The following colorectal cancer treatment and research updates extend from May 12th, 2022, to June 9th, 2022, inclusive and are intended for informational purposes only.

This content is not intended to be a substitute for professional medical advice. Always consult your treating physician or guidance of a qualified health professional with any questions you may have regarding your health or a medical condition. Never disregard the advice of a medical professional or delay in seeking it because of something you have read on this website.

**CONTENT**

**DRUGS / SYSTEMIC THERAPIES**

1. Phase II LEAP Clinical Trial to Treat mCRC
2. TRK Fusion Cancer and How to Test for It
3. A Phase II, Open-Label, Multicentre, Study of an Immunotherapeutic Treatment for the MSI High CRC Metastatic Population
4. Phase III Study at the Odette Cancer Centre Comparing Arfolitixorin vs. Leucovorin: Both in Combination with SFU, Oxaliplatin, and Bevacizumab in Patients with Advanced CRC
5. Seagen Going After Tukysa, Herceptin Combo Approval in HER2-Positive CRC
6. Combination Regimen Improves Overall Survival in a Type of Newly Diagnosed mCRC
7. A Cancer Trial’s Unexpected Result: Remission in Every Patient
8. BRAF-Mutated Advanced CRC: A Rapidly Changing Therapeutic Landscape
9. Serial Monitoring of Plasma ctDNA in mCRC Patients Detects Changes in Key Mutations and Disease Progression using the Follow It Assay
10. Liquid Biopsy Can Help Identify the Need for Adjuvant Therapy in Stage II Colon Cancer

**SURGICAL THERAPIES**

11. Hepatic Artery Infusion Pump (HAIP) Chemotherapy Program – Sunnybrook Hospital
12. Living Donor Liver Transplantation for Unresectable CRC Liver Metastases
13. Regional Therapy for CRC Liver Metastases
14. Study Offered at the Odette Cancer Centre to Treat Recurrent Rectal Cancer

15. Trends in the Incidence of Young-Onset CRC with a Focus on Years Approaching Screening Age
16. Liquid Biopsy Can Help Identify the Need for Adjuvant Therapy in Stage II Colon Cancer

17. Young Adult CRC Clinic Available at Sunnybrook Hospital
18. CCRAN’s Partnership with “Count Me In”
19. Exploring the Impact of Bacterial Infection and Gut Microbiome on CRC Development
20. Young Age Appears Predictive of Relapse in High-Risk Stage III CRC
21. Comparison of Trends in Early-Onset CRC in North America and Europe
22. Understanding the Post-Treatment Concerns of Cancer Survivors with Five Common Cancers
23. How Colon Polyp Size, Shape and Growth Pattern Affect Cancer Risk
24. Does Crohn’s Disease Increase Your Risk of Cancer?
25. 14,000 on Surgical Wait-List for Colonoscopies in Nova Scotia
26. Patients and Caregivers Needed to Help Shape Early Research for a CRC Therapy
27. The Chemo-Gut Pilot Study
28. The Use of Prebiotic and Probiotic Interventions for Treating Gastrointestinal and Psychosocial Health Symptoms in Cancer Patients and Survivors

29. Can Food Be Thy Medicine?

COVID-19 UPDATES
30. Can COVID-19 Symptoms Come Back After Using Paxlovid?
31. Here’s The Mask that Can Actually Help Protect You From Getting COVID-19
32. Worried About Which COVID-19 Vaccine is Better? Study Finds Getting Three Doses is Key
33. Frequently Asked Questions for COVID-19

**DRUGS / SYSTEMIC THERAPIES**

1. Phase II LEAP Clinical Trial For mCRC (Sept.10/21)
   The purpose of this study is to determine the safety and efficacy of combination therapy with pembrolizumab (MK-3475) and Levantine (E7080/MK-7902) in patients with triple-negative breast cancer (TNBC), ovarian cancer, gastric cancer, colorectal cancer (CRC), glioblastoma (GBM), or biliary tract cancers (BTC). Participants will be enrolled in initial tumor-specific cohorts, which will be expanded if adequate efficacy is determined. The trial is available at the Odette Cancer Centre and at the Princess Margaret Cancer Centre in Toronto as well as the following Centres throughout Canada: Abbotsford, BC; Winnipeg, MB; CHU de Quebec. For information, visit the link below.
   
   https://clinicaltrials.gov/ct2/show/study/NCT03797326?term=A+Multicenter%2COpen-label+Phase+2+Study+of+Lenvatinib+%28E7080%2FMK-7902%29+Plus+Pembrolizumab&show_locs=Y&locn

2. TRK Fusion Cancer and How to Test for It (Feb.16/21)
INTRODUCING
Tumour-Agnostic Therapies
Advances in precision medicine have brought therapies that specifically target what is driving a patient’s cancer.

Cancer location A
Cancer location B
Cancer location C

Genomic driver A
Genomic driver B
Genomic driver C

Treatment with more traditional cancer therapies is based on where the tumour is located in the body.

Tumour agnostic therapies target a specific genomic change in the cancer cells regardless of where the tumour is located in the body.

Genomic changes in cancer cells are identified through diagnostic testing of the cancer cells. The results help clinicians decide on a treatment for each patient.

Advantages of tumour agnostic therapies

- Targets the genomic change that is the root cause of the cancer to suppress tumour growth
- Harnesses our growing understanding of cancer biology
- Offers an innovative, new and effective approach to treating cancer

Change required to adopt tumour agnostic therapies in Canada

- A shift in mindset: this is a new concept that differs from the traditional approach of treating cancer based on tumour location
- Access to genomic testing: identifying patients who would benefit from treatments requires a robust testing infrastructure
- An evolved, more adaptive assessment of treatments for public coverage is required that includes recognition of smaller patient populations, new clinical trial methods, and ability to examine new data over time

1. Patients undergo a biopsy to obtain a sample for testing
2. Tissue is sent to lab to test for genomic changes
3. Results sent to clinician to help decide on treatment

https://www.bayer.ca/en/media/news/?dt=TmpBPQ==&st=1
3. A Phase II, Open-label, Multicenter, Study of an Immunotherapeutic Treatment for the MSI High CRC Metastatic Population (Sept.16/21)

The purpose of this study is to look at the effectiveness of the vaccine DPX-Survivac in combination with the drugs cyclophosphamide and the immunotherapy Pembrolizumab in patients with solid cancers who are identified to be MSI-High. All patients will receive combination therapy of DPX-Survivac, cyclophosphamide, and pembrolizumab. Patients participating will know which treatment they are receiving. The trial is currently hosted at the Odette Cancer Centre, and a new site is opening at Mt. Sinai Hospital.

