fifteen economic submissions were reviewed. The committee could not determine the value for money of the drugs from several of the submitted pharmacoeconomic analyses. One-third of the studies had flaws significant enough that the advisory committee could not determine the cost effectiveness of the drugs from the results. The common issues outlined by the reviewers and committee were related to the uncertainty of comparative clinical benefits, quality of life and costs. The reviewers felt that few analyses provided sufficient sensitivity analyses around key variables to assess the robustness of results. Most problems identified by reviewers are simple to fix and do not involve advanced methods. Canada has a separate review process of both clinical and economic evidence for making cancer drug funding recommendations. Transparent analyses and detailed critique of evidence are crucial to the use of economic evidence in reimbursement decisions. Rigorous evaluation is resource intensive and benefits from a shared process among several jurisdictions.

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THE INFLUENCE OF SOCIO-ECONOMIC FACTORS AND HEALTHCARE EXPERIENCES ON BREAST CANCER SCREENING PRACTICES AMONG ARAB WOMEN IN QATAR
Presented by: Sofia Chaudhry, Research Project Manager, University of Calgary - Qatar

As in other developing countries, breast cancer incidence rates are increasing in Qatar. Although the Qatari government provides subsidized public health and screening programs that reduce cost barriers for all its residents, breast cancer screening (BCS) practices among women remain low. To our knowledge, there are no previous studies investigating the association between BCS practice and socioeconomic factors and healthcare experiences among women in Qatar. BCS practice, socioeconomic factors and healthcare experiences were investigated in a cross-sectional quantitative survey conducted among 1,063 Arabic-speaking women in Qatar, 35 years of age or older. Participants were recruited from urban hospital settings and community health clinics throughout populated regions in Qatar. Data collection was obtained from in-person interviews using a structured survey questionnaire conducted by female nurses fluent in English and Arabic. Due to the difficulty in reaching the study population, convenience sampling was used. Randomly-selected times were chosen to reach all potential respondents, resulting in an 87% response rate. Findings indicate less than one-third of the participants practiced BCS appropriately, and less than half knew about recent BCS guidelines. Only one-quarter reported their doctors talked to them about breast cancer. Women with higher education and income levels, and those who received information from their doctors about breast cancer were significantly more likely to practice BCS. Because the Qatari government provides subsidized haalthcare and BCS to all its residents, results indicate additional sociocultural barriers may be in place for women in Qatar. To increase women's participation rates in BCS activities, non-opportunistic national screening programs and national registries are urgently needed in countries like Qatar. Additional recommendations include emphasizing the roles of physicians, mass media and influential community leaders to help reduce morbidity and mortality related to breast cancer. Future research should investigate additional factors that newer generations of women living in rapidly changing societies like Qatar may experience, including rising education levels and access to social media.

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THE RESOURCES COSTS OF PSA-BASED SCREENING FOR PROSTATE CANCER IN THE QUEBEC HEALTHCARE SYSTEM : PRELIMINARY RESULTS
Presented by: Dr. Jean Rousseau, PhD, Chef d'unité, Institut national de santé publique du Québec

Prostatic specific antigen blood test or PSA-based screening for prostate cancer is a controversial practice widely used in Canada. The objective of the project is to evaluate the resources consumed by this practice in Quebec. The question is relevant to policy formulation and the resources management in cancer control. Starting with the data on the number of PSA tests done in public labs, the method uses cancer registry, administrative data and clinical guidelines to estimate the number of PSA done for purposes other than screening i.e. follow up of prostate cancer cases and diagnosis. Large trials of prostate cancer screening and economic models based on their results will be reviewed. A model compatible with the Quebec data on PSA screening and associated clinical services will be retained to estimate the impact of this practice on the consumption of resources in its healthcare system. Preliminary results of this approach will be presented including an estimate of the number of PSA done for the follow up of prostate cancer patients and for screening. Economic models available to estimate the resources impact of PSA screening will be presented and their parameters analysed in relation with Quebec data. The number of PSA tests being prescribed is constantly increasing but is not possible to know specifically for which purpose. Through the diverse methods put forward in the current study, first estimates are indicating that the majority of PSA test are for prostate cancer screening.

