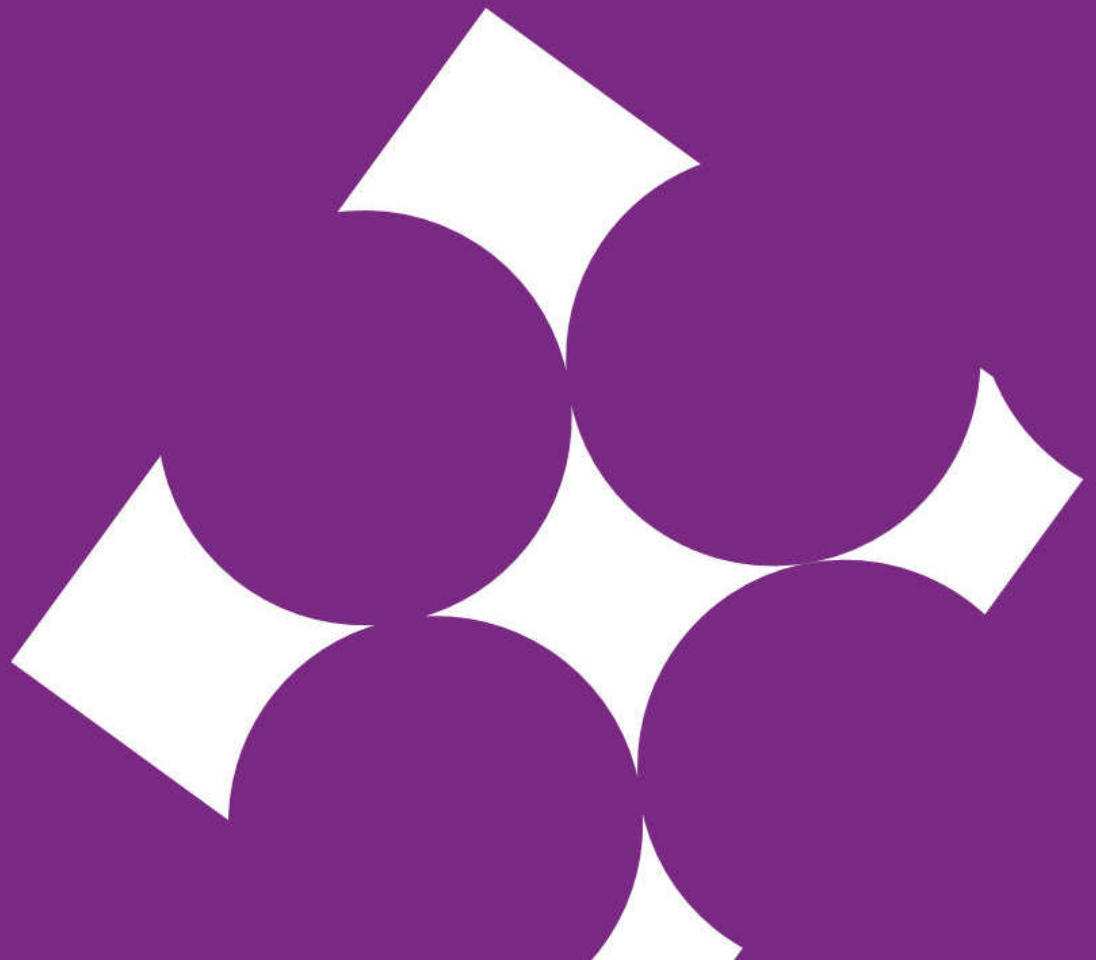


Virtual ARCC2020

Book of Abstracts



## Virtual ARCC2020 Presentation Schedule

Date	Presentation Details
<p style="text-align: center;"><b>Wed. July 22, 2020</b></p> <p style="text-align: center;"><b>1:00pm EST</b> (10:00 am PST, 2:00pm AT)</p>	<p><b>Abstract 1</b> Supporting the underserved: exploring cancer journey needs of adolescents and young adults (Ruhi Kiflen, Canadian Cancer Society)</p> <p><b>Abstract 2</b> The Value of Patient-Oriented Research in Neurooncological Clinical Trials: Canadian Lessons from the Recent Past (Fedir Razumenko, University of Calgary)</p> <p><b>Registration Link:</b> <a href="https://us02web.zoom.us/meeting/register/tZYuc-Gpqj8sH9fClipSdJ8Dg7U4oalacZC6">https://us02web.zoom.us/meeting/register/tZYuc-Gpqj8sH9fClipSdJ8Dg7U4oalacZC6</a></p>
<p style="text-align: center;"><b>Wed. August 5, 2020</b></p> <p style="text-align: center;"><b>12:00pm EST</b> (9:00am PST, 1:00pm AT)</p>	<p><b>Abstract 1</b> Breast Cancer &amp; Biosimilars: How patient and physician values helped shape provincial policies</p> <p><b>Abstract 2</b> How a web-based financial resources navigation tool can help patients manage the financial toxicity of breast cancer.</p> <p><b>Abstract 3</b> How a web-based metastatic breast cancer drug navigation tool makes understanding treatment options easier for patients and health care professionals  (Diana Ermel and Jennifer Gordon, Canadian Breast Cancer Network)</p> <p><b>Registration Link:</b> <a href="https://us02web.zoom.us/meeting/register/tZEtduygqzgtHtCTzezBh89H2eGGe8xUvwV5">https://us02web.zoom.us/meeting/register/tZEtduygqzgtHtCTzezBh89H2eGGe8xUvwV5</a></p>
<p style="text-align: center;"><b>Wed. August 12, 2020</b></p> <p style="text-align: center;"><b>12:00pm EST</b> (9:00am PST, 1:00pm AT)</p>	<p><b>Abstract 1</b> Identifying real-world colorectal cancer diagnostic pathways in Ontario, Canada/Factors associated with differing colorectal cancer diagnostic pathways in Ontario, Canada (Patti Groome, Queen's University)</p> <p><b>Abstract 2</b> Can the ESMO Magnitude of Clinical Benefit Scale Describe the Value of Radiotherapy? (Timothy Hanna, Queen's University)</p> <p><b>Registration Link:</b> <a href="https://us02web.zoom.us/meeting/register/tZwud-6hqj4tG9VWLm4NeDHEHOAPgkBbmZSN">https://us02web.zoom.us/meeting/register/tZwud-6hqj4tG9VWLm4NeDHEHOAPgkBbmZSN</a></p>