4. Phase III Study at the Odette Cancer Centre Comparing Arfolitixorin vs. Leucovorin in Combination with 5FU, Oxaliplatin and Bevacizumab in Patients with Advanced CRC (Sept.16/21)

The purpose of this study is to look at the effectiveness of the drug Arfolitixorin in combination with 5-fluorouracil (5FU), oxaliplatin, and bevacizumab in patients with colorectal cancer (CRC). Patients with advanced/metastatic CRC who meet certain criteria may be able to participate. There will be two groups of patients participating in this study; one group will receive Arfolitixorin in combination with 5FU, oxaliplatin, and bevacizumab, while the other group will receive the drug Leucovorin in combination with 5FU, oxaliplatin, and bevacizumab (standard of care).

The doctor and study staff will not know which group a patient is in. Patients will be randomized to receive one treatment or the other. 

About Arfolitixorin: 

Arfolitixorin is Isofol’s proprietary drug candidate being developed to increase the efficacy of standard care chemotherapy for advanced CRC. The drug candidate is currently being studied in a global Phase 3 clinical trial. As the key active metabolite of the widely used folate-based drugs, arfolitixorin can potentially benefit all patients with advanced CRC, as it does not require complicated metabolic activation to become effective.

Treating cancer patients with arfolitixorin – The goals:

- When treating CRC, for example, arfolitixorin is administered in combination with 5-FU to increase cell mortality in circulating cancer cells and in cancerous tumours.
- Arfolitixorin is administered in conjunction with rescue therapy after high-dose treatment with the cytotoxic agent, methotrexate, in order to suppress the cytotoxic effect in surrounding healthy tissue. The treatment is used for certain types of cancer, such as osteosarcoma, a type of bone cancer. This involves administering arfolitixorin separately, 24 hours after the chemotherapy.

https://sunnybrook.ca/trials/item/?i=293&page=49335 and https://clinicaltrials.gov/ct2/show/NCT03750786

5. Seagen Going After Tukysa, Herceptin Combo Approval in HER2-Positive CRC (May 23/22)

Seagen Inc. said it will seek accelerated approval from the US Food and Drug Administration for Tukysa (tucatinib) in combination with Genentech’s Herceptin (trastuzumab) as a treatment for metastatic HER2-positive colorectal cancer (CRC). The company said it will discuss with the FDA plans to file a supplementary new drug application containing data from the Phase II MOUNTAINEER trial, which found a 38% confirmed objective response rate among 117 previously treated metastatic HER2-positive CRC patients on Tukysa and Herceptin. The median duration of response on the combination treatment was 12.4 months. Seagen said it will present full data from the MOUNTAINEER trial at the European Society for Medical Oncology World Congress on gastrointestinal cancer in June and discuss the data with regulators outside the US.


6. Combination Regimen Improves Overall Survival in a Type of Newly Diagnosed mCRC (Jun.5/22)

The use of panitumumab plus mFOLFOX6 significantly improved overall survival in patients with RAS wild-type metastatic colorectal cancer (mCRC) that was classified as left-sided compared to patients who received mFOLFOX6, a standard chemotherapy regimen, plus bevacizumab, a monoclonal antibody. Patients with RAS wild-type (non-mutated) metastatic colorectal left-sided tumours who received panitumumab lived for 37.9 months from the start of treatment in the trial compared to 34.3 months for those who received bevacizumab; they had an 18% lower risk of death. PFS, where tumour size was stable or shrinking, was 13.7 vs. 13.2 months, respectively, which was statistically equivalent in both groups. The response rate, which is the percentage of patients with cancer that shrinks or disappears after treatment, and the curative resection rate, which indicates that no tumour remains in the body, were both higher with panitumumab compared to bevacizumab. This trial demonstrates that if gene testing shows that a tumour is RAS wild-type, the choice of initial treatment with panitumumab plus mFOLFOX6 chemotherapy is superior to initial treatment with bevacizumab plus mFOLFOX6 chemotherapy for those people with left-sided tumours.
7. A Cancer Trial’s Unexpected Result: Remission in Every Patient (Jun.5/22)

A small trial, including just 18 rectal cancer patients, every one of whom took the same drug (dostarlimab) produced astonishing results. The medication, which unmasks cancer cells, allowing the immune system to identify and destroy them, was given every three weeks for six months. The cancer vanished in every single patient, undetectable by physical exam, endoscopy, PET scans or M.R.I. scans. Additionally, none of the patients had clinically significant complications. While the results were “remarkable” and “unprecedented,” they would need to be replicated.

8. BRAF-Mutated Advanced CRC: A Rapidly Changing Therapeutic Landscape (Jun.4/22)

BRAF-mutant colorectal cancer (CRC) is a small, yet important subset of CRC with distinct prognostic and therapeutic implications. BRAF mutations in CRC are grouped into three functional classifications on the basis of underlying signaling mechanisms.

- Class I BRAFV600E mutation, occurring most frequently in CRC, is initially treated with a cytotoxic chemotherapy backbone plus bevacizumab.
- Second-line recommended therapy for BRAFV600E-mutant metastatic CRC includes combined BRAF and epidermal growth factor receptor inhibition such as encorafenib and cetuximab per the BEACON CRC trial.
- Further treatment options for BRAFV600E-mutant mCRC are being explored, with a focus on understanding primary and acquired resistance to cytotoxic chemotherapy and targeted therapies in this disease.

Establishment of signaling pathway perturbations and resistance mechanisms in BRAF-mutated CRC will lead to innovative treatment options with a goal of improving patient outcomes.