Co-Authors: Marie-Hélène Guertin, Agente de planification, Institut national de santé publique du Québec; Robert Jacob, Agent de planification, Institut national de santé publique du Québec

THE RESPECTIVE INFLUENCES OF PERSONAL FACTORS, HEALTHCARE SYSTEM ORGANIZATION AND CANCER SITE IN EXPLAINING TIME ELAPSED PRIOR TO CANCER DIAGNOSIS
Presented by: Dr. Astrid Brousselle, PhD, Associate Professor, Université de Sherbrooke

To assess the relative influences of personal factors, healthcare system organization and cancer site in explaining the time elapsed between first symptoms and cancer diagnosis.We conducted 20 in-depth qualitative interviews with patients diagnosed with breast, lung or colorectal cancer. Patients were identified based on their responses to a survey (n= 377) that documented their use of the healthcare system for usual care and in the period before their diagnosis. Patients were selected for an interview if the time between their first symptoms and their diagnosis was particularly short or, conversely, particularly long. Extreme trajectories were selected to better identify explanatory factors. We analyzed data by cancer site and compared results in a transversal analysis. Pre-diagnosis trajectories and elapsed time differed according to cancer sites. The time was much shorter (weeks) for patients with lung cancer, who consulted directly for an acute condition they did not associate with cancer. For colorectal cancer, patients experienced symptoms but consulted only when an acute condition occurred. For breast cancer, personal attitude played a role in initiating contact but care organization greatly influenced timing: step-wise discontinuous diagnostic testing introduced significant delays as compared to all-in-one-day investigation at dedicated breast centres, and two patients experienced a breakdown in the coordination of results transmission. For all cancer sites, shorter times were observed when patients were proactive in seeking care; having good connections within the system and financial capacity for private testing accelerated the investigation process. Clearly, early and coordinated access to investigation and diagnostic resources shortened the time elapsed between symptoms and diagnosis. The fact that patient proactivity and personal financial investment shortened pre-diagnosis time raises equity issues regarding access to cancer diagnostic procedures. We will make practical suggestions for shortening pre-diagnosis time.

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THE RNA DISRUPTION ASSAY HAS THE POTENTIAL TO BE A COST-EFFECTIVE HEALTHCARE TECHNOLOGY IN DETECTING NON-RESPONDERS TO BREAST CANCER CHEMOTHERAPY
Presented by: Gino Ariano, Rna Diagnostics Inc.

The Rna Disruption Assay (RDA) is a diagnostic test that can classify breast cancer patients as non-responders to chemotherapy with a high negative predictive value. A preliminary economic evaluation assessed the potential value of RDA in screening breast cancer patients receiving chemotherapy. A health economic evaluation compared screening with RDA versus no screening in breast cancer patients receiving neoadjuvant chemotherapy. The NCIC-CTG MA-22 clinical trial was the data source supporting RDA. Patients were categorized as triple negative, HER-2+, or ER+/HER-2-. Non-responders identified with RDA were offered alternative chemotherapy. Long-term patient survival was estimated from the National Surgical Adjuvant Breast and Bowel Project Protocol B-18. Healthcare resources for treating breast cancer were from the Statistics Canada population health model and clinical opinion. Costs were from recognized sources. The time horizon was 16 years. Costs and consequences were discounted at 5% per annum. Pathological complete response (pCR), the absence of invasive cancer in the breast and axilla after neoadjuvant chemotherapy, is a strong surrogate for survival in breast cancer. Non-responders to chemotherapy identified with RDA were offered alternative treatment with the aim of achieving pCR. Screening with RDA to identify non-responders to chemotherapy improved patient survival. In a cohort of 10,000 patients with breast cancer, there was an incremental benefit of 594 quality-adjusted life-years for RDA screening versus no screening. There was an incremental savings of $448,260 for screening with RDA versus no screening. The incremental cost-effectiveness ratio for RDA screening was -$755 per quality-adjusted life-year versus no screening. This economic evaluation demonstrated that RDA has the potential to improve patient survival and to be a cost-effective technology for screening breast cancer patients receiving chemotherapy.