<p><b>Wed. August 26, 2020</b></p> <p><b>12:00pm EST</b> (9:00am PST, 1:00pm AT)</p>	<p><b>Abstract 1</b> Population-based lung cancer screening using low-dose chest computed tomography: Potential benefits, harms, and challenges (Manisha Pahwa, McMaster University)</p> <p><b>Abstract 2</b> An administrative data algorithm to identify patients with incident lung cancer in Quebec (Erin Strumpf, McGill University)</p> <p><b>Registration</b> <b>Link:</b> <a href="https://us02web.zoom.us/meeting/register/tZwrfuogrTgrHtw1eBcR8p7zeWvIMBbgkykyl">https://us02web.zoom.us/meeting/register/tZwrfuogrTgrHtw1eBcR8p7zeWvIMBbgkykyl</a></p>
<p><b>Wed. September 2, 2020</b></p> <p><b>12:00pm EST</b> (9:00am PST, 1:00pm AT)</p>	<p><b>Abstract 1</b> Impact Of Preexisting Cardiovascular Disease On Treatment Patterns And Outcomes In Patients With Lung Cancer</p> <p><b>Abstract 2</b> Burden of physical and psychological symptoms near end of life in patients with lung cancer using patient-reported outcomes  (Atul Batra, University of Calgary)</p> <p><b>Registration</b> <b>Link:</b> <a href="https://us02web.zoom.us/meeting/register/tZakdeuopz0sHdBnrV0yGz4rhMCagaB0N92M">https://us02web.zoom.us/meeting/register/tZakdeuopz0sHdBnrV0yGz4rhMCagaB0N92M</a></p>
<p><b>Fri. September 18, 2020</b></p> <p><b>12:00pm EST</b> (9:00am PST, 1:00pm AT)</p>	<p><b>Abstract 1</b> Stakeholder perspectives for precision oncology: Bridging tensions between uncertainty and optimism (Samantha Pollard, BC Cancer)</p> <p><b>Abstract 2</b> A retrospective review of ethnicity and uptake of genetic testing in families affected by hereditary cancer in British Columbia (Angela Bedard &amp; Eryn Forest, BC Cancer)</p> <p><b>Registration</b> <b>Link:</b> <a href="https://us02web.zoom.us/meeting/register/tZcoduutqTljGNM8TazgIPs5znDdofJS0wsw">https://us02web.zoom.us/meeting/register/tZcoduutqTljGNM8TazgIPs5znDdofJS0wsw</a></p>

**Wed. September 30, 2020**

**12:00pm EST**  
(9:00am PST, 1:00pm AT)

**Abstract 1**

Clinical Trials in Ontario: Drug funding policy impact and evaluation  
(Lisa Milgram, Ontario Health – Cancer Care Ontario)

**Abstract 2**

A retrospective single center study investigating the clinical significance of grade in triple negative breast cancer (Sarang Upneja, Western University)

**Registration**

**Link:** <https://us02web.zoom.us/meeting/register/tZEuduygrjgpG9Sp2l9iMk0N3cLypEPI0QHs>

# Supporting the underserved: exploring cancer journey needs of adolescents and young adults

Ms. Ruhi Kiflen, Canadian Cancer Society

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**Primary Program Area:** Survivorship

**Secondary Program Area:** Knowledge Translation

**Method/Discipline:** Mixed Methods Research

## Abstract Details: Background

Adolescents and young adults (AYA) diagnosed with cancer face unique challenges. In Canada, about 7,600 AYA aged 15 to 39 years are diagnosed with cancer each year. Although survival rates are high, AYA are predominantly treated as adults. Due to a lack of knowledge of AYA needs, there is limited information on best practices for supportive care. AYA do not receive appropriate information and referrals to support services, and therefore experience an intense symptom burden, less developed coping mechanisms, and face challenges in decision-making.

## Purpose

To identify the needs and challenges that AYA face during their cancer journey

To propose ideas for service adaptations to ensure AYA receive age-appropriate supportive care

## Methods

A mixed methods approach was used. First, a literature review was conducted to summarize what is currently known regarding the challenges and supportive care needs of AYAs with cancer. Second, key informants' interviews were conducted to validate our findings and better understand how a support service should be tailored or developed for this population.

## Results

We identified a total of nine AYA unmet information and support needs during their cancer journey including: lack of career supports; lack of age-specific information; financial burden; issues related to psychosocial supports; physical challenges; palliative care; access to clinical trials; lack of supports for fertility services and poor self-management supports. Strategies for improving information and support services for AYA include increasing availability of age-specific information, improving access to program-based peer support programs (i.e. yoga, cooking etc.), and practical support for financial, fertility and mental health services. To further develop our learnings, we will also leverage international experience to develop innovative solutions.