9. Serial Monitoring of Plasma ctDNA in mCRC Patients Detects Changes in Key Mutations and Disease Progression using the “Follow It Assay” (May 14/22)

Using a retrospective collection of 55 metastatic colorectal cancer (mCRC) patients enrolled on the Exactis clinical trial, researchers seek to determine if longitudinal plasma ctDNA mutation monitoring can aid in predicting clinical progression prior to standard of care CT imaging. Additionally, the study aims to establish the Canexia Health Follow It assay as a liquid biopsy tool to assess disease progression over time in mCRC patients. Plasma ctDNA testing was performed using the Canexia Health Follow It assay on the 55 mCRC baseline plasma samples and ctDNA mutations were detected in at least one plasma timepoint in 95% of patients, and 80% with a mutation in 2 or more plasma timepoints. Additionally, 85.2% with TPS3 mutations, and 37% with KRAS mutations were identified. In the majority of resistance individuals ctDNA mutations were detected prior to or at standard of care CT scans indicating progressive disease. Therefore, monitoring for ctDNA mutations in plasma using the Follow It assay could allow for re-evaluation and potential change in management before clinical or CT scan detected relapse has occurred.

10. Liquid Biopsy Can Help Identify the Need for Adjuvant Therapy in Stage II Colon Cancer (Jun.4/22)

In patients with stage II colon cancer, for which cancer DNA was not present in the blood (circulating tumour DNA, or ctDNA) post-surgical chemotherapy could be skipped without compromising recurrence-free survival. Conversely, for patients where ctDNA was present after surgery, the rate of recurrence among those who received chemotherapy was low, suggesting a survival benefit from post-surgical chemotherapy, according to new research to be presented at the 2022 American Society of Clinical Oncology (ASCO) Annual Meeting. While the current standard of care for stage II colorectal cancer (CRC) does not involve a ctDNA-directed approach to post-surgical chemotherapy, the randomized phase II DYNAMIC trial results demonstrated similar recurrence-free survival between a ctDNA-guided arm and a standard management arm, despite fewer patients receiving post-surgical chemotherapy.

In the ctDNA-guided arm, patients with a positive ctDNA test result were treated with adjuvant chemotherapy while those with negative results were not, almost halving the total number of patients who needed to be treated with post-surgical chemotherapy compared to standard management (15.3% vs. 27.9%). Patients with a negative ctDNA result, who did not receive post-surgical chemotherapy, had a very low risk of recurrence (7.5%); the risk was even lower in negative ctDNA patients without any clinical risk features (3.3%) or among those negative ctDNA patients with tumours that had grown into the outer lining of the bowel wall but had not grown through it (5.8%). Patients
with a positive ctDNA result, who received post-surgical chemotherapy, had a three-year recurrence-free survival rate of 86%. The DYNAMIC study results are very encouraging because previous data suggest that patients with a positive ctDNA score after surgery have a very high recurrence risk if no further treatment is given. These findings show that with adjuvant treatment, ctDNA-positive patients derive considerable benefit from chemotherapy such as an oxaliplatin-based regimen.


SURGICAL THERAPIES

11. Hepatic Artery Infusion Pump (HAIP)Chemotherapy Program – Sunnybrook Odette Cancer Centre (Oct.15/21)

The HAIP program is a first-in-Canada for individuals where colon or rectal cancer (colorectal cancer) has spread to the liver and cannot be removed with surgery. The program involves a coordinated, multidisciplinary team approach to care, with close collaboration across surgical oncology, medical oncology (chemotherapy), interventional radiology, nuclear medicine, and oncology nursing. The Hepatic Artery Infusion Pump (HAIP) is a small, disc-shaped device that is surgically implanted just below the skin of the patient and is connected via a catheter to the hepatic (main) artery of the liver. About 95 percent of the chemotherapy that is directed through this pump stays in the liver, sparing the rest of the body from side effects. Patients receive HAIP-directed chemotherapy in addition to regular intravenous (IV) chemotherapy (systemic chemotherapy), to reduce the number and size of tumours. Drs. Paul Karanicolas and Michael Raphael are the program leads and happy to see patients who may be eligible for the therapy.

Presently at Sunnybrook Odette Cancer Centre, HAIP is being used in patients with colorectal cancer that has spread to the liver that cannot be removed surgically and has not spread to anywhere else in the body. Patients who have few (1-5) and very small tumors in the lungs may be considered if the lung disease is deemed treatable prior to HAIP. If you believe you may benefit from this therapy and/or would like to learn more about the clinical trial, your medical oncologist or surgeon may fax a referral to 416-480-6179. For more information on the HAIP clinical trial, please click on the link provided below.

http://sunnybrook.ca/content/?page=colorectal-colon-bowel-haip-chemotherapy

12. Living Donor Liver Transplantation for Unresectable CRC Liver Metastases (Oct.1/21)

Approximately half of all colorectal cancer (CRC) patients develop metastases, commonly to the liver and lung. Surgical removal of liver metastases (LM) is the only treatment option, though only 20-40% of patients are candidates for surgical therapy. Surgical therapy adds a significant survival benefit, with 5-year survival after liver resection for LM of 40-50%, compared to 10-20% 5-year survival for chemotherapy alone. Liver transplantation (LT) would remove all evident disease in cases where the colorectal metastases are isolated to the liver but considered unresectable.

Image Source: https://www.slideshare.net/AhmedAdel65/preoperative
While CRC LM is considered a contraindication for LT at most cancer centers, a single center in Oslo, Norway demonstrated a 5-year survival of 56%. A clinical trial sponsored by the University Health Network in Toronto will offer live donor liver transplantation (LDLT) to select patients with unresectable metastases limited to the liver and are non-progressing on standard chemotherapy. Patients will be screened for liver transplant suitability and must also have a healthy living donor come forward for evaluation. Patients who undergo LDLT will be followed for survival, disease-free survival, and quality of life for 5 years and compared to a control group who discontinue the study before transplantation due to reasons other than cancer progression.

https://clinicaltrials.gov/ct2/show/NCT02864485

13. Regional Therapy for CRC Liver Metastases (Jun.4/22)

For patients with unresectable colorectal liver metastases (uCRLM), regional therapies leverage the unique, dual blood supply to the liver; the hepatic artery is the main blood supply for liver tumors, whereas the portal vein supplies most normal hepatic parenchyma. Infusion of cancer therapies via the hepatic artery allows selective delivery to the tumors with relative sparing of normal liver tissue and little extrahepatic exposure, thus limiting systemic side effects. **Hepatic arterial infusion pump (HAIP) chemotherapy** has a potential survival benefit when used in the adjuvant setting after resection of CRLM. HAIP chemotherapy can be safely given with contemporary systemic therapies and is associated with a high objective response rate and rate of conversion to resectability in patients with uCRLM. In the first-line setting, HAIP could be offered to motivated patients who hope to achieve conversion to resectability. After progression on chemotherapy, **HAIP, transarterial chemoembolization, and transarterial radioembolization** are valuable treatment options to consider for patients with liver-limited or liver-predominant CRLM who seek to optimize response rates and regional control.