Co-Authors: Maureen Trudeau, Odette Cancer Centre, Sunnybrook Hospital; Warren Chin, PhD, President, ILEX Consulting Inc

THE WAIT TIME CREEP: CHANGES IN THE SURGICAL WAIT TIME FOR WOMEN WITH UTERINE CANCER IN ONTARIO, CANADA, 2000-2009

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

Cancer surgery wait times in all disease sites are a priority concern for Ontario. We will describe the surgery wait times for uterine cancer in Ontario from the date of histologic diagnosis to date of surgery (hysterectomy). We will also describe possible predictors of surgery wait times. Retrospective population-based study of women in Ontario, Canada who had uterine cancer diagnosed between April 2000 and March 2009 recorded in the Ontario Cancer Registry (OCR). Hysterectomy surgery had to be performed within 730 days of diagnosis. Wait time was defined as the time from diagnosis by histology to the date of hysterectomy as reported in the Canadian Institute for Health Information (CIHI) database. Demographic information was identified from the registered persons database (RPDB). Structural variables like hospital type were identified through CIHI. Logistic regression analysis was performed to assess potential prognostic factors of wait times. 9330 women had a hysterectomy within 730 days of a diagnosis confirmed by histology. In 47% of cases, women had surgery in a teaching hospital and a gynaecologist did the surgery in 53% of cases. Median wait time from diagnosis was 47 days (6.7 weeks) which increased steadily per year from 34 days (4.9 wks) in 2000 to 55 days (7.8 wks) in 2006, and then levelling off through 2009. Predictors of a wait time greater than 6 weeks included age category, region, income, year of diagnosis, surgeon speciality, histology and having surgery in a teaching hospital.Rising incidence rates of uterine cancer and shifting referral and treatment guidelines for complex cases may be explanatory for the static wait time post 2006. As 55% of patients with uterine cancer continue to wait longer than 6 weeks there remains an observable disconnect between resource need and availability.

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TREATMENT OF ELDERLY SMALL CELL LUNG CANCER PATIENTS: CHEMOTHERAPY TOLERANCE AND SURVIVAL

Presented by: Stacey Fisher, MSc Student, School of Public Health, University of Alberta

Treatment of elderly cancer patients can differ greatly from established standard treatment of younger patients. Here we sought to assess the care provided to patients aged 75 years and older diagnosed with small cell lung cancer (SCLC) in years 2004-2008 in Alberta, Canada and assess their chemotherapy tolerance and survival.All patients who met the above criteria and had an oncologist-consult were included. Data were obtained from the Alberta Cancer Registry and chart review. Kaplan-Meier curves were generated to compare patient survival by age and treatment completeness status. Cox proportional hazard models were used to estimate the effect of treatment on patient survival, adjusting for several demographic/clinical factors. A total of 171 patients were included in the study, 117 (68%) of whom began chemotherapy. Of these 117, 52% completed all cycles, 66% did not have any dose reductions, and 31% completed all cycles at the recommended dose. The hazard of death for patients who did not complete all cycles of chemotherapy was 2.72 (95% CI: 1.52-4.87; P< 0.001) relative to those who completed chemotherapy at the recommended dose, adjusting for several demographic/clinical factors. Dose reduction did not affect survival if all cycles of chemotherapy were completed (HR=1.02; 95% CI: 0.57-1.82; P=0.94). While an appreciable proportion of elderly patients do not begin chemotherapy treatment, those that do are able to tolerate and receive survival benefits from it. It is, therefore, vital that both elderly and younger patients are considered for established treatment to establish a favourable balance between survival benefits and toxicity.