## Conclusion

The needs of AYA vary along the continuum of care, in addition to their age and stage in life. The results illustrate the immediate need for age-appropriate resources, tailored peer and practical supports. This work provides key insights for organizations to consider when developing and delivering services for this population.

**All Authors:** Ruhi Kiflen, Canadian Cancer Society; Kaitlin Atkinson, Canadian Cancer Society; Khairun Jivani, Canadian Cancer Society; Shawn Chirrey, Canadian Cancer Society; Holly Bradley, Canadian Cancer Society; Laura Burnett, Canadian Cancer Society; Tracy Torchetti, Canadian Cancer Society

# The Value of Patient-Oriented Research in Neurooncological Clinical Trials: Canadian Lessons from the Recent Past

Dr. Fedir Razumenko, University of Calgary

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**Primary Program Area:** Societal Values and Public Engagement

**Secondary Program Area:** Clinical trials and research ethics

**Method/Discipline:** Mixed Methods Research

## Abstract Details: Background

The CIHR pan-Canadian Strategy for Patient-Oriented Research (SPOR) emerged in 2011 with a vision to enhance the healthcare experience and improve health outcomes. Although the SPOR has attempted to integrate patient-oriented research into the healthcare system for almost a decade, healthcare policymakers and researchers have continued to question the validity and assessment of its implementation. What are the historical conditions of this SPOR environment and why its implications matter at present?

## Objective and Methods

Exploring developments in neurooncological cooperative clinical trials over the 2000s, which foreshadowed the advent of SPOR, we have the objective to demonstrate how and why a cultural shift to clinical investigation that became more patient-centered was made. By focusing on the development and implementation of select neurooncological clinical trials we demonstrate how ethical protocols have often been created in the clinic and modified through interactions of the research team with patient participants, and members of the institutional ethics committees. We use a participatory classical grounded theory method with interactive data/analysis cycles to ensure that data are adequately interrogated and lead to meaningful results. Data collection and analysis continue until findings are coherent and consistent with theory-based evaluations.

## Results

The project's main finding is that the evolving ideas of patient-oriented research have emerged in the initiatives of the very clinical investigators facing a growing institutional oversight. A popular claim that the SPOR has originated primarily in moral and political arguments has proved unsubstantiated. This project, therefore, grounds Canada's Strategy for Patient-Oriented Research in historical evidence. Moreover, a contemporary paradigm of Canadian health research in neurooncology have potential applications for the engagement of patients at the planning stage of clinical trials.

## Conclusion

Through analyzing select models of cancer clinical investigation, we provide evidence to enhance the effectiveness of SPOR. It is feasible to gradually optimize the Canadian health delivery system by informing stakeholders in health services of possible pathways to improve the functionality of a patient-oriented model of clinical investigation.

**All Authors:** Fedir Razumenko, University of Calgary

# Breast Cancer & Biosimilars: How patient and physician values helped shape provincial policies

Ms. Diana Ermel, Canadian Breast Cancer Network

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**Primary Program Area:** Health Systems, Services and Policy

**Secondary Program Area:**

**Method/Discipline:** Qualitative Research Methods

**Abstract Details:** Background: As patents on biologic therapeutics are set to expire, the use of biosimilars for the treatment of cancer is expected to increase. The Canadian Breast Cancer Network (CBCN) wanted to better understand the perspectives of patients and medical oncologists in relation to the use of biosimilars for the treatment of breast cancer.

Method: The Canadian Breast Cancer Network (CBCN) held two virtual round-tables with breast cancer patients and medical oncologists to better understand the perspectives of both groups and inform the development of a white-paper to communicate these values.

Results: Physicians and breast cancer patients both recognize the opportunities that come with the entry of biosimilars into the Canadian health care system. However, to ensure both the safety and comfort of Canadian breast cancer patients the “Breast Cancer & Biosimilars Whitepaper” was developed that outlined five considerations to ensure that the implementation of biosimilars in the oncology space reflected patient and physician values. These considerations were:

Patient-friendly education tools need to be developed for the patient population.

Health care professionals need to be provided with educational opportunities to better understand biosimilars.

Clear naming protocols and identification needs to be implemented.

Patients who are being successfully treated by a reference biologic should not be forced to make a non-medical switch.

Post-marketing surveillance should be mandated to provide additional data to monitor treatment outcomes.

These considerations were disseminated by sharing this whitepaper broadly with federal and provincial decision-making bodies, provincial payers, cancer care agencies and members of the pan-Canadian Oncology Biosimilars Initiative to ensure these perspective were considered as policies were developed. This whitepaper provided a communication tool that clearly articulated the patient and physician values and how these could be reflected in the implementation of biosimilars in oncology.

Conclusion: Policies for the use of biosimilars in oncology have been announced in various provinces and as a result of the input from stakeholders are reflective of patient and physician values.

**All Authors:** Diana Ermel, Canadian Breast Cancer Network; Jenn Gordon, Canadian Breast Cancer Network; Cathy Ammendolea, Canadian Breast Cancer Network

# How a web-based financial resources navigation tool can help patients manage the financial toxicity of breast cancer.

Ms. Diana Ermel, Canadian Breast Cancer Network

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**Primary Program Area:** Knowledge Translation

**Secondary Program Area:**

**Method/Discipline:** Patient & Public Engagement

**Abstract Details:** Introduction: A cancer diagnosis can have a significant impact on patients and families. A 2017 Canadian Breast Cancer Network survey[1] of 458 breast cancer patients in Canada shared that 47% of early stage patients, and 42% of metastatic patients experienced a negative impact on their finances as a result of their diagnosis; 22% of early stage patients and 40% of metastatic patients reported that this was a large negative impact. Of the respondents who looked for information about financial supports only 28% of early stage patients and 4% of metastatic patients were able to access all of the information they needed.