**RADIATION THERAPIES/INTERVENTIONAL RADIOLOGY**

14. Study Offered at the Odette Cancer Centre to Treat Recurrent Rectal Cancer (Oct.9/21)

Magnetic resonance-guided focused ultrasound (MRg-FU) is a less invasive; outpatient modality being investigated for the thermal treatment of cancer. In MRg-FU, a specially designed transducer is used to focus a beam of low-intensity ultrasound energy into a small volume at a specific target site in the body. MR is used to identify and delineate the tumour, focus the ultrasound beam on the target, and provide a real-time thermal mapping to ensure accurate heating of the designated target with minimal effect to the adjacent healthy tissue. The focused ultrasound beam produces therapeutic hyperthermia (40-42°C) in the target field, causing protein denaturation and cell damage. Currently, there is no prospective clinical data reported on the use of MRg-FU in the setting of recurrent rectal cancer. Recurrent rectal cancer is a vexing clinical problem. Current retreatment protocols have limited efficacy. The addition of hyperthermia to radiation and chemotherapy may enhance the therapeutic response. With recent advances in technology, the investigators hypothesize that MRg-FU is technically feasible and can be safely used in combination with concurrent re-irradiation and chemotherapy for the treatment of recurrent rectal cancer without increased side-effects. The study is being offered at the Odette Cancer Centre. Here is the link to the study protocol:

https://clinicaltrials.gov/ct2/show/NCT02528175?term=magnetic+resonance+guided+focused+ultrasound&recr=Open&rank=1

**SCREENING**

15. Trends in the Incidence of Young-Onset CRC with a Focus on Years Approaching Screening Age (Apr.10/21)

With recent evidence for the increasing risk of young-onset colorectal cancer (yCRC), the objective of this population-based longitudinal study was to evaluate the incidence of yCRC in one-year age increments, particularly focusing on the screening age of 50 years. The study was conducted using linked administrative health databases in British Columbia, Canada including a provincial cancer registry, inpatient/outpatient visits, and vital statistics from January 1, 1986 to December 31, 2016. Researchers calculated the incidence rates per 100,000 at every age from 20 to 60 years and estimated annual percent change in incidence (APCI) of yCRC using joinpoint regression analysis. 3,614 individuals were identified with yCRC (49.9% women). The incidence of CRC steadily rose from 20 to 60 years, with a marked increase from 49 to 50 years. Furthermore, there was a trend of increased incidence of yCRC among women. Analyses stratified by age yielded APCIs of 2.49% and 0.12% for women aged 30-39 years and 40-49 years, respectively and 2.97% and 1.86% for men. These findings indicate a steady increase over one-year age increments in
the risk of yCRC during the years approaching and beyond screening age. These findings highlight the need to raise awareness as well as continue discussions regarding considerations of lowering the screening age.

https://academic.oup.com/jnci/advance-article/doi/10.1093/jnci/djaa220/6119347?guestAccessKey=af490637-e51e-44d0-81b9-d12d7b60c9

OTHER

16. Young Adult CRC Clinic Available at Sunnybrook (Oct.12/21)

A recent study led by the University of Toronto doctors has observed a rise in colorectal cancer (CRC) rates in patients under the age of 50. The study mirrors findings from the U.S., Australia and Europe. The growing CRC rates in young people come after decades of declining rates in people over 50, which have occurred most likely due to increased use of CRC screening (through population-based screening programs) which can identify and remove precancerous polyps. Patients diagnosed under the age of 50 have a unique set of needs, challenges and worries. They are unlike those diagnosed over the age of 50. Dr. Shady Ashamalla (colorectal cancer surgical oncologist), and his team at the Sunnybrook Health Sciences Centre understand the needs of this patient population.

Dr. Ashamalla belongs to a multidisciplinary team of experts in the Young Adult Colorectal Cancer Clinic who will work with young CRC patients, regardless of disease stage, to create an individualized treatment plan to support each patient through their cancer journey. Their needs and concerns will be addressed as they relate to:

- Fertility concerns and issues
- Young children at home
- Dating/intimacy issues
- Challenges at work
- Concerns about hereditary cancer
- Relationships with family and friends
- Psychological stress due to any or all of the above

The team of experts consists of:

- Oncologists (medical, surgical, radiation)
- Social workers
- Psychologists
- Geneticists
- Nurse navigator

Should a patient wish to be referred to Sunnybrook, they may have their primary care physician, or their specialist refer them to Sunnybrook via the e-referral form, which can be accessed through the link appearing below. Once the referral is received, the Young Adult Colorectal Cancer Clinic will be notified if the patient is under the age of 50. An appointment will then be issued wherein the patient will meet with various members of the team to address their specific set of concerns.

http://sunnybrook.ca/content/?page=young-adult-colorectal-cancer-clinic

17. CCRAN’s Partnership with “Count Me In” (Nov.1/21)

CCRAN is proud to partner with Count Me In, a nonprofit research initiative, on The Colorectal Cancer Project. This new project is open to anyone in the United States or Canada who has ever been diagnosed with colorectal cancer (CRC). Patients can find out more and join at JoinCountMeIn.org/Colorectal.

Through the project, patients are asked to complete surveys to share information about their experience with CRC, to share biological sample(s), and to allow for the research team to request copies of their medical records. The project team then de-identifies and shares data from these with the entire research community.
Every patient's story holds a piece of the puzzle that can help us better understand CRC. By discovering more about what drives cancer and sharing this data, CCRAN and the Colorectal Cancer Project believe insights can be gained to develop more effective therapies. One of the aims of the project is to reach populations that have been understudied, including individuals who are diagnosed with CRC at a young age, individuals from marginalized communities who have historically been excluded from research, and patients with metastatic CRC. Together, we can accelerate our understanding of CRC. To learn more or sign up to participate, visit JoinCountMeIn.org/Colorectal.