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TRENDS IN MORTALITY DUE TO THE TOP FIVE CAUSES OF CANCER AMONG WOMEN IN CHILE

Presented by: Dr. Silvia Bermedo-Carrasco, PhD Candidate, University of Saskatchewan

The World Health Organization (WHO) estimates that mortality rates due to cancer would continue to increase worldwide. In the Americas Region alone, the WHO projects more than 200,000 deaths among women due to cancer of the breast, cervix, stomach, and trachea, bronchus and lung (TBL) by 2030. In Chile, cancer mortality represents the second leading cause of death and it has much higher mortality rates when compared to other countries in the Americas Region.To identify the top five causes of cancer mortality among women in Chile in the period 1990 - 2006. To analyze temporal trends for the top five causes of cancer mortality among women during the period of study by computing the crude- and age-standardized mortality rates for the population of interest. A descriptive study of temporal trends in mortality was conducted. Records of women over 25 years of age who died due to cancer from 1990 to 2006 were obtained from official death reports contained in the Chilean Vital Statistics System. Aggregation of the International Classification of Diseases 9th and 10th codes was compiled following the recommendations of the International Agency for Research on Cancer. Crude-and age-standardized mortality rates per 100,000 women were calculated based on population estimates made available by the National Statistics Institute. The world standard population and direct method were used to provide standardization to the study sample. Statistical analyses were performed by using SPSS. EPIDAT was used for the standardization of mortality rates, and the Jointpoint Regression Program was used for analyzing cancer mortality trends. Gallbladder, breast, stomach, TBL, and cervix were the five leading causes of cancer mortality among Chilean women from 1990 to 2006. The epidemiological trend over 16 year study demonstrated a decrease in the mortality rates due these specific causes of cancer. Downward trends were observed in gallbladder, breast, stomach, and cervical cancer. In contrast, cancer of the TBL demonstrated an upward trend that could be attributed to the increasing smoking rates among women and/or pollution levels. Further research is recommended so as to shed some light and help to accurately identify the factors associated with the increases in mortality rates due to TBL cancer among women in Chile.

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USE OF SINGLE FRACTION PALLIATIVE RADIOTHERAPY FOR BONE METASTASES: POPULATION-BASED PRACTICE PATTERNS OVER A FIVE YEAR PERIOD

Presented by: Dr. Robert Olson, Radiation Oncologist, BC Cancer Agency

There is abundant evidence that a single fraction (SF) of palliative radiotherapy (RT) is equivalent to more inconvenient and costly courses with multiple fractions, in certain circumstances. Despite this, variability in SF utilization is reported. The purpose of this research is to explore factors associated with use of SFRT.A retrospective review of all 16,400 courses of palliative RT to bone metastases (in 8,613 patients) was performed from 2007 - 2011 in a Canadian province. Radiation Oncology characteristics were collected from the practitioners themselves, or their department head. Multivariable analysis was performed using logistic regression. There was significant variation in the use of SFRT for bone metastases between the provincial cancer centres (p<0.001; range 24%-72%). On multivariable analysis, increasing age (odds ratio [OR]=1.01 per year; p 0.001), and increasing years of experience (OR 1.02; p=0.003) were associated with increased use of SFRT. Conversely, the calendar year (OR=0.97; p=0.002) was inversely associated with use of SFRT. With genitourinary tumours as the reference group the OR for use of SFRT was 2.53 (95% CI: 1.9 -3.27), 1.79 (1.38-2.32), 1.95 (1.58-2.42), and 0.77 (0.57-1.03) for breast, lung, hemato-lymph, and gastrointestinal, respectively. There was significant variability between the numerous cancer centres provincially, variying beween OR=0.25 (0.16-0.38) and 2.37 (1.73-2.32) in comparison to the largest centre as a reference. There is significant variability in use of SFRT for bone metastases in a provincially run radiotherapy program. After controlling for potentially confounding factors, it appears that different cultures exist within each centre, where individual radiation oncologists practice similar to their colleagues. These results have motivated further research and efforts to better standardize approaches to palliative RT use in our province.