Method: An advisory board of breast cancer patients outlined the key financial concerns and informational gaps. CBCN worked with a social worker who specializes in oncology to perform an environmental scan and identify what resources currently exist in Canada to support breast cancer patients from a financial perspective.

Results: CBCN developed “FinancialNavigator”, a digital web-based navigation tool that allows patients and health care professionals to access a comprehensive database of financial resources available to Canadians with breast cancer. While this resource was developed specifically for breast cancer patients, many resources identified in this database may also be useful for patients with other cancers. In addition, the resource supports patients and health care professionals in navigating the various health insurance systems in Canada.

Conclusion: Patients and oncology health care professionals have access to a web-based tool that provides them with a user-friendly database of financial resources to support patients and families.

This resource can be accessed at <https://cbcn.ca/en/financialnavigator>

[1] Canadian Breast Cancer Network; Breast Cancer: The Lived Experience: 2018 <https://cbcn.ca/en/the-lived-experience>

**All Authors:** Diana Ermel, Canadian Breast Cancer Network; Jenn Gordon, Canadian Breast Cancer Network; Rebecca Armstrong, Canadian Breast Cancer Network; Cathy Ammendolea, Canadian Breast Cancer Network; Wendy Hall, Canadian Breast Cancer Network; Mary Lou Robertson, M.L. Robertson Consulting Inc.



# How a web-based metastatic breast cancer drug navigation tool makes understanding treatment options easier for patients and health care professionals

Ms. Diana Ermel, Canadian Breast Cancer Network

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**Primary Program Area:** Knowledge Translation

**Secondary Program Area:**

**Method/Discipline:** Patient & Public Engagement

**Abstract Details:** Background: Healthcare in Canada is administered at the provincial level, including public drug formularies. Because Canadians are accessing different health care systems depending on the province they reside in, there is often inequitable access when it comes to drugs, especially for people living with metastatic breast cancer. These systems add new drugs to their formularies at different times and while a drug may be accessible in one province it might not be publicly accessible in another province. To complicate matters, some provincial formularies are shared online for patients and caregivers to access, while others are not published for the public which makes it challenging for patients to understand all their options.

Method: The Canadian Breast Cancer Network (CBCN) connected with all provincial and territorial drug formularies to understand what metastatic breast cancer drugs are currently covered on each formulary. CBCN also connected with all manufacturers who had a metastatic breast cancer drug going through the health technology assessment process to better understand the status of each therapy.

Results: To help patients navigate this complex system the CBCN has developed MedSearch, a web-based metastatic breast cancer drug navigation tool. This novel tool allows patients and health care professionals to easily find information about which metastatic breast cancer drugs are publicly funded in each province or territory across Canada, including their status within the drug approval process. MedSearch provides general information about the various treatments for metastatic breast cancer and also identifies which treatments are appropriate for certain sub-types.

This tool is updated regularly as new drugs are approved by Health Canada and is the only resource of its kind in Canada.

Conclusion: This resource has led to increased transparency for patients and health care professionals ability to access information about metastatic breast cancer treatment options.

**All Authors:** Diana Ermel, Canadian Breast Cancer Network; Niya Chari, Canadian Breast Cancer Network; Rebecca Armstrong, Canadian Breast Cancer Network; Cathy Ammendolea, Canadian Breast Cancer Network; Jenn Gordon, Canadian Breast Cancer Network

# Identifying real-world colorectal cancer diagnostic pathways in Ontario, Canada

Dr. Patti Groome, Queen's University

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**Primary Program Area:** Health Systems, Services and Policy

**Secondary Program Area:** Diagnostic pathways

**Method/Discipline:** Administrative Data Analysis

**Abstract Details:** Background: In colorectal cancer, there is little evidence that diagnostic pathway guidelines are followed and real-world pathways have rarely been described. This study identified and characterised colorectal cancer diagnostic pathway clusters occurring in Ontario.

Methods: We studied all colorectal cancer patients in Ontario diagnosed from 2009 through 2012. We used linked administrative data held at ICES to capture colorectal cancer related activities in the diagnostic interval. Variables that characterised the diagnostic pathways included: the diagnostic route (screened, symptomatic, unknown), prior GI symptoms, prior colonoscopies, emergency department presentation, recorded symptoms, first procedure type, number of colonoscopies, primary care visits, and surgical and gastroenterology consults. Cluster analysis was used to group patients who went through similar diagnostic pathways based on these variables. We identified six diagnostic pathway clusters based on statistical criteria and clinical assessments.

Results: Cluster-distinguishing variables were: diagnostic route, prior GI symptoms, recorded symptoms, use of colonoscopy and imaging. Patients in Cluster 1 (n=4,494) were likely screen-detected with 93% having no CRC symptom recorded and either FOBT or colonoscopy as their first procedure. Patients in Cluster 2 (n=10,066) had symptoms recorded (97%), prior GI-symptoms (87%) and 95% had a colonoscopy. Cluster 3 (n=3,427) patients' symptom status was unknown (83%) with no prior GI problems (71%) and 96% had a colonoscopy. Cluster 4 (n=2,238) patients symptom status was largely unknown (73%) with 92% having imaging as their first procedure and no colonoscopy performed. Cluster 5 (n=2,849) patients had symptoms recorded (96%), prior GI symptoms (94%) with 91% having imaging as their first procedure and no colonoscopy performed. Patients in Cluster 6 (n=887) had no recorded symptoms or diagnostic procedures in the diagnostic interval. Generally, Clusters 1 through 3 converged with recommended diagnostic pathways while clusters 4 through 6 diverged.