“Count Me In”, a nonprofit cancer research initiative, is inviting all patients across the United States and Canada who have ever been diagnosed with colorectal cancer (CRC) to participate in research and help drive new discoveries related to this disease. The Colorectal Cancer Project will enable patients to easily share their samples, health information and personal lived experiences directly with researchers in order to accelerate the pace of research.

Patients who have been diagnosed with CRC at any point in their lives can join the project by visiting JoinCountMeIn.org/colorectal. From there, patients will be invited to share information about their experience through surveys and to provide access to medical records as well as saliva samples and optional blood, stool, and/or stored tissue samples for study and analysis. Researchers from the Broad Institute of MIT and Harvard and Dana-Farber Cancer Institute use this information to generate databases of clinical, genomic, molecular, and patient-reported data that is then de-identified and shared with researchers everywhere. To date, more than 9,000 patients with different cancers have joined Count Me In and shared their data. "We still do not know why there is an alarming rise in CRC in young adults", said Andrea Cercek, MD Co-Director, Center for Young Onset Colorectal and Gastrointestinal Cancers Memorial Sloan Kettering Cancer Center and co-scientific leader of the Colorectal Cancer Project. "What we do know is that this is a global phenomenon that affects otherwise healthy individuals with no known risk factors. The Colorectal Cancer Project will provide researchers important information that will lead to a better understanding of this disease."

Over 250 patients have joined the Colorectal Cancer Project since the launch in fall 2021. Every patient that joins the Colorectal Cancer Project enables us to learn more about colorectal cancer. Pts diagnosed at any age, whether newly diagnosed or years from their diagnosis, can enroll. If you have ever been diagnosed with colorectal cancer, you can visit JoinCountMeIn.org/Colorectal to enroll and have a direct impact on research and future treatment strategies.
Exploring the Impact of Bacterial Infection and Gut Microbiome on CRC Development (May 10/22)

Development of colorectal cancer (CRC) has been alluded to abnormal gut-bacterial activity and infections. However, the complexity of the intestinal microbiome makes it challenging to identify which bacterial types promote CRC pathogenesis in what way. Pathogenic bacteria attack host physiology by interacting with host cells and other gut microbes, either physically or chemically (by releasing bacterial proteins and metabolites). These interactions can lead to disrupted immune responses; chronic intestinal infections; inflammation; DNA damage; and eventually, carcinogenesis.

For instance, *Salmonella* infections can have varied effects, from mild gastroenteritis to chronic irritable bowel disease (IBD), a known risk factor for CRC. Patients with IBD or prior *Salmonella* infection are more likely to develop CRC than the general populace. This likelihood is further increased in patients with preexisting genetic susceptibilities, cell signaling defects, or mutations. Bacterial infections can also impair the host’s immune response by controlling inflammation and modifying key signaling pathways. Bacterial effectors, like AvrA found in *Salmonella*, either promote or suppress inflammation in order to create a hospitable environment for the bacteria’s survival, and the maintain chronic infection. Studies suggest an increased occurrence of CRC tumorigenesis in mice infected with AvrA+ *Salmonella* compared to uninfected mice. While lab studies have progressed our understanding of these mechanisms, there is still need for human data to confirm the exact relation between bacterial infections and CRC development.

Young Age Appears Predictive of Relapse in High-Risk Stage III CRC (May 9/22)

According to a study published in the *Journal of Clinical Oncology*, young age could be a negative prognostic factor associated with a high risk of relapse in high-risk stage III colorectal cancer (CRC) despite positive treatment.
adherence and high treatment intensity. Patients with early-onset CRC had 3-year relapse-free rate of 54% compared with 65% for those with later-onset CRC. The 5-year overall survival (OS) rate in the early-onset CRC group was 86% compared with 83% (95% CI, 83%-84%) in the later-onset CRC group. The 5-year cancer specific mortality rate was 24% in the early-onset CRC group and 20% in the later-onset CRC group. Thus, despite having a good rate of treatment adherence, patients who are diagnosed with high-risk stage III CRC at a younger age may have higher rates of relapse.

https://www.cancernetwork.com/view/young-age-appears-predictive-of-relapse-in-high-risk-stage-iii-colorectal-cancer

20. Comparison of Trends in Early-Onset CRC in North America and Europe (Jun.1/22)

This article reviews a series paper which presented an important overview of the recent increase in the incidence of colorectal cancer (CRC) diagnosed in individuals younger than 50 years (i.e., early-onset CRC). The paper stated that the worldwide increase in early-onset colorectal cancer seems to be different in Europe, where the rise “appears to be more prominent for colon cancers than for rectal cancers”. Authors of this article argue that the trends in Europe and North America are similar and that the apparent differences are due to differential data analysis in the two referenced papers. The first paper by Montminy and colleagues excluded the appendix subsite. In addition, it differentiated according to histological subtype—i.e., adenocarcinomas and carcinoid tumours. By contrast, the second paper by Vulik and colleagues categorized the appendix as part of the colon and did not distinguish between histological subtypes. Thus, trends in colon cancer might be, at least partly, driven by trends in appendiceal malignancies, in particular by an increase in carcinoids.

European studies that exclude the appendix subsite when analyzing trends in colon and rectal cancer arrive at results similar to studies from North America—i.e., higher incidence increases in rectal cancer than in colon cancer. In regard to preventive measures, further information is urgently needed on the respective incidence of adenocarcinomas and carcinoids (i.e, neuroendocrine neoplasms).

https://www.thelancet.com/journals/langas/article/PIIS2468-1253(22)00094-2/fulltext

21. Understanding the Post-Treatment Concerns of Cancer Survivors with Five Common Cancers (Apr.12/22)

As the rates of cancer incidence and survival increase in Canada, more patients are living in the post-treatment survivorship phase of their cancer journey. Identifying cancer survivors’ concerns and unmet needs is important so that health care teams can provide relevant information, supports, and resources. Secondary data analysis was carried out on the Alberta patient sample from the 2016 Pan-Canadian Transitions Study survey, designed by the Canadian Partnership Against Cancer. The top concerns for patients treated for five different cancers were examined descriptively and compared. A question about information that patients received post-treatment was also descriptively analyzed. Fatigue and anxiety were top concerns for multiple tumour groups. Most patients received more information about treatment side effects than about signs of recurrence and community resources. Within certain tumour groups, younger patients had higher odds of having concerns, particularly anxiety. Awareness of the common and unique concerns experienced by cancer survivors post-treatment enables health care providers to tailor care and resources to help patients manage their symptoms and concerns.