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VARIATION IN LUNG CANCER PRACTICE GUIDELINES ADHERENCE: APPROPRIATE QUALITY OF CARE OR CAUSE FOR CONCERN?

Presented by: Dr. Melissa Brouwers, PhD, Associate Professor, Deptartment of Oncology, McMaster University

Provincial practice pattern data demonstrated significant regional variation and low adherence to practice guideline (PG) treatment recommendations for stage II/III non-small cell lung cancer (NSCLC) patients. In our study, we engaged with clinicians and administrators to better understand the clinical decision-making process, role of PGs and to propose future improvements. A mixed methods study design was used. Surgeons, medical oncologists and radiation oncologists from Ontario were invited to participate in a survey consisting of 6 areas of inquiry. A grounded theory approach was used to guide key informant semi-structured interviews of purposively sampled clinicians and healthcare administrators. A more in-depth analysis of the practice pattern data was planned. Participants reported: (i) favorable ratings for PGs and evidentiary bases underpinning them, (ii) that proportions of patients receiving no treatment were too high, and (iii) that regional variation seen across the province was problematic. The most common barrier to implementing PGs was lack of organizational support by clinical administrative leadership. That the primary trial results underpinning the PG recommendations were not generalizable to the typical patients seen in clinic was a key concern. The qualitative analysis yielded five themes related to physicians' decision-making: the unique patient, the unique physician, the family, the clinical team, and the clinical evidence. A dynamic interplay between these five themes existed. Further analysis of practice pattern data was not possible given limitations related to data collection. Whether a quality of care problem exists is unclear due to lack of information for some key clinical characteristics. Various factors play a role but warrant further study. Our data show that defining a quality of care problem is significantly more complex than consideration of practice patterns alone.

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VARIATION IN TREATMENT AND SURVIVAL PATTERNS OF BREAST CANCER PATIENTS IN ALBERTA, CANADA 2002-2010: OPPORTUNITIES FOR QUALITY IMPROVEMENT

Presented by: Dr. Marcy Winget, PhD, Director, Innovation and Decision Support, Alberta Health Services

A recent study found Alberta has the lowest rates of breast conserving surgery (BCS) compared to mastectomy in the country. Studies have shown that women prefer BCS due to its less disfiguring nature. We examined overall rates of BCS by stage, geographic variation and the relationship to survival. All women diagnosed with stage I-III breast cancer in years 2002-2010 who had surgery were identified from the Alberta Cancer Registry and included in the study. The relationship between type of surgery received and patient demographics, clinical characteristics, and receipt of radiation or chemotherapy were assessed. Cox-proportional hazard models were run adjusting for all demographic, clinical and treatment variables available to assess the relationship between treatment received and breast cancer-specific death. Breast cancer-specific mortality rates of those who received BCS plus radiation compared to complete mastectomy are highlighted.The percentage of breast cancer patients who received BCS varied overall by stage: 52% stage I, 36% stage II, and 17% stage III. Rates also varied geographically; the 2 urban regions consistently had BCS rates slightly above average for all disease stages and rural/remote regions had rates that were 5-15% lower than the provincial average. Inconsistent with treatment guidelines, 10-15% of patients who received BCS did not receive radiation. Breast cancer-specific mortality was worse for stage II and III patients who received mastectomy compared to those who received BCS plus radiation: HR (95% confidence interval) 1.51 (1.19, 1.90) and 1.94 (1.33, 2.81), respectively after adjusting for demographic/clinical characteristics. Mortality rates did not differ by type of surgery for stage I patients: 1.06 (0.75, 1.49). BCS rates in Alberta overall are quite low and vary appreciably geographically. Surprisingly, patients who received BCS and radiation had significantly better survival than those who did not. Efforts are need to improve the rate of BCS followed by radiation; such efforts should improve breast cancer survival.