Conclusions: Variation in clinical diagnostic pathways raises concerns about the quality, comprehensiveness and timeliness of colorectal cancer diagnostic care. Identifying differing real-world diagnostic pathways opens the possibility for better understanding about how diagnostic processes

**All Authors:** Patti Groome, Queen's University; Zhen Guan, Queen's University; Colleen Webber, Queen's University; Jennifer Flemming, Queen's University; Bingshu Chen, Queen's University; Marlo Whitehead, ICES, Queen's University

# Factors associated with differing colorectal cancer diagnostic pathways in Ontario, Canada

Dr. Patti Groome, Queen's University

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**Primary Program Area:** Health Systems, Services and Policy

**Secondary Program Area:** Diagnostic pathways

**Method/Discipline:** Administrative Data Analysis

**Abstract Details:** Background: Diagnostic pathways in real-world clinical practice vary and often deviate from guideline-recommended pathways. Patients who experience divergent pathways may face longer wait times, unnecessary anxiety, and possibly worse prognosis. Using a previously-identified set of colorectal cancer diagnostic pathways, we evaluated a range of patient-, disease-, and system-related factors associated with which pathway a patient travelled.

**Methods:** We conducted a population-based cross-sectional study of colorectal cancer patients in Ontario from 2009-2012, using administrative databases at ICES linked at the individual level. We describe the distribution of our patient-, disease- and system-related factors (age, sex, material deprivation index quintile, comorbidities, stage, tumour sub-site, virtual colonoscopy network and diagnostic interval) across the different diagnostic pathways and tested their statistical associations with the chi-square test, one-way ANOVA and quantile regression in the case of the diagnostic interval.

**Results:** Patients who went through diagnostic pathways that diverged from what is recommended were more likely to be older, living in more deprived areas and were more likely to be diagnosed at a later stage. In contrast, patients going through less divergent pathways were more likely to be male, living in the least deprived areas, with less comorbid conditions, and diagnosed at an early stage. Pathways containing a higher number of colorectal cancer-related visits were associated with longer diagnostic intervals.

**Conclusions:** Variations in the diagnostic pathway were associated with patient demographics, comorbid illnesses and disease stage. Healthcare system providers could consider targeting females, elderly people, and those with worse health conditions for more individualized care throughout the cancer diagnostic process. Future studies should investigate healthcare resource allocation in regions where diagnostic pathways are more likely to diverge from guideline-recommended care.

**All Authors:** Patti Groome, Queen's University; Zhen Guan, Queen's University; Colleen Webber, Queen's University; Jennifer Flemming, Queen's University; Marlo Whitehead, ICES, Queen's University

# Can the ESMO Magnitude of Clinical Benefit Scale Describe the Value of Radiotherapy?

Dr. Timothy Hanna, Cancer Care and Epidemiology Division of Queen's Cancer Research Institute

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**Primary Program Area:** Health Technology Assessment

**Secondary Program Area:** Health Systems, Services and Policy

**Method/Discipline:** Economic Analysis or Evaluation

**Abstract Details:** Background To inform the development of a radiotherapy value framework, we undertook a case study, to score radiotherapy benefit using the ESMO Magnitude of Clinical Benefit Scale (MCBS).

Methods Evidence-based indications for external beam radiotherapy from an established decision tree model were considered for breast and lung cancer, and common palliative indications. Five-year overall survival and local control benefits from the model were utilized for curative indications. Benefits were based on the highest evidence level from systematic review. Meta-analysis was utilized. Benefits were compared against MCBS version 1.1. Observations collected during the scoring process were summarized.

Results For breast cancer, two curative indications were scored A, and three B (scale range A to C; where best score is A). For lung cancer curative radiotherapy alone, seven indications were scored A and two B. For lung chemoradiation, all three indications were scored B. For palliative indications, scores varied, with two indications scored 5, three scored 3-4, and two scored 1-2 (scale range 1-5; where best score is 5). Observations highlighted that radiotherapy benefit scoring requires clear direction on the use of pooled data, and real-world evidence. It should be patient-centered, and also consider radiotherapy-related endpoints such as local control. It should be optimized for decision making between competing health priorities.

Conclusions In conclusion, curative radiotherapy indications scored in the moderate to high range according to the MCBS scale, while palliative indication scores varied. Defining radiotherapy value requires unique considerations compared to systemic therapy, and a benefit scale that encompasses a broad range of data sources.

**All Authors:** Timothy Hanna, Cancer Care and Epidemiology Division of Queen's Cancer Research Institute; Michael Barton, Collaboration for Cancer Outcomes Research and Evaluation (CCORE); Yolande Lievens, Department of Radiation Oncology, Ghent University Hospital and Ghent University; Jesmin Shafiq, Collaboration for Cancer Outcomes Research and Evaluation (CCORE)

# Population-based lung cancer screening using low-dose chest computed tomography: Potential benefits, harms, and challenges

Ms. Manisha Pahwa, McMaster University

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**Primary Program Area:** Health Systems, Services and Policy

**Secondary Program Area:** Societal Values and Public Engagement

**Method/Discipline:** Bioethics

## Abstract Details: Background

Lung cancer is the most commonly diagnosed cancer in Canada and also one of the most fatal, with a five-year net survival of approximately 20%. Several Canadian jurisdictions are studying, piloting, or considering the use of low-dose chest computed tomography (CT) to screen for lung cancer in populations in an effort to reduce mortality. The objective of this research was to review major potential ethical issues associated with population-based lung cancer screening using low-dose chest CT.