22. How Colon Polyp Size, Shape and Growth Pattern Affect Cancer Risk (Jun.1/22)

Even though the vast majority of colorectal polyps are harmless growths that sprout on the lining of the colon or rectum, they should not be ignored. To reduce the risk of developing colorectal cancer (CRC), it is best to find and remove these polyps.

The smaller the polyp the less likely it will become cancer. They can range in size from less than 5 mm which is “diminutive” (about the size of a match head) to over 30mm which are considered “giants” (about the size of the average person’s thumb). Studies show that few smaller polyps are cancerous, however, as they slowly grow the cancer risk rises. Estimates show it takes about 10 years for cancer to form from a colorectal polyp.

Polyps come in three basic shapes, they are:
- **Sessile polyps** are dome-shaped and grow flat on the colon wall. Approximately 85% of polyps fall into this group and can be removed somewhat easily in a colonoscopy, larger ones are usually taken out in pieces.
- **Pedunculated polyps** hang from a stalk attached to the colon wall (look like a cherry on a stem). They are easy to spot and can usually be removed in one piece during a colonoscopy. Cancer can develop on the head of pedunculated polyps.
- **Flat polyps** are the least common (about 2% of discovered lesions), most challenging to remove and sometimes difficult to locate.
Removed polyps are examined under a microscope to determine the levels of dysplasia, a term used to describe how cancerous polyps appear on a cellular level. Polyps with high-grade dysplasia have disorganized cells with a larger, darker center that often grow wildly, a sign cancer may have been close to forming. A follow-up colonoscopy is usually recommended when a polyp with high-grade dysplasia is found. Polyps with cells that appear mildly abnormal are classified as low-grade dysplasia and are of less concern.

https://health.clevelandclinic.org/colon-polyp-cancer-risk/

23. Does Crohn's Disease Increase Your Risk of Cancer? (May 31/22)

Crohn's disease is a form of inflammatory bowel disease (IBD) that can develop in any part of your gastrointestinal (GI) tract, but it most commonly affects the small and large intestines. Crohn's and other forms of IBD are associated with an increased risk of developing cancer in your colon or rectum, also called colorectal or bowel cancer. However, most people with Crohn's do not develop cancer. Long-term inflammation is the primary link between Crohn’s disease and an increased risk of cancer. Over time, chronic inflammation from Crohn’s can cause high cell turnover on the lining of your GI tract. As your cells constantly become damaged and replaced, this raises the likelihood of cell mutation. While it appears people with IBD have an increased risk of colorectal cancer (CRC), research shows this risk is much more associated with ulcerative colitis than with Crohn’s disease. Length of disease is the most important indicator of increased risk. People who have had IBD for decades have significantly higher chances of CRC than the general population. If you have Crohn's disease, talk with your doctor about the best treatment plan to manage inflammation and when to have screenings for complications like cancer.


24. 14,000 on Surgical Wait-List for Colonoscopies in Nova Scotia (May 26/22)

About 14,000 Nova Scotians were on the surgical wait-list for a colonoscopy in April. According to Nova Scotia Health, in April, the average wait time for someone to see a specialist for a referral was 74 days. The average wait from referral to procedure was 211 days. That nine-and-a-half month wait is an increase from the pre-pandemic wait time of roughly six months. Another 1,720 Nova Scotians are waiting for a colonoscopy because blood was found in stool samples they provided as part of Nova Scotia's Colon Cancer Home Screening program. People 50 years or older are regularly screened for the possibility of colon cancer, as part of the Nova Scotia Health Cancer Care Program's early detection program. Colonoscopy wait times for that program are shorter than those who are referred for the procedure by a specialist. According to Cancer Care figures, 90 per cent of people who need a colonoscopy to rule out cancer as part of the program get the procedure within five-and-a-half months. It is recommended that patients and their family doctors keep in close contact with specialists, and that they push to have their procedures moved up the list if their conditions worsen or they believe something more serious is happening to them.

25. Patients and Caregivers Needed to Help Shape Early Research for a CRC Therapy

The Project:
Site specific immunomodulators (SSIs) are a new class of therapy, made from dead bacteria. This therapy is designed to help the body’s own defense system (immune cells) fight cancer. SSIs may be a potential new treatment for colorectal cancer and have already been shown to be safe in cancer patients. Our team of scientists and clinicians are planning a clinical trial to determine if SSIs can increase the number of patients who survive colorectal cancer metastatic to the liver. The trial will start this fall and is being led by Dr. Rebecca Auer (Ottawa) and Dr. Paul Karantanas (Sunnybrook).

Why do we need your help?
We want patients and family members to help us shape our research, which aims to improve the experience of trial participants. We are currently looking for patients, caregivers, or family members to join our team. As a part of our team, you will:
- Participate in group meetings (online and/or in person) with the research team from May 2022 to March 2024
- Help brainstorm and draft resources and documents for future trial participants
- Provide input on research to evaluate the usefulness of the developed resources

Who can apply?
We are looking for individuals with any of the following:
- A patient, family member, or a caregiver, with lived experience of colorectal cancer, liver metastases, and/or liver surgery
- Interested in helping shape research to assess a new therapy for colorectal cancer

No previous experience with SSIs or research is necessary. An orientation session will provide more information about the research project, and we will encourage you to ask any questions you have at any time.

In appreciation for your time, partners will receive compensation for attendance at meetings and activities.