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VARIATION IN UTILIZATION OF ADJUVANT CHEMOTHERAPY IN EARLY STAGE BREAST CANCER: DATA FROM THE CANCER CARE ONTARIO NEW DRUG FUNDING PROGRAM (NDFP)
Presented by: Dr. Andrea Eisen, Medical Oncologist, Odette Cancer Centre, Sunnybrook Health Sciences Centre

Recent improvements in breast cancer mortality are partly due to increased utilization of appropriate systemic therapy in early stage disease. The objectives of this study were to 1.review utilization of the most effective adjuvant breast cancer regimens across Ontario, 2. identify regions where there are apparent gaps in best practices. We used data from the Ontario NDFP to determine the utilization of 8 drug regimens approved for early stage breast cancer in each of the 14 provincial local health integration networks (LHINs). The NDFP funds new and expensive cancer drugs; approximately 75% of all cancer treatments are funded through this mechanism. The analysis was restricted to patients with early stage, Her2 negative breast cancer treated in 2011-12. Data were obtained from individual cancer clinics in each LHIN. Since funding for these drugs is obtained directly from the NDFP, we estimate that data collection is >95% complete for these regimens. Across the province, the most commonly used regimen was FEC-D (43%), followed by TC (23%) and ddACT (21%). The remaining regimens (AC-Docetaxel, ACT q 3 wks, CEF, FEC and AC-weeklyT) were used in less than 5% of cases. However, there was important regional variation. In LHIN A, ACT q 3 wks was used in 42% of cases, and no patients received FEC-D. In LHIN P, TC was used in 40% of cases. In LHIN R, only 6% of patients received FEC-D, whereas 63% received ddACT. It is of concern that the ACT q3 wks and TC regimens are widely used, as they are likely less effective than FEC-D or ddACT. Factors such as tumour stage, geographic distance from treatment centre and private insurance coverage for supportive care medications may also affect choice of regimen.

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WHAT FACTORS INFLUENCE CANCER PATIENTS' RATINGS OF INFORMATION TRANSFER BETWEEN SPECIALTY CARE AND PRIMARY CARE?
Presented by: Dr. Danièle Roberge, PhD, Professor, Université de Sherbrooke

To report on cancer patients' ratings of information transfer between specialty care and their primary care physician (PCP) and to identify individual and organizational factors associated with perceived informational continuity. Data come from a survey of 1379 patients' perceptions (response rate : 80%) of their care experience in nine oncology outpatient clinics in Quebec in 2011. The sample for this study consists of patients who declared having a PCP (N= 1251). Multiple logistic regression (MLR) was used. The dependent variable is the probability of having a positive rating of information transfer to the PCP. The independent variables are patients' sociodemographic and clinical characteristics, reported length of affiliation with the PCP as well as length of utilization of the oncology clinic. Organizational attributes of the clinics are geographic location and university affiliation. Overall, 67% of respondents had a positive rating of information transfer to their PCP. This proportion ranges from 39% to 87% between oncology clinics. Significant results (alpha≤0,05) from the MLR indicated that rating of information transfer is positively related with higher level of education, and with better self-assessed health status, but negatively related with longer length of utilization of the oncology clinic. The most important organizational factor was the rural location of the clinic which positively influenced patients' rating of information transfer to their PCP. University affiliation was found to be negatively related to perceived information continuity. Findings indicate a great deal of variability in the patient's ratings. The influence of longer use of oncology outpatient services suggest that patients' long-term follow up may be managed more frequently by specialists. Higher ratings for rural oncology clinics suggest better coordination mechanisms with PCP in rural areas.

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