## Methods

Beauchamp and Childress's four principles of biomedical ethics (respect for autonomy, beneficence, non-maleficence, and justice) were used to provide an overview of potential lung cancer screening benefits and harms at individual and population levels in the Canadian context.

## Results

The ethics principle of beneficence was expressed in terms of potential population mortality reduction and opportunities for individual smoking cessation support. Yet the principle of non-maleficence appeared harder to achieve. Individuals may encounter physical and psychological harm from a false positive rate in excess of 95%, invasive follow-up testing, and overdiagnosis. These may also cause an inefficient use of publicly funded health resources. Respect for autonomy, expressed as informed choice in lung cancer screening decision-making, would likely require significant dialogue with physicians about screening benefits and harms and is more likely to favour individual over population health. Justice emerged as an ongoing challenge as there are few lung cancer diagnostic and treatment facilities in Canada and access is limited, especially where lung cancer risk factors are most prevalent. Further, the ineligibility of occupationally exposed populations may limit population mortality reduction and the number of affected individuals and families who could offset publicly funded medical expenditures by applying for workers' compensation.

## Conclusions/future directions

Possible future Canadian population-based lung cancer screening programs need to be attentive to the tenuous and presently unclear balance of benefits and harms at individual and population levels. Informed choice may be crucial for this balance, while equity remains a key systemic challenge.

**All Authors:** Manisha Pahwa, McMaster University

# An administrative data algorithm to identify patients with incident lung cancer in Quebec

Dr. Erin Strumpf, Department of Epidemiology, Biostatistics and Occupational Health, McGill University and Department of Economics, McGill University

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**Primary Program Area:** Health Systems, Services and Policy

**Secondary Program Area:** Health Technology Assessment

**Method/Discipline:** Administrative Data Analysis

**Abstract Details:** Background: INESSS is considering the use of real-world evidence to contribute to improved cancer care and patient outcomes. Without access to data on incident lung cancer cases, the Cancer Unit sought to create a 15-year long cohort of such patients based on administrative data sources. While historical versions of Quebec’s registry relied on hospitalization and death records, increasing rates of outpatient treatment imply that additional data sources should be considered to identify patients with cancer.

Methods: We extracted a cohort of candidate patients with lung cancer based on diagnostic codes in hospitalization and physician billing databases from April 1997 to March 2017. We excluded those whose first diagnostic code appeared between April 1997 and March 2001 to capture incident cases from April 2001 – March 2017. We created an algorithm to identify “real” cases using information from diagnostic codes, billed services, inpatient interventions, reasons for services, medications, and cause of death using the following data: hospitalization, physician billing, death records, community pharmacy (public payer), and local community service centres (home care). The algorithm steps are ordered from highest to lowest degree of confidence, given the data quality and the limitations of administrative health data.

Results: We describe our algorithm, including specific inclusion and exclusion criteria, and the number and percent of candidate patients included or excluded at each step. We present the validation process we undertook to assess the quality of our cohort, including examining patient characteristics, the distributions of visits with diagnoses of lung cancer, the identifying data source over time (hospital vs. physician claims), and the sensitivity of the number of cases to changes in algorithm definitions.

Conclusions: Given the preliminary results of our validation process, we believe our cohort serves as a reasonable base to examine care trajectories, treatment patterns, and survival trends for Quebec patients with lung cancer from 2001-2017. We are developing additional validation analyses that will allow us to assess the sensitivity, specificity, and positive predictive value of our algorithm.

**All Authors:** Erin Strumpf, Department of Epidemiology, Biostatistics and Occupational Health, McGill University and Department of Economics, McGill University ; Gino Boily, INESSS; Jim Boulanger, INESSS; Michèle de Guise, INESSS; Kossi-Thomas Golo, INESSS; Aude-Christine Guédon, INESSS; Camille Lehuédé, INESSS; Samia Qureshi, McGill University

# Impact Of Preexisting Cardiovascular Disease On Treatment Patterns And Outcomes In Patients With Lung Cancer

Dr. Atul Batra, Tom Baker Cancer Center, University of Calgary

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**Primary Program Area:** Health Systems, Services and Policy

**Secondary Program Area:** Health Systems, Services and Policy

**Method/Discipline:** Administrative Data Analysis

**Abstract Details:** Background: There are limited studies analyzing the effect of cardiovascular disease (CVD) in patients with lung cancer. This study aimed to characterize treatment trends and outcomes of patients with preexisting CVD prior to their diagnosis of lung cancer.

Methods: We conducted a retrospective population-based cohort study of patients with lung cancer diagnosed from 2004 to 2015 in a large Canadian province. Multivariable logistic regression and cox models were constructed to determine association of CVD with treatment patterns and effect on overall and cancer-specific survival (OS and CSS).

Results: A total of 20,689 patients with lung cancer were eligible, of which males comprised 55% of the cohort, and the median age at diagnosis was 70 years. Half of the patients had metastatic disease at baseline. One-third had at least one CVD, with the most common being congestive heart failure(15%). Preexisting CVD was associated with a lower likelihood of receiving chemotherapy (odds ratio [OR], 0.53; P < .001). Age ≥ 60 years, male sex, and pre-existing CVD were predictive of worse OS.

Conclusions: Patients with lung cancer and preexisting CVD are less likely to receive any modality of treatment and have worse OS and CSS. As effective therapies such as immuno-oncology drugs are introduced, early cardio-oncology consultation may optimize management of lung cancer.