If you are interested in joining our team or would like more information:
Please contact Meredith Conboy, Research Assistant, The Ottawa Hospital Research Institute
Email: mconboy@ohri.ca

26. The Chemo-Gut Pilot Study (Apr.21/22)

To read the article associated with the above infographic:
27. The Use of Prebiotic and Probiotic Interventions for Treating Gastrointestinal and Psychosocial Health Symptoms in Cancer Patients and Survivors (Nov.5/21)

Prebiotics & Probiotics for GI & Psychosocial Symptoms

**KEY MESSAGES**

- Probiotic strains from the *Lactobacillus* genus are most common
- Probiotics improved GI symptoms in cancer patients & survivors
- Probiotics improved Quality of Life in cancer survivors

**The Problem**

- Cancer treatments can cause GI & psychosocial health problems
- Patients lack safe, effective, accessible treatments to manage symptoms

**Systematic Review**

- 12 studies included, totaling 975 participants
- 10 studies with patients on active treatment
- 2 studies with survivors post-treatment

**Prebiotic**

live microorganisms that support health when ingested in adequate amounts

**Probiotic**

used by the host microbiota to confer health benefits (e.g. chicory root inulin fiber)

- Synergy reduced diarrhea, vomiting, & bowel toxicity

- Prebiotics reduced diarrhea

- **Probiotics**
  - Improved GI symptoms
  - Improved QOL only in survivors after anti-cancer therapies

**Number of Studies**

Diarrhea | Constipation | Gas/Brass | Belly Pain | QOL | Fatigue | Depression | Anxiety
---|---|---|---|---|---|---|---
0 | 1 | 2 | 3 | 4 | 5

**Resources**

- ISAPP Website
- Probiotics Paper
- Pilot Paper
To read the article associated with the above infographic:

Deleemans et al. 2021 systematic review.pdf

NUTRITION/HEALTHY LIFESTYLE

28. Can Food Be Thy Medicine? (May.17/22)

Depending on what you read and who you listen to, this idea of “food as medicine” may seem like an established conclusion from health research … or like an over-hyped phrase promoting unrealistic expectations. The major problem with “food as medicine” occurs when people interpret it to mean that if people eat well, they will never develop a health problem like cancer, or if they do, they can fix it with diet alone.

Research does show that with healthy eating habits, you can reduce risk of cancer, as well as heart disease and diabetes. Such research on the benefits of healthy eating has moved beyond a focus on single nutrients or compounds. And no single food can provide all the protectors that you get from an overall healthy eating pattern. A healthy lifestyle—combining healthy eating with avoiding tobacco, limiting alcohol and getting regular physical activity—can prevent about 42% of today’s cancers. We can significantly decrease the cancer burden in our country. But healthy eating won’t stop it all. The greatest benefit comes when healthy eating habits are combined with healthy lifestyle choices.

https://www.aicr.org/resources/blog/can-food-be-thy-medicine/?utm_medium=email&utm_source=cancer_focus&utm_campaign=5_2022&sl_tc=&sourceid=&eType=EmailBlastContent&emailId=1bf1c438-8a70-4da6-bf78-0b5813ee5e32

COVID-19 UPDATES

30. Here’s The Mask that Can Actually Help Protect You from Getting COVID-19 (May.18/22)

The Centers for Disease Control and Prevention said in a statement on May 24 that some people treated with Pfizer Inc.’s oral antiviral Paxlovid experience “COVID-19 rebound” between two and 8 days after their initial recovery. These people experience a return of their symptoms and/or a new positive COVID test after having tested negative. While this has occurred in unvaccinated people, as well as those who are vaccinated and boosted, it’s not clear how common this is. Currently, this type of rebounding appears to be rare. In Pfizer’s clinical trial, 1-2% of people treated with the antiviral had a positive COVID-19 test — or an increase in the amount of virus detected — after finishing the treatment. However, this type of rebound also occurred in people who received the inactive placebo, so it’s not clear if it is related to the drug, said the FDA. In addition, people in the trial whose symptoms recurred did not have a higher risk of hospitalization or death. Nor were there signs that the coronavirus had developed resistance to the drug. It’s not clear why some people see a recurrence of their symptoms. It may be “part of the the natural history” of the coronavirus that causes COVID-19, the CDC said, independent of whether someone was treated with Paxlovid or was vaccinated or boosted.

New research published in the Journal of Infectious Diseases finds using a **fit-tested N95 mask indoors along with a HEPA air filter system significantly reduces the risk of COVID-19 infections**. Researchers looked at three types of masks: surgical, poor-fitting N95 that failed fit testing, and fit-tested N95 that passed fit testing combined with face shield, gown, and disposable gloves. Using a non-hazardous virus, they assessed the degree of personal contamination with virus aerosol when wearing these different masks. They also analyzed whether a portable HEPA filter enhanced the benefit of PPE to protect the wears against air-carried disease transmission. The findings found only the fit-tested N95 masks had lower viral counts compared to the control group. They also found wearing a fitted N95 mask combined with HEPA filtration and other PPE gear helped bring viral exposure to nearly zero. It’s also important to note that mask fit is the most important factor in how well you’re protected.


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31. Worried About Which COVID-19 Vaccine is Better? Study Finds Getting Three Doses is Key (Jun.3/22)

A study in The BMJ (British Medical Journal) of May 31, 2022, found that three of the same COVID-19 vaccine or a combination of different types work similarly well at preventing infections and hospital admissions. The study also suggests that the number of vaccine doses is key in providing the strongest immune protection as opposed to the combination of vaccine types. **Three doses offer more protection than two.** With the Omicron variant, three doses are even more important given its rapid spread and ability to overcome some of the immune protection offered by vaccination and prior immunity. Over 50 previous studies that looked at protection offered by various combinations of vaccine courses and boosters were reviewed by the researchers. The studies only included mRNA (Moderna and Pfizer-BioNTech) and adenoviral vector vaccines (Johnson & Johnson and Oxford-AstraZeneca). The CDC (Centers for Disease Control Prevention) in October 2021 approved the use of mix-and-match COVID-19 boosters for Americans at high risk of severe illness or infection. Today, they recommend either Pfizer-BioNTech or Moderna as a booster regardless of which vaccine people received initially, including the J&J vaccine.

https://www.healthline.com/health/covid-19-booster-shots-should-you-mix-and-match?slot_pos=article_4&utm_source=Sailthru%20Email&utm_medium=Email&utm_campaign=daily&utm_content=2022-06-07&apid=35071678&rvid=f0f57ad060cbe6bf135009cb5e3a7e953a089292a0ca3a79e2646c111d737f3b

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32. Frequently Asked Questions for COVID-19

**Q:** What is COVID-19 (or novel Coronavirus Disease - 19)?

A: Coronavirus are a large family of viruses that can cause illnesses in humans and animals. Coronavirus can cause illnesses that range in severity from the common cold to more severe diseases such as Severe Acute Respiratory Syndrome (SARS) and most recently, COVID-19. COVID-19 or novel coronavirus originated from an outbreak in Wuhan, China in December 2019. The most common symptoms associated with COVID-19 can include fever, fatigue, and a dry cough. Though additional symptoms have now been linked with the disease, which may include aches and pains, nasal congestion, runny nose, sore throat, diarrhea, skin rash and vomiting. It is also possible to become infected with COVID-19 and not experience any symptoms or feeling ill. The spread of COVID-19 is mainly through the transmission of droplets from the nose or mouth when a person coughs, exhalles or sneezes. These droplets land on surfaces around a nearby person. COVID-19 can be transmitted to that nearby person who may end up touching the surface contaminated with COVID-19 and then end up touching their nose, mouth, or eyes. A person can also contract COVID-19 through inhaling these droplets from someone with COVID-19. Although research is still ongoing, it is important to note that older populations (over the age of 65), those with a compromised immune system and those with pre-existing conditions including heart disease, high blood pressure, lung disease, diabetes or cancer may be at a higher risk of severe illness due to COVID-19.

https://www.who.int/news-room/q-a-detail/q-acoronavirus

**Q:** What can I do to avoid getting Coronavirus?

A: There are various ways in which we can reduce our risk of contracting COVID-19. Below are some measures suggested by the World Health Organization

1. Keep at least 2 metres (or 6 feet) between yourself and other people. This will reduce the risk of inhaling droplets from those infected with COVID-19.
2. Regularly clean your hands for at least 20 seconds with warm water and soap, or an alcohol-based hand rub. This will kill any viruses on your hands.
3. Avoid touching your eyes, nose and mouth. If the virus is on your hands, it can enter the body through these areas.
4. Follow good respiratory hygiene by covering your mouth and nose with a tissue or elbow when you cough and sneeze. This prevents the droplets from settling on surfaces or being released into the air around you.
5. Stay home as much as possible, especially if you are feeling unwell. If you think you may have the Coronavirus, please see “What should I do if I think I have Coronavirus?” section.
6. Please wear a face covering or mask in public when physical distancing is not possible. https://www.who.int/news-room/q-a-detail/q-a-coronaviruses

Q: Are there special precautions that people with cancer can take?
A: People with cancer (and other chronic ailments such as heart disease, diabetes, high blood pressure and lung disease) are at a higher risk of severe illness due to COVID-19 as cancer is considered a pre-existing health issue. Some cancer treatments including chemotherapy, radiation and surgery can weaken the immune system, making it harder for the body to fight infections and viruses, such as Coronavirus. It is important to diligently follow the World Health Organization’s recommendations above to reduce the risk of contracting COVID-19. If you have any concerns about your risk, it is best to contact your doctor or healthcare team.

Will anything change with regards to my cancer related medical visits? As each patient and treatment plan is unique, it is always best to contact your health care provider for updated information about your treatment plan. In some cases, it is safe to delay cancer treatment until after the pandemic risk has decreased. In other cases, it may be safe to attend a clinic that is separate from where COVID-19 patients are being treated. Oral treatment options could be prescribed by your care provider virtually, without the need to attend the clinic. Finally, some follow-up appointments or discussions could be held virtually (via skype or zoom for example) or over the phone to minimize your risk. As we know, conditions and protocols are changing daily due to the nature of the COVID-19 outbreak, and vary based on location, therefore, the best first step is to reach out to your care provider for guidance. https://www.cancer.gov/contact/emergencypreparedness/coronavirus

Should you wish to contact your local public health agency, please see below.

Alberta
COVID-19 info for Albertans
Social media: Instagram @albertahealthservices, Facebook @albertahealthservices, Twitter @GoAHealth
Phone number: 811

British Columbia
British Columbia COVID-19
Social media: Facebook @ImmunizeBC, Twitter @CDCofBC
Phone number: 811

Manitoba
Manitoba COVID-19
Social media: Facebook @manitobagovernment, Twitter @mbgov
Phone number: 1-888-315-9257

New Brunswick
New Brunswick Coronavirus
Social media: Facebook @GovNB, Twitter @Gov_NB, Instagram @gnbca
Phone number: 811

Newfoundland and Labrador
Newfoundland and Labrador COVID-19 information
Social media: Facebook @GovNL, Twitter @GovNL, Instagram @govnlsocial
Phone number: 811 or 1-888-709-2929

Northwest Territories
Northwest Territories coronavirus disease (COVID-19)
Social media: Facebook @NTHSSA
Phone number: 811

Nova Scotia
Nova Scotia novel coronavirus (COVID-19)
Social media: Facebook @NovaScotiaHealthAuthority , Twitter @healthns, Instagram @novascotiahealthauthority
Phone number: 811

Nunavut
Nunavut COVID-19 (novel coronavirus)
Social media: Facebook @GovofNunavut , Twitter @GovofNunavut, Instagram @governmentofnunavut
Phone number: 1-888-975-8601

Ontario
Ontario: The 2019 Novel Coronavirus (COVID-19)
Social media: Facebook @ONTHealth, Twitter @ONTHealth, Instagram @ongov
Phone number: 1-866-797-0000

Prince Edward Island
Prince Edward Island COVID-19
Social media: Facebook @GovPe, Twitter @InfoPEI,

Quebec
Coronavirus disease (COVID-19) in Québec
Social media: Facebook @GouvQc, Twitter @sante_qc
Phone number: 1-877-644-4545

Saskatchewan
Saskatchewan COVID-19
Social media: Facebook @SKGov, Twitter @SKGov
Phone number: 811

Yukon
Yukon: Find information about coronavirus (COVID-19)
Social media: Facebook @yukonhss, Twitter @hssyukon
Phone number: 811