**All Authors:** Atul Batra, Tom Baker Cancer Center, University of Calgary; Winson Cheung, Cancer Control Alberta; Shiyong Kong, University of Calgary; Rodrigo Rigo, Tom Baker Cancer Center

# Burden of physical and psychological symptoms near end of life in patients with lung cancer using patient-reported outcomes

Dr. Atul Batra, Tom Baker Cancer Center, University of Calgary

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**Primary Program Area:** Survivorship

**Secondary Program Area:** Survivorship

**Method/Discipline:** Administrative Data Analysis

**Abstract Details:** Introduction: This study aimed to assess physical and psychological symptoms near end-of-life (EOL) of life in patients with lung cancer and to assess any associations of symptoms with clinical characteristics.

Methods: We identified patients who died from lung cancer during 2016 to 2019 in a large Canadian province, and had completed Edmonton Symptom Assessment System (ESAS) questionnaire within 6 months of death. Symptoms were reported on a scale of 0 to 10, with higher scores representing higher symptom burden. The individual scores were combined to produce physical, psychological and total scores. The scores were then analyzed for associations with clinical characteristics and time to death (TTD).

Results: A total of 679 patients were eligible, of which 54% were males, and median age was 69 years. The mean physical, psychological, and total symptom scores were higher in patients younger than 70 years ( $P=0.02$ ,  $P=0.01$ , and  $P=0.03$ ). While physical and total scores were similar in both sexes, the mean psychological score was higher in females ( $P=0.01$ ), representing both depression ( $P=0.03$ ) and anxiety scores ( $P=0.03$ ). The median TTD was 42 days after completing the ESAS questionnaire and was significantly associated with physical (pain, drowsiness and loss of appetite), psychological (anxiety) and total scores ( $P < 0.001$ ).

Conclusions: There is a significant burden of physical and psychological symptoms near EOL in lung cancer patients. Self-reported symptoms such as pain, drowsiness, loss of appetite and anxiety intensify near EOL.

**All Authors:** Atul Batra, Tom Baker Cancer Center, University of Calgary; Winson Cheung, Cancer Control Alberta; Rodrigo Rigo, Tom Baker Cancer Center; Colleen Cuthbert, University of Calgary; Lin Yang, University of Calgary; Andrew Harper, Alberta Health Services; Devon Boyne, University of Calgary



# Stakeholder perspectives for precision oncology: Bridging tensions between uncertainty and optimism

Dr. Samantha Pollard, Canadian Centre for Applied Research in Cancer Control, BC Cancer

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**Primary Program Area:** Societal Values and Public Engagement

**Secondary Program Area:** Health Technology Assessment

**Method/Discipline:** Qualitative Research Methods

**Abstract Details:** Background: Precision oncology promises to improve patient outcomes through targeted prevention and treatment strategies. To date, impact has typically been measured using short term endpoints and limited sample sizes. Owing to uncertain clinical and economic outcomes, reimbursement has been limited. To guide health technology assessment for precision oncology, this study is motivated by an unmet need to characterize health system stakeholder values, expectations and concerns regarding implementation and uptake.

**Methods:** Throughout 2019, we conducted 4 focus groups with members of the public and individuals with a diagnosis of cancer (n=33), and 14 semi-structured interviews with health technology decision-makers across Canada. A purposive, maximum variation sampling technique was used to capture a broad diversity of perspectives. Literature review, content expert and patient partner consultation informed the development of focus group and interview topic guides. Two reviewers identified emergent analytic themes using a constant comparative approach. Recruitment continued until thematic saturation was reached.

**Results:** Focus group participants voiced strong support for precision oncology to inform decisions related to targeted treatments, treatment de-escalation, and life planning. Optimism for personal and population level benefit was articulated alongside a high degree of tolerance for evidentiary uncertainty. In contrast, health technology decision makers expressed frustration by a poorly established evidence base and lack of guidance to support reimbursement decisions. Decision makers acknowledged the disjointed evidence base upon which decisions are generated and argued for enhanced process transparency.

**Conclusions/Future Directions:** Health systems that fail to respond to evolving evidence risk misdirecting resources that could be allocated to interventions that maximize population health. We find a clear tension between citizen support for adopting precision oncology and decision makers' ability to allocate finite resources based on strong evidence. Decision makers are required to balance patient and public support against the need for evidence favouring clinical and economic benefit. This effort begins with a systematic approach to integrating available evidence, generating more robust effect estimates, and enhancing the transparency of reimbursement decision making.

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# **A retrospective review of ethnicity and uptake of genetic testing in families affected by hereditary cancer in British Columbia**

**Ms. Angela Bedard, BC Cancer**

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**Primary Program Area:** Health Systems, Services and Policy

**Secondary Program Area:** Other (please specify)

**Method/Discipline:** Administrative Data Analysis

**Abstract Details:** Background: Hereditary cancer comprises 5-10% of all cancer cases. Genetic testing in families with hereditary cancer is a highly accurate and cost-effective method for identifying individuals at high risk for cancer. While sociodemographic factors related to uptake of testing, such as age and gender, have been well described, there is a paucity of data about the role of ethnicity. BC Cancer's Hereditary Cancer Program (HCP) has been systematically collecting ethnicity data since 2015, allowing for a four-year analysis for this factor.

**Methods:** The HCP's program database was queried for genetic testing of individuals and their family members facilitated between February 3, 2015 and March 7, 2019. Factors examined included ethnicity, gender, age, postal code, referral source, genes tested, and cancer diagnoses. Descriptive statistics were computed. Patient ethnicity was classified according to the Canadian Census ethnicity classifications and compared to the 2016 BC Census data.

**Results:** There was significant variability in the uptake of testing by family members in the three largest population groups ( $p < 0.01$ ), with individuals of European ethnic origin overrepresented (12% higher than general population), individuals of Asian ethnic origin modestly underrepresented (16% lower than general population), and individuals of North American Aboriginal origin considerably underrepresented (60% lower than general population). Individuals reporting other ethnic origins, which make up the smallest proportion of BC residents (African, Caribbean, Oceanian, and Latin, Central and South American) had variable uptake of testing. 70% of those family members tested were female, and 30% were male. The mean age of individuals was 49.4 (SD = 17.6).

**Conclusions/Future Directions:** This study provides initial insight into uptake of genetic testing in families by patient ethnicity. Our analysis highlights underrepresentation of individuals of Indigenous and Asian ethnicity for hereditary cancer carrier testing, which parallels the results of other cancer screening studies. This research may help to promote awareness of underrepresentation of populations for genetic testing, and the development of better alternatives to outreach and service promotion.

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# Clinical Trials in Ontario: Drug funding policy impact and evaluation

Mrs. Lisa Milgram, Ontario Health (Cancer Care Ontario)

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**Primary Program Area:** Health Systems, Services and Policy

**Secondary Program Area:**

**Method/Discipline:** Program or Policy Evaluation

## **Abstract Details:** Background:

Clinical trials (CTs) are a key component of a quality cancer care system. Public payers are being asked to fund expensive publicly funded drugs and systemic treatment activities (drug and administration costs, ambulatory clinic and/or follow-up visits, supportive care) associated with CTs. In Ontario, much of these costs are funded through the Systemic Treatment-Quality Based Procedure (ST-QBP) and the Ontario Public Drug Programs (OPDP). The Ontario policy, “Public funding of cancer drugs and their administration within the context of clinical trials”, published in January 2016, was developed to provide clarity, consistency, and equity in systemic treatment funding decisions. Initial stakeholder feedback highlighted concerns that the policy could reduce research opportunities and patient treatment options, or delay treatment decisions for patients due to uncertainty of funding.

## Methods:

A program evaluation framework, based on the Centers for Disease Control and Prevention’s Framework for Program Evaluation in Public Health, was created to guide the development of indicators to measure the impact of the policy. Hospitals were encouraged to submit a standardized set of data elements prior to the opening of each CT (name, disease site, phase, intent, schema, requested drug funding). Weekly reviews of submitted CTs ensured timely communication to investigators concerning policy alignment and public funding.

## Results:

Between January 29, 2016 and December 23, 2019, 742 CTs were submitted for evaluation (730 assessed to date), with an average of 46.4 each quarter (standard deviation = 10.6) with no decrease over time. Results will include distribution across phases and disease sites. 92.5% assessed within the 31-day target turnaround time (median = 16 days, interquartile range = (14.0, 21.0)). 94% of assessed CTs received funding through the ST-QBP. 93% of assessed CTs were evaluated as being aligned to OPDP criteria.

## Conclusions:

A clear CT funding policy and timely reviews support access to innovative therapies within an evidence-informed public funding model. The evaluation framework has facilitated the capture of CT data and trends in cancer not previously available.

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# **A retrospective single center study investigating the clinical significance of grade in triple negative breast cancer**

**Ms. Sarang Upneja, Schulich School of Medicine- Western University**

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**Primary Program Area:** Health Systems, Services and Policy

**Secondary Program Area:**

**Method/Discipline:** Mixed Methods Research

**Abstract Details:** Background: Triple negative breast cancer is defined as estrogen (ER), progesterone (PR), and human epidermal growth factor receptor (HER-2) proteins negative. The grade is the degree of similarity of tumor cells to normal cells under microscope and is an important biomarker of overall patient outcomes or prognosis with higher grades having a poor prognosis. As recent chemotherapy trials noted moderately undifferentiated grade 2 tumors showing higher rates of relapse, we hypothesize that grade can also be a predictive biomarker or determinant of response to specific treatment.

**Methods:** We reviewed 305 patient charts of triple negative breast cancer patients from 2004-2017 analyzing the significance of grade with respect to oncological variables, survival-time, and time to relapse. Statistical analysis was performed using Fleming-Harrington, Pairwise Testing, and COX regression, where applicable.

**Results:** Univariate analysis showed statistically significance difference in chemotherapy type ( $P=0.008$ ) and a marginal one in ER & hormone therapy status ( $P \sim 0.09$ ) between the grades. The overall survival rates were 90.12%, 64.4%, and 77.2%, for grade 1, 2, 3 respectively. The overall difference in survival among the three groups was statistically significant, based on Fleming-Harrington test ( $P= 0.019$ ). Comparing only between grade 2 and grade 3, we found that after five years, grade 2 patients had a 5.5-fold increased risk of death ( $HR = 5.5$ ; 95% CI 1.2-25.6) and 2-folds higher risk of relapse ( $HR= 1.9$ ; 95% CI 1.1-3.2). Grade 3 does significantly better than grade 2 in time to relapse with relapse rates of 70%, 55.6 %, and 75.6%, respectively for grades 1, 2, and 3 ( $P= 0.04$ ).

**Conclusion:** Tumor grade has a significant positive predictive value in determining relapse with grade 2 tumors demonstrating poorer disease-free survival as compared to grade 1 & 3, less time to relapse, and increased risk of death. This has implications in stratifying triple negative breast cancer patients by grade in future clinical trials while ongoing molecular research yields new targets for chemotherapy.

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